AGASTYA INTERNATIONAL FOUNDATION
SUPPORTED BY R. JHUNJHUNWALA FOUNDATION & OTHERS

In Partnership with

SYNOPSYS®
Accelerating Innovation

Anveshana
BUILDING BRIDGES TO DISCOVER

Student Projects Technical Record

Released on the occasion of

Science & Engineering Fair of Selected Projects

At

Shikshakara Sadhana, Mysore bank circle

On

25th, 26th & 27th February 2020

Organized by

Agastya International Foundation

In support with

Synopsys

Bengaluru-Karnataka

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FOREWORD

Anveshana is a unique Science & Engineering networking platform involving groups of undergraduate Engineering students and less-privileged school students. It is an interesting intersection where, the bachelor students would be selected to work on socially relevant projects and develop models based on Science and Engineering concepts, with the mandate to mentor the school kids on their working principles and innovations. This process entails that, the school students who work with engineering student groups, must be able to inculcate the spirit of inquiry, understand the project concepts and explain their applications to the audience at the event in an eloquent manner. The best team which exhibits proper mentoring, better understanding of the basics and operational mechanisms, including novel solutions for real-time issues, shall be declared winners by the elite panel of Jury. The whole association would not only make the budding engineers explore ingenious solutions for societal requirements, but also make them good mentors towards training younger kids to become inquisitive learners. The interactions of the teams with general public would also make the groups more proactive and open-minded for critical analysis. The notable positive aspect is that, the school kids would involuntarily be exposed to true learning environments, which would motivate them become practical thinkers. This on-going successful experiment of M/s Agastya Foundation, since 2012, is truly very laudable, and my association with the ignited minds at Team Anveshana indeed very memorable. The submission from my end would be that, select working prototypes that have received accolades during the program should necessarily be provided relevant handholding from industry partners, so as to be taken forward for needful market applications and commercialization support. The hope for tomorrow is that, the urge of developing technological solutions, by our engineers, to the real-life issues in our ecosystem, would be best realized through such noble ventures and creative activities!!

Dr.Nagendra, Ph.D.
Professor& Head,
Department of Bio technology,
Sir M Visvesvaraya Institute of Technology,
Bangalore-562157

ABOUT AGASTYA INTERNATIONAL FOUNDATION

Email: agastyaadmin@gmail.com | phone: +91-80-2354 5054 / 4112 4132

Introduction

Founded in April 1999, Agastya is a charitable education trust that runs the world's largest mobile hands-on science education program for economically disadvantaged children and teachers. By making practical, hands-on science education accessible to rural government schools, Agastya aims to transform and stimulate the thinking of underprivileged children and teachers.

Agastya Vision:

Creatively skilled rural India..
Entrepreneurially-enabled..
Improving the environment to..
Sustain it for future Generations....

Mission of Agastya

Infuse and propagate a creative tempter in disadvantaged rural children and teachers through:

- **Experiential, hands-on science education**
- **Teacher training and education**
- **Scalable, sustainable and environment-friendly methods**
- **Art and Ecology**

Agastya's mission to unlock the creative potential of poor children and teachers across India is being achieved through:

- 100 + Mobile Labs which take hand-on science education and digital literacy to the village doorstep.
- 45 Science Centers catering as science resource hubs for surrounding schools and communities.
- 105 + Lab in a Box sets which nurtures a high impact and participatory learning experience for students and teachers.
- 245 Operation Vasantha Centres, community run program to provide remedial classes for students and drop-outs.
- 172- Acre Creativity Lab campus in Andhra Pradesh (2 hours from Bangalore) which houses science, art, astronomy

Agastya has reached over 5 million children and 200,000 teachers in 14 states, and is supported by scientists and educators In the country.

The Prime Minister's National Knowledge Commission (has recommended the Agastya model for nationwide dissemination, http://knowledgecommission.gov.in/downloads/recommendations/PMLetterM&S.pdf) and the Clinton Global Initiative has commended Agastya for its long term "commitment to action."

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How Agastya International Foundation has positively affected the lives of disadvantaged children:

Rote-based, didactic and uninspiring education in India has deprived over 250 million disadvantaged children of the tools to overcome poverty. Instead, it has produced education apathy, a high dropout rate and youth that lack skills and confidence, creative-thinking and problem-solving abilities. Most schools do not have labs. Opportunities for participative, hands-on learning that sparks curiosity, and stimulates and empowers children and teachers are almost non-existent. Teacher training is divorced from the realities of the school classroom. Seeing little value in education, rural parents prefer to send their children to work in farms, thus perpetuating a cycle of poverty.

Operating one of the largest hands-on science education programs in the world, Agastya offers disadvantaged children access to dynamic hands-on education that makes learning fun, awakens curiosity, encourages questioning, enhances understanding, and fosters creative-thinking, problem-solving and communication skills.

Agastya's vision of 'a creative India' - 'tinkerers, creators, and solution-seekers ...humane, anchored and connected' – is being achieved through its mission to spark the creative temper among millions of disadvantaged children. Using experiential and hands-on, child-centric learning, teacher education and scalable methods, Agastya aims to bring about a shift in five vital behaviors - 'Yes to Why,' 'Looking to Observing,' 'Passiveness to Exploring,' 'Text-book to Hands-on,' and 'Fear to Confidence'

Agastya Creativity Lab at Gudivanka Village, Kuppam, Andhra Pradesh, India

Agastya's unique 172 acre 'Creativity Lab' is at Gudivanka Village, Kuppam, Andhra Pradesh, India. The Campus or "factory of ideas", boasts several labs dedicated to hands-on learning activities in science, maths, ecology, media and art. Over the years, the Campus has played host to esteemed educators, scholars, researchers, academicians and dignitaries from various domains. In addition to subject specific labs, the Campus houses a Discovery Center which houses life size interactive models, Center for Creative Teaching (CCT) which prepares Agastya instructors and rural Govt. Teachers, an Art Lab, a Media Lab, an open air Ecolab and a Robotics Lab. The latest developments include 'Guru-Gruha' Astronomy center, VisionWorks' model-making workshop, Library and IT Centre, Performing Arts Centre and an Innovation Hub.

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Third Party Impact Studies:

MHRD study on 2048 children from 256 schools

- 70% + children and teachers welcome Agastya &demand increase in interventions
- Enriches and fills gap in the curriculum
- Increases interest in Science; Gives insight into
- Scientific methods
- Promotes concept retention and development
- Increase in Creativity, Problem-solving and
- Leadership skills among Young Instructor Leaders (YIL's)

Best Practices Foundation study of 1348 children in Karnataka

- Provides professional development for teachers
- 100% increase in Awareness of alternative learning methods
- 100% increase in Motivation to study science
- 50% to 100% leap in Curiosity

Achievements and Recognitions

- Received humanitarian prize money from former President of India, Dr. A.P.J. Abdul Kalam.
- Agastya partners with Dr. Kalam in Darbhanga, Bihar through the Mobile Lab program
- Featured on "Amazing Indians", Times Now News Channel
- Agastya wins Google Impact Awards in India for the revolutionary TechLaBike project.
- Agastya's 'commitment to action' was recognized by the Clinton Global Initiative in 2008
- The Prime Minister's National Knowledge Commission recommended the Agastya model for India-wide scale-up
- Agastya nominated to list of 100 Global Innovators in April, 2013 by Rockefeller Foundation

Looking Forward...

Increase in college admissions, participation in science projects and competitions; demand for school labs and hands-on learning, and national interest in Agastya programs indicate that Agastya is positively impacting the lives of disadvantaged children.

"The lesson we derive out of the Agastya experience is that innovative and student friendly solutions are needed to enable scientific learning in the youth, especially those in rural and remote regions of the nations of the world."

– Former President of India, Dr. Abdul Kalam

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By clicking on the following links you can

Watch the Agastya Mobile Lab in action: http://www.youtube.com/watch?v=v7B0tf61jFc

Like us on FaceBook – https://www.facebook.com/Agastya.Foundation

Follow us on Twitter – www.twitter.com/AgastyaSparks

ABOUT SYNOPSYS

Corporate Background

Synopsys, Inc. (NASDAQ:SNPS) provides products and services that accelerate innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor intellectual property (IP), Synopsys' comprehensive integrated portfolio of system-level, IP, implementation, verification, manufacturing, optical and field-programmable gate array (FPGA) solutions help address the key challenges designers face such as power and yield management, system-to-silicon verification and time-to-results. These technology leading solutions help give Synopsys customers a competitive edge in quickly bringing the best products to market while reducing costs and schedule risk. For more than 25 years, Synopsys has been at the heart of accelerating electronics innovation with engineers around the world having used Synopsys technology to successfully design and create billions of chips and systems. The company is headquartered in Mountain View, California, and has approximately 90 offices located throughout North America, Europe, Japan, Asia and India.

- See more at: http://www.synopsys.com/Company/AboutSynopsys/Pages/About.aspx#sthash.GSEbLS7b.dp uf

ABOUT ANVESHANA

Anveshana Program is structured around the concept of **mentoring,** "catch them young" and
"Facilitate the inquisitive minds".

"Mentoring is a process for the informal transmission of knowledge, social capital, and the psychosocial support perceived by the recipient as relevant to work, career, or professional development; mentoring entails informal communication, usually face-to-face and during a sustained period of time, between a person who is perceived to have greater relevant knowledge, wisdom, or experience (the mentor) and a person who is perceived to have less (the protégé)" (source: http://en.wikipedia.org/wiki/Mentorship).

The program looks at Involving school students to provide an opportunity to work with engineering students to find solutions for the encountered social problems.

The program envisaged to bring together students from various underprivileged schools and Engineering colleges in respective locations in and around Delhi NCR – in a collaborative platform (Anveshana).

Engineering colleges will participate as teams with 2 members. The teams will select 2 students from nearby underprivileged schools (Govt. and Govt. aided schools) to **mentor** them to design and build models or projects around an identified social problem. In the process school children would directly get the opportunity to work together with more qualified under-graduates, and a chance to 'learn' the basic principles (along with hands-on skills on diverse products and interesting processes). The interaction with Juries and dignitaries would be a life-time experience for them to cherish. The school students thus will be exposed to entire planning, designing and building process of the models and in turn will get educated in the scientific and engineering concepts behind the models in Anveshana-2016**. (www.anveshana.org)**

Process of Anveshana (Engineering Fair & Competition):

• Initial Screening of Engineering College Teams: Concept synopsis based on social problems and related Engineering solutions are invited from engineering college teams for prescreening by the jury.

• Screening, selection of Synopsis and identifying mentees: Once selected the teams are asked to contact local schools with underprivileged status and to form school student teams to plan, design and make the models, while collaborating and mentoring the high school students.

• Model Creation and Quality Check by Agastya team: Students will create knowledge networks between them, their peers and with external resource persons to create

conceptual and methodological framework to create the models. Here, Agastya teams along with assigned senior resource persons (senior educators, engineers etc.) will visit the colleges to assist the teams conceptually and in the making of the models while providing inputs including scientific and technological inputs. One of the main reasons for these visits is to assure the quality of the collaboration and teaching-mentoring-learning outcomes.

• Conceptual- Technological advice from Agastya: Agastya will also help the teams to establish links between prominent institutions like Indian Institute of Science, Institution of Engineers, Indian Institute Technology etc. –in case they need any technological or conceptual inputs.

• Anveshana Fair begins: The models thus made will be exhibited in Anveshana Engineering fair where the teams would be presenting the same in front of an expert Jury for Judgment. During the fair, students display their research projects, working models and present their findings orally and through written journals to the Jury (mostly a team of scientists and educators). The judging process involves series of interactions on the concepts, methodology and objectives of the projects done by the students.

• Delegates attending the fair: After the judging process students from various schools and delegates representing various institutions are also expected to attend the fair. Delegates attending the event will include scientists and educators from large number of institutions across Hyderabad.

• Valedictory: Prizes will be awarded at a valedictory function –towards the end of the fair.

ANVESHANA MILESTONES

2011 - 12 Anveshana launched in Bangalore

2012 - 13 Anveshana 2nd Edition in Bangalore

2013 - 14 Anveshana 3rd Edition in Bangalore

Anveshana Launched in Hyderabad

2014 - 15 Anveshana 4th Edition in Bangalore

Anveshana 2nd Edition in Hyderabad

2015 - 16 Anveshana 5th Edition in Bangalore

Anveshana 3rd Edition in Hyderabad

Anveshana Launched in NCR-Delhi

2016 - 17 Anveshana 6th Edition in Bangalore

Anveshana 4th Edition in Hyderabad

Anveshana 2nd Edition in NCR-Delhi

2017 – 18 Anveshana 7th Edition in Bangalore

Anveshana 5th Edition in Hyderabad

Anveshana 3rd Edition in NCR-Delhi

2018-19 Anveshana 8th Edition in Bangalore

Anveshana 6th Edition in Hyderabad

Anveshana 4rd Edition in NCR-Delhi

Anveshana Launched in Mumbai

2019-20 Anveshana 9th Edition in Bangalore

Anveshana 7th Edition in Hyderabad

Anveshana 5rd Edition in NCR-Delhi

Anveshana 2nd Edition in Mumbai

PROJECT SCREENING COMMITTEE

MG Subramanian

MG Subramanian is an Advisor to Agastya International Foundation. He enjoys going around project sites-namely colleges where Anveshana projects are in progress interacting with young mentors and younger mentees pointing out the immense opportunities to teach and learn, to wonder and innovate.

He is an engineer from IIT Madras and a PGDM from IIM Calcutta with a long experience in manufacturing, product, business development and Human resources development. He acknowledges the value of a mentorship and attributes all his successes in life to his mentors .He says Anveshana success is inevitable!

Dr. H. G. Nagendra

Dr. H. G. Nagendra is Professor and Head at the Department of Biotechnology, Sir MVIT, and Bangalore. He holds a doctorate degree in Biophysics from IISc, Bangalore, and was a recipient of the BOYSCAST Post-doctoral Fellowship (DST) from Cambridge University, UK. He has 16 years of teaching and 20 years of research experience, and has authored 26 international publications in various journals. His research interests include protein bioinformatics and structural biology of neurodegenerative peptides. He has made more than 54 presentations at various conferences / seminars as an invited speaker, and has conducted more than 32 conferences / seminars / workshops.

Dr. M Govindappa

Name:	Dr.M Govindappa
Qualification	MSc, MPhil, PhD, PDF (USA)
Research Publications	06 National 52 International
PhD guidance	03 students awarded (6 students pursuing)
Guided for	BE, M.Tech and MSc students for their academic project work
Membership	For various biotechnology bodies
Reviewers	For various journals
Editor for	International Journal of Multidisciplinary Research

INVITATION

AGASTYA INTERNATIONAL FOUNDATION
SUPPORTED BY R. JHUNJHUNWALA FOUNDATION & OTHERS

In Partnership with

SYNOPSYS

Presents

Anveshana
BUILDING BRIDGES TO DISCOVER

An initiative to bridge the gap between schools and engineering colleges to develop innovation and creativity through mentoring

INVITATION
SCIENCE & ENGINEERING FAIR 2020

26th Feb 2020

Welcome Address : 10.40 am
Sri. Ramji Raghavan
Chairman,
Agastya International Foundation

Inauguration & Keynote Address
10.50 am
Dr. Pradip Dutta
Group VP and MD - India & Srilanka
Synopsys

Anveshana Book Launch : 11.00 am
Sri. S R Umashankar IAS
Principal Secretary,
Primary and Secondary Education,
Government of Karnataka

"100 times Curious"
Book Launch: 11.10 am
Dr. V K Aatre
Scientist & Former Head of DRDO

Members of Jury Panel
Prof R M Vasagam
Former Senior Scientist ISRO,
Former VC Anna University

Sri. B U Chandrashekar
Principal Engineer, Solution Group
Synopsys

Sri Vivek Shenoy
Advisor, Agastya International Foundation

27th Feb 2020

Welcome Address : 3.00 pm
Sri. Sai Chandrashekar
Operations Head,
Agastya International Foundation

Certificate to Winners : 3.10 pm
Sri. Gopalakrishna
Director , Samagar Shikasha Karnataka
Bangalore

Vote of Thanks : 3.40 pm
Ms. Deepa Kamath
Sr. R & D Manager, Design Group
Synopsys

Contact: 94495 96365
94808 87970
87924 79019

Venue: Shikshakara Sadana, Opp Kaveri Bhavan, K.G. Road, Bengaluru - 560 009.

PROGRAM CHART

25th February 2020		
3 pm to 4 pm	**Student Registration (full team should be present)**	
4 pm to 5 pm	**Briefing about Anveshana**	
5:00 PM	**Tea/snacks & break**	**will be served in the venue**
7.30 pm	**Dinner for participants**	
26th February 2020		
8 am to 8.45 am	**Breakfast for participants**	
10 am to 11 am	**Inaugural Function**	
11 am to 1 pm	**Model Judging Process Begins**	
1 pm to 1.30 pm	**Lunch for participants**	
1.30 pm to 4.30 pm	**Models Judging continues**	
4:30 pm	**Tea/Snack Break**	
6.30 pm to 7. 30 pm	**CULTURAL ACTIVITY**	
8 pm	**Dinner for participants**	
27th February 2020		
8 am to 8.45 am	**Breakfast**	
10 am to 1 pm	**Anveshana Fair**	**Open to School Students & Visitors**
1 pm to 1.30 pm	**Lunch for participants**	
1.30 pm to 3.45 pm	**Anveshana Fair**	**Open to School Students & Visitors**
4 pm to 5 pm	**Valedictory Function**	
5 PM	**Tea/Snack Break**	**will be served in the venue**

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1. EFFECT OF MAGNETIZED RAIN WATER

COLLEGE	Amruta Institute of Engineering and Management Science, Bidadi
GUIDE NAME	Mrs. Vidya B.R
COLLEGE STUDENTS	Guru raj patil, Kiran S Nayak, Nishchith Patel G.B
SCHOOL STUDENTS	Amulya, Sagar 9th S.V.R.H.S Byramangala Bidadi

ABSTRACT:

The effect of magnetized water on compressive strength of concrete was studied. This test was carried out was two different grades of concrete which are M25, M40 for this grades of concrete mixes were prepared by using magnetized harvested rain water, the compressive strength test were carried out for the different grade of concrete it was found out that concrete produced by magnetic technology it is easy to operate without affecting the compressive strength of the concrete. In early ages, the increase in compressive strength of concrete prepared with magnetic water was more significant.

HYPOTHESIS:

Concrete properties are highly influenced by water quantity and its quality in the concrete mix. As recommended by IS code for the use of portable water in a concrete mix, potable water is becoming scarce day by day due to sudden increase in the urbanization and population. As water is becoming scare to meet the day to day demand of

The living beings, use of potable water for concrete mix should be substituted by an alternate source of water, At present research is going on usage of seawater and treated wastewater as mixing water in concrete making, but majority of research findings indicate. That the usage of 100% sea and treated waste water gives major ill effect in concrete both at early and later ages and strength of concrete is less compared to normal water concrete. So research is to be focused to produce a concrete which uses the sea and treated waste water as mixing water in a concrete without showing any ill effects in the concrete. Some researcher investigation the influence of treated magnetic waste water and magnetic soft water on a compressive strength of concrete is studied. The strength studies shows that magnetic water concrete also behaves like a normal magnetic concrete developing very high strength at early ages and less strength at later ages. One such technique is using magnetized harvested rain water. For manufacturing of concrete in this technology by passing water through a magnetic field.

METHOD:

CEMENT:

Locally available 53 grade ordinary Portland cement (OPC) has been used in the present investigation for all concrete mixtures. The cement used was fresh and without any lumps.

FINE AGGREGATE:

In the present investigation, river sand available in the local market was used as a fine aggregates the physical properties of fine aggregate such as gradation, specific gravity and bulk density were tested in accordance with IS: 2386-1963 Parts 1 to 8 "Methods of test for aggregates for concrete"

COARSE AGGREGATE:

In the present investigation, coarse aggregate available in the local market was used as coarse aggregates the physical properties of coarse aggregate such as gradation.

MAGNETIC WATER:

Magnetic water is prepared by retaining water in a glass beaker over a circular magnet of 985 gauss which is obtained from scientific store. The magnetic water is obtained by placing the beaker filled with water over the magnets for a period of 24 hours. During this time magnetic field penetrates through the glass into the water, which absorbs the magnetism and this magnetized water is used for making concrete.

EXPERIMENT:

Compressive strength:

This investigation is carried out to study workability and the compressive strength of M25 and M40 grade of normal water concrete (NWC) and Magnetic water concrete (MWC) cured in harvested rain water at 7 and 28 days.

Test methodology: C

Concrete was mixed with and without magnetic water and the concrete cubes of 150mm*150mm*150mm were casted and tested to study the compressive strength.

Table 1:- harvested rain water and magnetized harvested rain water quality analysis result

SL.NO	Parameters	Harvested rain water	Magnetized rain water
1.	pH	6.8-7	7-7.2
2.	TDS mg/l	55-90 mg/l	20-30 mg/l
3.	Sulphate mg/l	1.8-2.8 mg/l	1.2-1.5 mg/l
4.	Bicarbonate mg/l	40-75 mg/l	30-50mg/l
5.	Calcium mg/l	50-85 mg/l	40-70 mg/l
6.	Magnesium mg/l	1-2 mg/l	0.5-1 mg/l
7.	Chloride mg/l	80-120 mg/l	40-50 mg/l

Table 2:- compressive test for M25 and M40 concrete

SL NO	CONVENTIONAL WATER		HARVESTED RAIN WATER		MAGNETIZED RAIN WATER	
	7 days	28 days	7 days	28 days	7 days	28 days
M25	18.86	25	19.61	25.71	20.10	26.5
M40	27	40	27.50	42.30	29.00	45

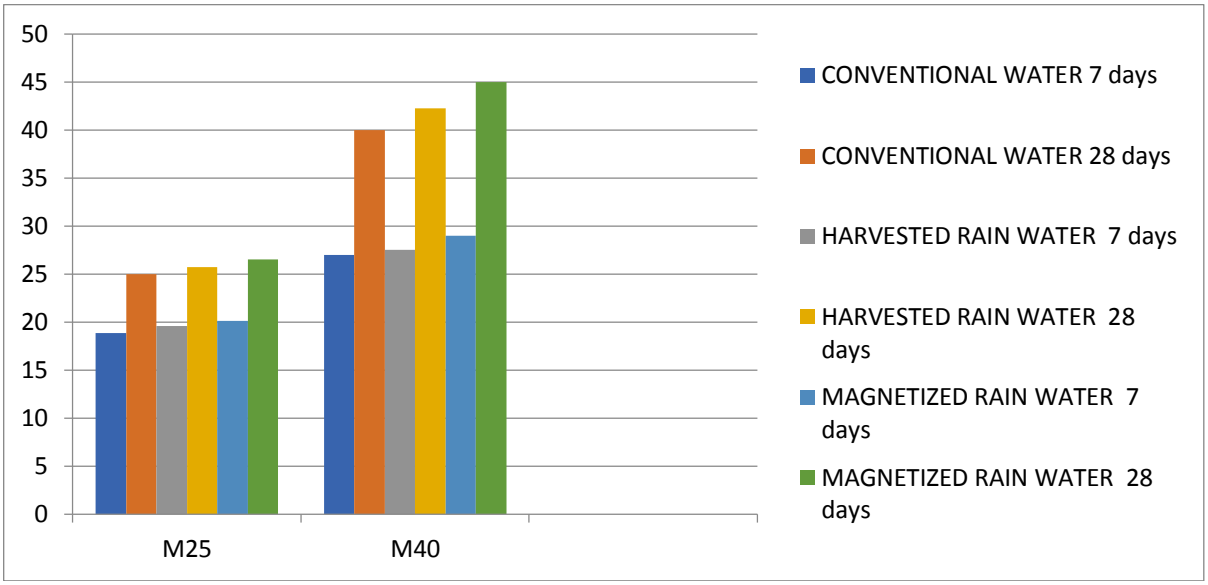
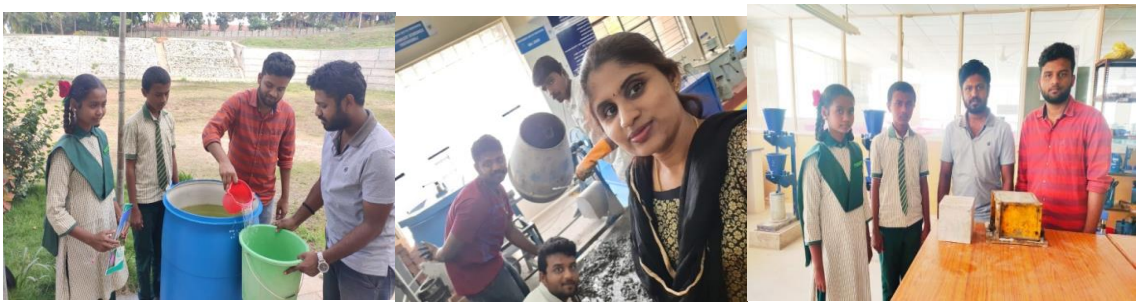


Fig 1: Compression test for M25 and M40 concrete

SUMMARY:

- Identify the alternative water sources as mixing in concrete and assessment of water quality and their influence on concrete properties.
- Use magnetic harvested rain water changes the calcium carbonate equilibrium in water and tries to disperse carbonate precipitate in the solution, thus reducing the scale formation on pipe walls and other industrial equipment.
- The concrete prepared by magnetized harvested rain water will be cost effective environmentally accepted and required low maintenance for the devices.
- The concrete prepared by magnetized harvested rain water will be improvement in the workability and compressive strength of the concrete.

PHOTOS:



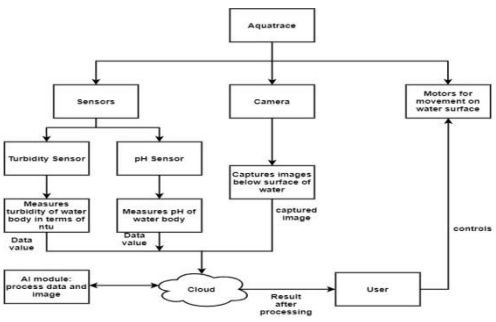
2. AQUA TRACE

COLLEGE	BNM Institute of Technology
GUIDE NAME	Dr.Sejal Santosh Nimbhorkar
COLLEGE STUDENTS	Meghana R, Namitha S, Nikhitha Guru raj
SCHOOL STUDENTS	Chatrabhaddur P, Pallavi M 8th Std , Government Higher Primary School, Kathriguppe

ABSTRACT:
Industrialization and urbanization have contributed immensely to the degradation and pollution of the environment which has adversely affected our water bodies (lakes and rivers) that is a necessity for life. In this project we monitor the changes in lakes by considering two main parameters turbidity and pH of ponds and trying to look deeper into these waterbodies to get a glimpse of the pollution level and its ecosystem. This helps in saving and protecting them from further pollution, also to keep track of the conditions of the restored lakes.

HYPOTHESIS:
Turbidity affects the growth rate of algae and other aquatic plants in streams and lakes because increased turbidity causes a decrease in the amount of light for photosynthesis. Turbidity can also increase water temperature because suspended particles absorb more heat. These factors lead to a decrease in dissolved oxygen. Turbidity can also affect how well aquatic life can see or function underwater. Excessive turbidity is known to clog the gills of fish, interfere with their ability to find food
If the pH of water is too high or too low, the aquatic organisms living within it will die. pH can also affect the solubility and toxicity of chemicals and heavy metals in the water . The optimum pH levels for fish are from 6.5 to 9.0. Outside of optimum ranges, organisms can become stressed or die
Water pollution affects plants and organisms living these waterbodies If the water body is polluted its lead to the decrease in the amount of these organisms hence the density of ecosystem indicates the pollution level

METHOD:



EXPERIMENT:
Aqua trace is a microcontroller based lake monitoring system which consists mobile part that is designed for measuring quantifiable parameters such as turbidity and phof the lake.

Turbidity Measurement is one of the key tests in water quality monitoring. Turbidity means the quantity of suspended particles in water which makes the water look cloudy. Turbidity sensors measure the amount of suspended particles. It works on the principle of refraction of wavelength between photo transistor and diode. Ph. is the measure of how acidic or basic the water is. PH sensor works on the fact that interface of two liquids produces a electric potential which can be measured These sensors are interfaced with controller. It is also equipped with camera that captures images of objects and living organisms within the lake. With these pictures we can monitor the ecosystem of the lake or river. The results are then processed in cloud using which appropriate messages are sent to user. The mobile part consists of motors and propellers which is controlled by the user as required.

SUMMARY:

Water is most essential for existence of every organism and there is no alternative way we can synthesis water artificially. Presently there are many different lakes and rivers that are under restoration but it is very necessary to keep it in good condition thereafter monitoring it regularly and the lake in the verge of entering polluted list are to be monitored to save and preserve it from getting more polluted this thought has given rise to Aqua trace. Aqua trace brings together latest technology of IoT and environmental concern monitoring the waterbody to lend a helping hand to preserve and protect our water bodies.

TEAM PHOTOGRAPH:

3. UNMANNED AGRICULTURAL VEHICLE

COLLEGE	Channabasaweswara Institute of Technology,Gubbi
GUIDE NAME	Prof.Natesh C P
COLLEGE STUDENTS	Sharath Kumar B M , Theertha Kumar A S
SCHOOL STUDENTS	Harsha K, Syed mehadi

ABSTRACT: Insects are fundamentally accountable for the crop damage. Insecticides or pesticides, a human made or natural planning are used to kill insects or control their limitations. These insecticides, pesticides, and nourishments are applied to agricultural crops with the benefit of a special device known as a "Sprayer," sprayer make available optimum performance with least efforts. The invention of a sprayer, insecticides, fertilizers, bring revolt in the agriculture or horticulture division especially by the invention of sprayers, allow farmers to obtain maximum agricultural output. They are used for garden spraying, unwanted plant and pest control, liquid fertilizing and plant leaf polishing. There are many advantage of using sprayers such as calm to operate, maintain and handle, it helps uniform spread of the chemicals, accomplished of throwing chemicals at the preferred level, precision made nozzle tip for adaptable stream and capable of propelling foggy spray.

Renewable Energy is generally defined as energy that comes from long lasting resources. The most Abundant and unlimited energy is obtained from the Sun. As solar energy is one of the most significant non-conventional sources of energy.

HYPOTHESIS:

- ECO friendly (Because we are using solar power and charged battery for operation)
- Easy to construction.
- More economical.
- Easy to clean and maintain.
- Its works on renewable energy source called solar energy.
- It does not create air pollution & noise.
- Easy to handle.
- Does not required fuel for working hence cost reduce for operation.

METHOD: Study of the problems statement: The problems associated with the manual operated spraying machine are rectified and designed a new machine to overcome those problems.

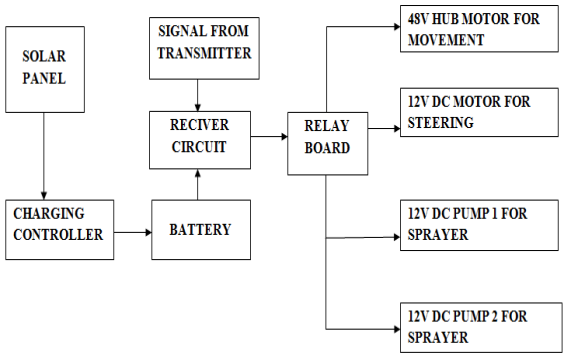
Solid Model: The model is designed using CAD software AUTODESK INVENTOR and AUTO CADD.

Selection of motor calculation: Selection of the motor is a major problem because it depends on the torque required and weight to be pulled, by using formals the motor has been selected. The battery selection also places an important role the required power is delivered to the system by the battery.

Selection of material: The preferable material for a vehicle is the initial and most important criteria for automotive design. In this we used Mild Steel bar alloy as a base material for chassis it will provide maximum strength and minimum deflection compared to other chassis material. Analysed design of chassis is selected which has robust design and best suitable for agricultural works.

Fabrication: The selected Materials are fabricated by using permanent joints as well as temporary joints. All the components are fitted and connected as in electronic circuit.
Demonstration and troubleshooting: It is aimed more at an agricultural land by spraying long distance. The studies demonstrated that each stage have potential to be the most cost effective solution to perform well in agricultural land

EXPERIMENT: This project operates on solar energy. The concoction is accomplished by the use of solar panel, a centrifugal pump which runs on dc supply is attached to the solar panel the solar panel generates the power that power is dc power its positive and negative charges are connected to a batter in order to save the power and use it when the sun raise are not present by using this device we can spray pest ices to the herbs and plants and any agriculture spraying it is economical as compared to the other means used like petrol/diesel pesticides sprayers. There is no much maintenance cost and no operating cost as it is using solar energy it is free of cost and there is no pollution its working principal is very simple and the it is economical of the farmers which has one more advantage that it can also generate power that power is saved in the battery and it can be used for both for spraying and well as to light in the house when there is no current supply. And where as in rainy season when the sun rays are not there that time we can charge the battery and use it to spray pesticides to the herbs and plants as compared to petrol/ diesel it is economical no efforts to human just he has to carry the device the device is light in weight so it is much feasible.



MODEL IMAGES:

SUMMARY:

The proposed system is very efficient and can be used in agricultural field very effectively. This technology is most suitable for Energy Alternate Device for power sprayers. This system is user friendly and also environment friendly as it doesn't produce any pollution. Also this robot can be used at very remote place where fuel and power are not available. As this sprayer is economical than that of the conventional engine operated sprayers. Moreover the same technique and technology can also be extended for all types of power sprayers.

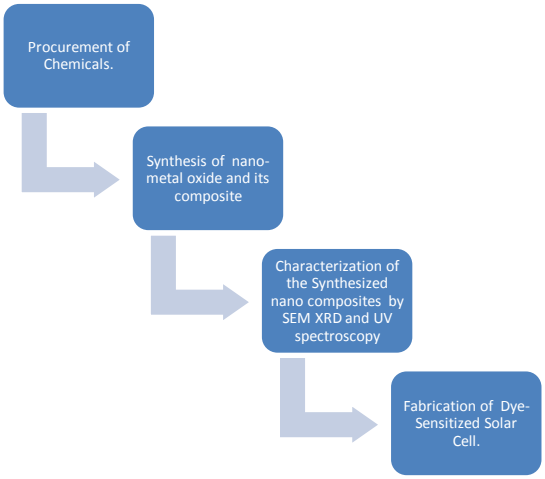
4. PHOTO ORGANIC CELL USING PUNICA GRANATUM

COLLEGE	Dayananda sager College of Engineering
GUIDE	Prof.Deepa H A
COLLEGE STUDENTS	Sheetal M Prasad, A Ravichandra, Sonali, Ritwik Mukherjee
SCHOOL STUDENTS	Kruthika,Likhitha

ABSTRACT: In the present research work, the most abundantly available renewable energy source, solar energy is utilized for the development of efficient Dye sensitized solar cells (DSSC) using an organic dye extracted from Punica Granatum (Pomegranate) and a novel Nano-composite. A Dye-sensitized solar cell is a new kind of relatively low-cost solar cell with great potential as its materials are cheaper and it is simple to make. A DSSC functions due to the interaction between cell's anode and the cathode, and the Nano particles coated with light sensitive dye and surrounded by electrolyte. The present work emphasizes on the synthesis and characterization of Nano-metal oxide and Nano-composite. It also involves fabrication of photo organic DSSC by coating titanium dioxide and titanium dioxide-zinc oxide Nano-composite on the photo anodes and evaluating their performance.

HYPOTHESIS: Energy is the prime mover of economic growth and is vital to the sustenance of modern economy. Future economic growth crucially depends on the long term availability of energy from the sources that are affordable, accessible and environmental-friendly. The increase in global population has led to the energy crisis and it is inevitable for us to utilize the renewable energy resources.

METHOD:



EXPERIMENT:

1) SYNTHESIS OF TITANIUM DIOXIDE NANOPARTICLE

- In the present work, TiO_2 nanoparticles were prepared by the combustion synthesis of solution of a titanium precursor with water and glycine as a fuel.
- Titanium tetra-but oxide was a starting reagent for TiO_2 synthesis.

- An aqueous solution of the titanium precursor was prepared using distilled water and 1:1 Nitric acid.
- Stoichiometric proportion of fuel was added to the solution which acts as an aid for combustion.
- The solution was then put into the hot air furnace where the entire content is charred at about 400˚C.
- The charred matter was then cooled and it was scrapped out into a crucible
- The crucible was again kept in hot air oven for about two hours at a high temperature about 550˚C.
- The calcined sample was then ground
- All the reagents used are of.

2) SYNTHESIS OF TiO_2-ZnO COMPOSITES

Stoichiometric amount of titanium tetra butoxide as the starting reagent, distilled water and 1:1 nitric acid was taken in Petri dish (I) and titanium nitrate solution was prepared.

- This solution was in the form of a coagulated gel type matrix which has to be grounded using glass rod until uniform size.

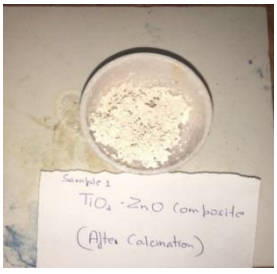
PART 2:

- In another Petri dish (II) equivalent amount of zinc nitrate was taken
- To this glycine solution was added which acts like a fuel for combustion.
- This entire mixture was stirred well and poured into Petri dish (I).

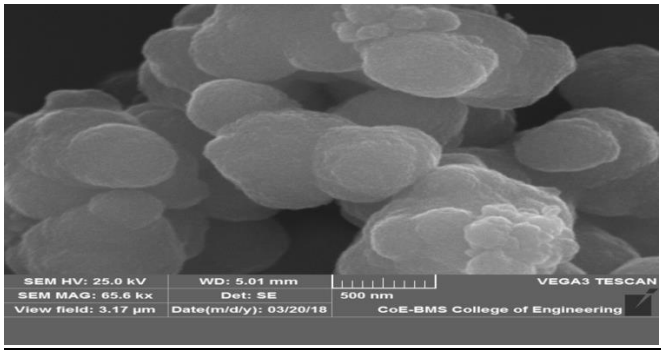
PART 3

- The solution was then heated in a hot air oven for 10-15 minutes until the entire content is charred with dissipation of smouldering gases.
- The charred content was then allowed to cool and then carefully scrapped into a clean and dry crucible.
- The crucible was then calcined in a hot air oven at temp about 500˚C for two hours to obtain homogenous single phase end product.

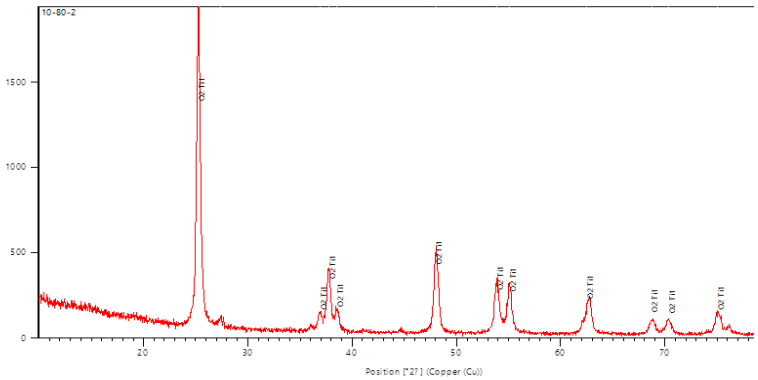
- Wed to cool.



CHARACTERIZATION OF NANO-PARTICLES



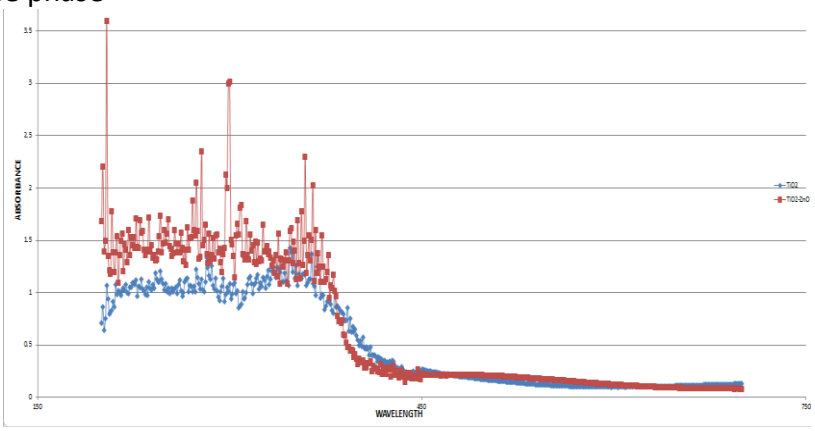
SEM image of TiO_2



XRD image of TiO_2

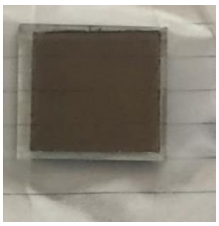
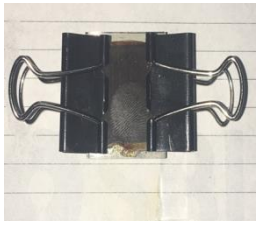
The XRD image of TiO2 perfectly matched with JCPDS card no 84-1286

The diffraction peaks at 25.30,37.78,47.88,54.50 and 63.32 are ascribed to the crystallographic structure anatase phase

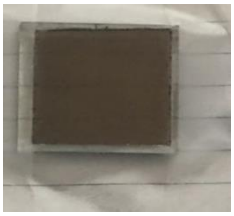
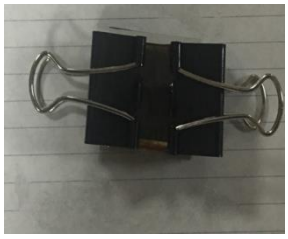


U V Spectroscopy of TiO_2,TiO_2-ZnO

FABRICATION OF DYE SENSITIZED SOLAR CELL:

Tio_2-Zno coated electrode Counter electrode Tio_2-Zno coated solar cell

Tio_2 coated electrode Counter electrode Tio_2 coated solar cell

SUMMARY:

- TiO_2 and TiO_2-ZnO nanocomposite were synthesized using Combustion Synthesis method
- Synthesized nanoparticles and their composites were characterized using SEM, XRD, UV Spectroscopy and EDX.
- Dye sensitized solar cells were fabricated with TiO_2 and TiO_2-ZnO nanocomposite and their performances were compared.
- The voltage for TiO_2 was found to be 0.3V where as for the TiO_2-ZnO nano composite it was 0.52V. This clearly states the TiO_2-ZnO composite has better photo conductance than TiO_2.
- The Band Gap Energy for TiO_2-ZnO nano composite was found to be 2.82 eV while for TiO_2 it was 3.025 eV which indicates that TiO_2-ZnO has better ability of light absorption when compared with TiO_2.

TEAM PHOTO:


5. PLANT DISASE DETECTION ROBOT

COLLEGE	G M Institute of Technology,K.M Doddi,Mandya
GUIDE	Prof.Pradeep
COLLEGE STUDENTS	Anusha,Vaishali,Navya shree,Archana
SCHOOL STUDENTS	Harshitha,Likhitha 9th Std,Bharathi high school,

ABSTRACT: In this project an automated system has been developed to determine whether the plant is normal or diseased. The normal growth of the plants, yield and quality of agricultural products is seriously affected by plant disease. This project attempts to develop an automated system that detects the presence of disease in the plants. An automated disease detection system is developed using sensors like temperature, humidity and color based on variation in plant leaf health condition. The values based on temperature, humidity and color parameters are used to identify presence of plant disease.

HYPOTHESIS: The proposed system consists of temperature, humidity, and color sensors for collecting data from plant leaves. The data collected from the leaves consists of current environmental factors like temperature, humidity and color. The changes that a plant undergoes are captured by the temperature humidity and color sensors and analyzed with the Arduino software from which the information is communicated to the farmers. The cloud platform that we have used is the www.thingspeak.com. The collected data in the cloud platform is then compared with the dataset in order to detect whether the leaf under consideration is normal or affected.

METHOD: The proposed system consists of temperature, humidity, and color sensors for collecting data from plant leaves based on variation in temperature, humidity and color of plant leaves. The data collected from the leaves consists of current environmental factors like temperature, humidity and color. The changes that a plant undergoes are captured by the temperature humidity and color sensors and analyzed with the Arduino software. The data collected from temperature, humidity and color sensors are given to Arduino UNO kit from which the information is communicated to the farmers. The system makes use of Wi-Fi shield in order to send the data from the host system to the cloud platform for analysis. The cloud platform that we have used is the www.thingspeak.com. The collected data in the cloud platform is then compared with the dataset in order to detect whether the leaf under consideration is normal or affected.

- Data acquisition: Here we take samples of different leaves as the input. These leaves are then sensed by the sensors to determine different parameters based on which it is recognized to be healthy or diseased.

- Temperature sensors: The DHT11 is a basic, ultra low -cost digital temperature sensor. It uses a capacity humidity sensor and a thermistor to measure the surrounding air, and spits out a digital signal on the data pin (no analog input pins needed). We use the DHT11 to sense the temperature on the surface of leaf to determine whether it is healthy or diseased.

- Humidity sensor: The DHT11 is a basic, ultra low-cost digital humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air, and spits out a digital signal on the data pin (no analog input pins needed). We use the DHT11 to sense the humidity on the surface of leaf to determine whether it is healthy or diseased.

• Color Sensor: The TCS3200 is a programmable color light-to-frequency converter/sensor. The sensor is a single monolithic CMOS integrated circuit that combines a configurable silicon photodiode and a current-to frequency converter. The output is a square wave (50% duty cycle) with frequency directly proportional to light intensity (irradiance). We use the DHT11 to sense the color of leaf to determine whether it is healthy or diseased.

• Arduino: The Arduino UNO is a widely used open source microcontroller board based on the ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits.] The board features 14 Digital pins and 6 Analog pins. It is programmable with the Arduino IDE (Integrated Development Environment) via a type B USB cable. It can be powered by a USB cable or by an external 9volt battery, though it accepts voltages between 7 and 20 volts. Here we are using the Arduino in order to process that that is being collected from the sensor through the Arduino IDE.

• Cloud platform: Here we make use of "Thing Speak" cloud platform to send the sensed data to the cloud. This data sent is plotted against the graph to view the change in the temperature, humidity and the color. Depending on the data that is plotted against the graph we see if the values fall into the same range. If they do so then the leaf is healthy or else it is diseased.

Advantage:

There is a programmable color light-to-frequency converter/sensor. We use the DHT11 to sense the color of leaf to determine whether it is healthy or not.

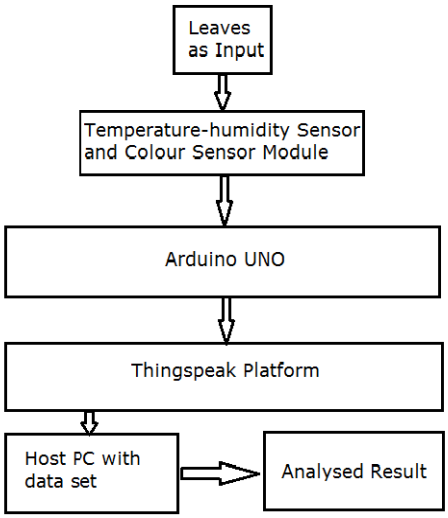


FIG: Proposed Work

Leaf	Minimum Temperature in Degree Celsius	Maximum Temperature in Degree Celsius	Obtained Temperature in Degree Celsius	Healthy Or Diseased
1	20	30	47	Diseased
2	20	35	31	Healthy
3	23	35	49	Diseased
4	22	36	56	Diseased
5	21	35	26	Healthy
6	20	35	59	Diseased
7	22	34	28	Healthy
8	29	35	49	Diseased
9	28	38	28	Healthy
10	20	35	45	Diseased

Table 1: Temperature sensor values

Leaf	Minimum Humidity value	Maximum Humidity value	Obtained Humidity value	Healthy Or Diseased
1	20	52	26	Healthy
2	31	53	91	Diseased
3	20	63	92	Diseased
4	20	62	25	Healthy
5	22	52	93	Diseased
6	23	52	25	Healthy
7	20	53	92	Diseased
8	21	64	95	Diseased
9	20	55	93	Diseased
10	21	60	91	Diseased

Table 2: Humidity sensor values

Leaf	Minimum Colour value			Maximum Colour value			Obtained Colour value			Healthy or Diseased
	Red	Green	Blue	Red	Green	Blue	Red	Green	Blue	
1	-20	10	20	10	45	40	-16	39	23	Healthy
2	76	94	68	82	119	68	114	115	80	Diseased
3	109	115	91	114	124	97	142	115	80	Diseased
4	125	136	102	131	141	108	142	64	23	Diseased
5	10	20	20	30	50	30	22	34	23	Healthy
6	93	107	87	93	124	91	190	111	85	Diseased
7	82	94	68	87	98	68	109	124	119	Diseased
8	85	100	70	88	130	78	255	136	68	Diseased
9	80	115	102	83	120	105	66	39	57	Diseased

Table 3: Color sensors values

	Actual class (observation)	
Predicted class (expectation)	Tp (true positive) Correctly predicted	fp (false positive) Unexpected predicted

Table.4: Performance evaluation

Precision is then defined as:

$$\text{Precision} = tp / tp + fp$$

SUMMARY: The agricultural robot developed is capable of detecting the disease and monitoring the field condition by moving around the field. It will continuously alert the farmer by sending the SMS so that farmers can take the appropriate action.

6. SOLAR PESTICIDES GRASS CUTTER

COLLEGE	G M Institute of Technology,K.M Doddi,Mandya
GUIDE	Prof.Umesha B C
COLLEGE STUDENTS	Smitha,Pallavi
SCHOOL STUDENTS	Poornima,Keerhana 9th Std,Bharathi high school,

ABSTRACT:

The ultimate aim of this project is to design, develop and fabricate of pesticide sprayer and grass cutter machine operated by solar power. The design is optimized with respect to size and shape. The functional and unfuncational areas required material thickness is adopted and also uilization of solar energy by using effective solar charger device. Less weight and high strength wheels were used for locomtion. This project metholodology is initially identified the problems faced by framers and money spend to cultivate the crops. A few major problems are cutting weeds, unwanted grass etc in field and more manpower utilization for sprayer pesticides. To these issues, this project has designed , developed and fabricated the machine low cost solar operated cutting operation and spraying of pesticides. The design concept was made by using CATIA software. The Complete 3D digital model was done and validated the design. Later, optimized machine was fabricated by required material thickness and proper manufacturing approach. The fabricated machine was tested and works effectively and efficiently.

HYPOTHESIS:

Agricultural sector is changing the socio-economic environment of the population due to liberalization and globalization. About 75% people are living in the rural area and are still dependent on agriculture. As Indian population is growing continuously, the demand for producing crop per hector is also increasing this requires efficient and high-capacity machines. So mechanization in agricultural industry plays an important role in Indian economy. In current generation most of the countries do not have sufficient human factor in agriculture sector and it affects the growth of developing countries.

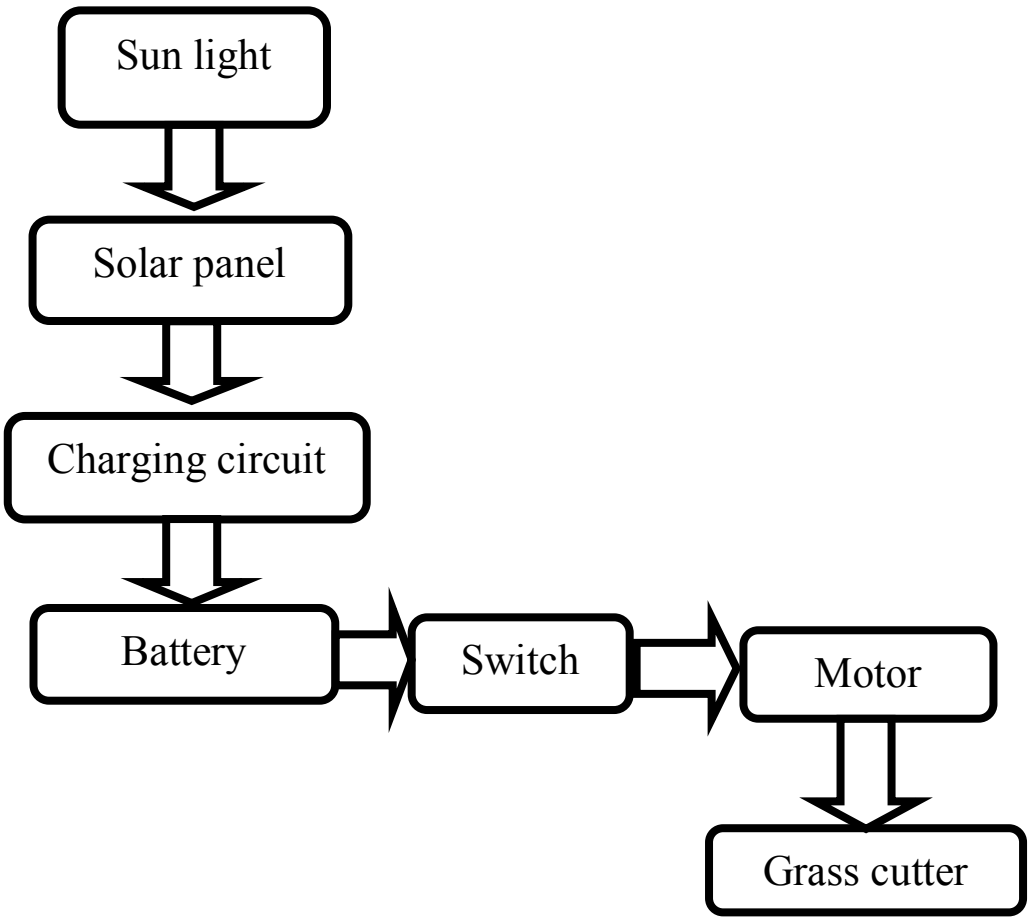
There are many low-cost options to keep your energy bill low and to make homes, even industries as energy-efficient. One of the major option is to go for most abundant solar energy source to power up homes and industries. Over the past few years usage of solar power utilization is increased significantly and is expected to grow rapidly in the coming years. As cleanest and more sustainable energy, solar energy system is familiar with a wide variety of applications like solar power plants, spacecraft, home appliances, handheld calculator and so on.

In its simplest form, all that is required for a solar power system is a panel to collect the sun's energy and a battery to store that energy. When the sun is shining, the panel will produce a voltage higher than that of the battery, causing the battery to be charged. Most panels will include a blocking diode (an electrical component that will only allow electricity to pass in one direction) ensuring that the battery does not discharge through the panel when the sun is not shining. A connection can be taken from the battery to provide a low voltage direct current for use.

This system could be used to power a small piece of equipment in a location where there is no power. Sun radiations are incident on the solar panel. Solar panel consist of photovoltaic cells convert this solar energy in to the electric energy. Further this current generated by the solar cells is supplied to the battery via electric wires. One controller is placed between the solar panel and the battery which control the current which is supplied to battery. This battery is removable so after fully charged it can be removed and placed in the sprayer. In this way charging is done.

METHOD AND EXPERIMENT:

The working principle of solar grass cutter is it has a panel arrangement at an in such a way that can receive solar radiation with high intensity easily from the sun. The solar panel converts solar energy into electrical energy. This electrical energy is stored in batteries by using a solar charger. The main function of the solar charger is to increase the current from the panel while batteries are charging. The motor is connected To batteries through connecting wires. Between these mechanical circuit breaker switch is provided. It starts and stops the working of the motor. From this motor, power transmits to the mechanism and this makes the blade to rotate on the shaft this makes to cut the grass. Fig. shows circuit diagram of solar operated grass cutter. Above fig shows Working principle of solar grass cutter circuit diagram.



Block diagram of solar grass cutter

The system consists of solar panel, charging unit, pump and sprayer. The solar panel delivers an output in the order of 12 volts and 20 watts power to the charging unit. The charging unit is

used to strengthen the signal from the solar panel. The charging unit delivers the signal which charges the battery. According to the charged unit, the pump operates, such that the pump works. Here fertilizer can be stored in tank. When the sun rays are falling on the solar panel electricity will be generated through the solar cells and stored in the battery. By the electric power in the battery the pump operates and therefore fertilizers from the tank is sprayed out through the sprayers. There is no maintenance cost and operating cost as it is using solar energy and no pollution problem

SUMMARY:

Agriculture is backbone for India economy. At present problem is availability of man power and economic methods for agriculture. In this view, this project has designed, developed and fabricated machine which can perform two operations such as cutting grass and spraying pesticide by using renewable source of energy and low cost that is solar power. This machine was tested in field and found satisfactory and gives effective and efficient results.

7. SELF BALANCING ELECTRIC BIKE

COLLEGE	HMS Institute of Technology
GUIDE	Prof.Zaheer Ahmed Shariff
COLLEGE STUDENTS	Md.Sameer,Md.Sadiq,
SCHOOL STUDENTS	Kamalanath,Roopesh Kumar 9th std,GHS Kyatasandra

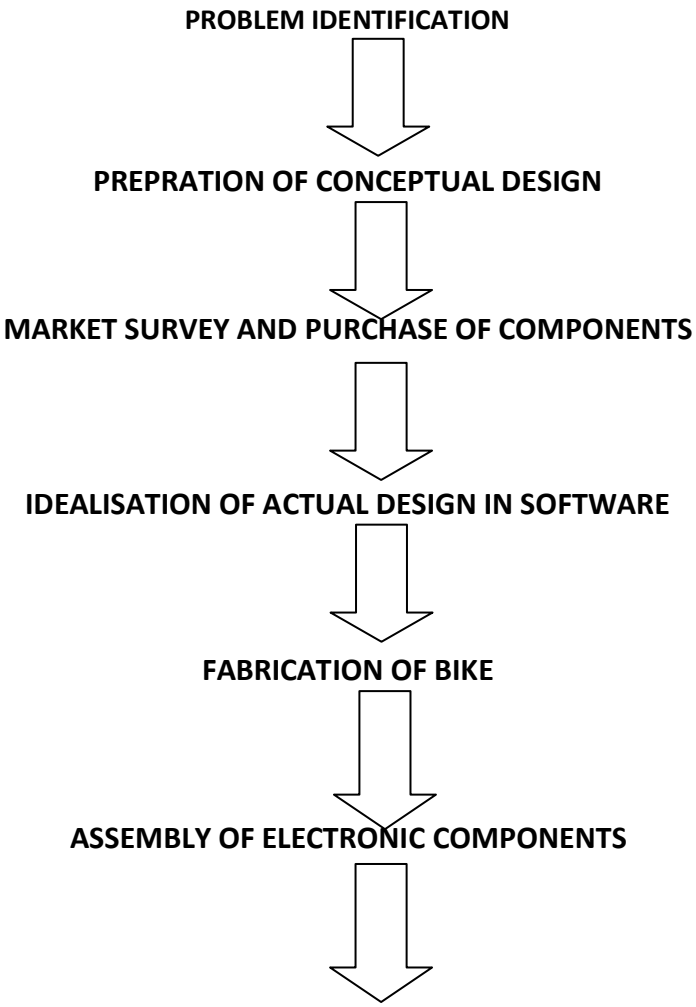
ABSTRACT:

The project is about the designing of a two wheeler self-balanced car. The two wheeler vehicle would be able to balance itself and can be stabilized against any impact and in zero velocity as well. We used two heavy rotating disks with hub motors at the chassis to compensate the tilt of the vehicle and get it stabilized. An android device is used to measure the tilt angle of the chassis using orientation sensor. The data then is sent to a Bluetooth receiver that is connected with an Arduino. An android application is developed which takes the angle of tilt of the vehicle as data input from the phone and sends a control signal to the Arduino accordingly. Using the signals the vehicle is balanced by controlling the motor from the Arduino which determines the tilt direction of the rotating disks. This vehicle is designed to provide the safety that two wheeler vehicle does not have during an impact. Our aim is to design a safe, cost effective and fuel efficient vehicle.

HYPOTHESIS:

Two wheeler vehicles are the essential part of transportation, bicycle, bikes and other vehicles are everywhere and we can say that they are one of the important parts of human needs. The transportation vehicles that are made today haven't changed from many years, means they constantly needs a rider to ride it or to balance it. Balancing a two wheel vehicle is a hard task as compare to the four wheel vehicle (cars). There are lots of innovations ongoing in the field of transportation as cars become electric, smart and safe, but at same time they are expensive too and not everyone can afford it. In other hand two wheeler bikes are cheap and most efficient way of transportation but because of lack of innovation they still need rider(human) to balance it, which means motorcycle constantly need human balance and ride it. Apart from that any transportation vehicle needed lots of fossil fuel which after burned emits carbon and it is harmful for our environment and causes pollution. Also balancing a bike on two-wheel without human interaction can achieve with the help of principle of gyroscope. Gyroscope is use everywhere from balancing large ship to space shuttle, the application of gyroscope is vast. So in this paper we can understand the mechanism for constructing Inline two-wheel electric bike which can balance itself with the help of gyroscope and how we can made our transportation safer than ever and prevent accident, all by using the self-balancing bike electric bike.

METHOD:



SUMMARY:

This is a two wheeler vehicle has many more safety features than motorcycles which make it more reliable. Safety is one of our top priorities with this vehicle. However, the most important safety feature is our gyro stability system. This will keep the vehicle upright even in a collision, preventing the vehicle from flipping or rolling. On the other hand it will also protect the passenger from rain, wind, dust as it is a covered vehicle. It will also be more comfortable than any other motorbikes at the same time will require a very small space of parking. The idea of two wheeler self-balanced vehicle is new. The vehicle is designed considering cost effectiveness and fuel efficiency factors.

The force experienced due to the tilt of rotating wheels depends on the RPM of the wheel, the weight of the wheels and the angle of tilt.

- The higher the RPM, the bigger the counterforce. That means the counterforce is much larger when the RPM of the hub motor is larger.

- The direction of rotating wheel tilt determines the force direction of when spinning is in a particular direction.

- Weight attached to hub motor helps to stabilize the balancing.

- The more the tilt angle, the more force is needed to stabilizes the chassis.

8. SEA SAND CONCRETE FOR GREEN INDIA

COLLEGE	Mangalore Institute of Technology and Engineering, Mangalore
GUIDE	Dr.Jayaprakash M C
COLLEGE STUDENTS	Chaitra taranath,Harshitha C H
SCHOOL STUDENTS	Sharanta,Dhruthi,9th Std Govt High school,Sooda

ABSTRACT: The rapid growth in development of construction industry is leading to an increase in utilization of natural resources like river sand due to which there has been a much scarcity in availability for construction. This overuse should be balanced by introducing certain abundantly available other natural materials which can be replaced to the river sand. In current situation river sand accumulation is very low due to the over mining of sand. The sea sand seems to have certain similar properties and can be used as a constituent of concrete. This can be reduce the river sand replenishment and decrease various ecological imbalances. Coconut shell are a type of agricultural waste which can be converted into useful material. Therefore, this study was conducted to investigate the properties of concrete which uses coconut shell charcoal(CSC) filler material. The CSC was grounded into a fine powder before use. In the present work a series of tests were carried out to make comparative studies of various mechanical properties of concrete mixes prepared by using sea sand. This study is to experiment the suitability to use sea sand as a substitute for river sand as a fine aggregate for concrete.

HYPOTHESIS: B. Naga Niranjan Kumar, et,al(2010), "An Experimental Study on Sea Sand by Partial Replacement of Sea Sand in Concrete" . In this work a series of tests were carried out, to make comparative studies of various mechanical properties of concrete mixes prepared by using Sea Sand.

Experiments

Details	Weight in gms
Empty weight of density bottle (W1)	32
Weight of density bottle+ Water (W2)	59
Weight of density bottle+ Kerosene+cement(1/3) (W3)	90
Weight of density bottle kerosene(W4)	71
Weight of bottle +water(W5)	82
Specific gravity(G)=(W2-W1)(W4-W1)/((W4-W1)-(W3-W2))(W5-W1)	2.63

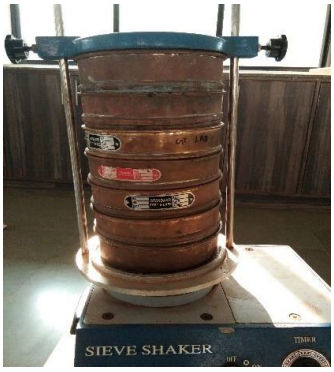
Specific Gravity Test (IS: 2386 (part 3)-1963)

Details	Weight in gms
Weight of pycnometer, W1(gms)	501
Weight of fine aggregate+ pycnometer, W2(gms)	1014

Weight of fine aggregate+ Water + pycnometer, W3(gms)	1867
Weight of water +pycnometer,W4(gms)	1540
Specific gravity (G)	2.75

Specific gravity of fine aggregate, Sieve Analysis Test

Sl No	Sieve size in mm	Empty Weight retained (In gms	Weight of Sieve +agg,W2 (gm)	Weight of aggregate retained(W)	% of retained	Cumulative %retained	% passing
1	4.75	430	430	0	0	0	100
2	2.36	380	380	0	0	0	100
3	1.18	320	320	0	0	0	100
4	0.6	270	280	10	2.5	2.5	97.5
5	0.3	340	580	240	60	62.5	37.5
6	0.15	310	450	140	35	97.5	2.5
7	pan	230	240	10	2.5	100	0



Sieve analysis: Fineness modulus = (Σ cumulative % of weight retained)/100= (262.5)/100= 2.625

Details	Weight in gms
Weight of pycnometer, W1(gms)	501
Weight of CSC + pycnometer, W2 (gms)	1014
Weight of CSC+ water+pycnometer,W3(gms)	1530
Weight of water +pycnometer,W4(gms)	1540
Specific gravity (G)	0.98

Sieve Analysis Test

Sl No	ieve size in mm	Empty Weight retained (W1) in gms	Weight of Sieve +agg,W2 (gm)	% of retained	Cumulative %retained	% passing
1	4.75	432	432	0	0	100
2	2.36	372	372	0	0	100
3	1.18	323	325	2	2	98
4	0.6	273	210	37	39	61
5	0.3	339	360	31	70	30
6	0.15	323	341	18	88	12
7	pan	247	259	12	100	0

IS Sieve Size	% of Retained	Cumulative % Retained	% of Passing
40	0	0	100
20	0	0	100
12.5	23.5	23.5	76.5
10	70.53	94.03	5.97
Pan	5.97	100	0

Sl.No	% of concrete replaced	Weight of partially compacted concrete, W_2	Weight of fully compacted concrete,W_3	Mass of partially compacted concrete, W_2-W_1	Mass of fully compacted concrete, W_3-W_1	C.F= $\frac{W_2-W_1}{W_3-W_1}$
1	0	22.14	23.15	11.730	12.74	0.92
2	2	21.94	22.90	11.530	12.49	0.92
3	4	21.770	22.730	11.36	12.32	0.92
4	6	21.880	22.750	11.470	12.340	0.92
5	8	21.370	22.730	10.960	12.320	0.88
6	10	21.330	22.860	10.920	12.450	0.87

Compression test on cubes

Conventional concrete for M25 grade

Days	Block No.	Compressive Strength (MPa)
14	Block 1	26.74
	Block 2	25.62
28	Block 1	31.40
	Block 2	30.98

No	centage of CSC added	Split Tensile Strength at 14 days(N/mm^2)	Split Tensile Strength at 28 days(N/mm^2)
1	0%	2.50	3.11
2	2%	2.24	2.7
3	4%	2.19	2.61
4	6%	2.13	2.50
5	8%	2.00	2.13
6	10%	2.07	2.24

SUMMARY: Concrete is the most popular building material in the world. River sand has been the most popular choice for the fine aggregate component of concrete in the past, but overuse of the material has led to environmental concerns, the depleting of securable river sand deposits and a concomitant price increase in the material. Therefore, it is desirable to obtain cheap, environmentally friendly substitutes for river sand that is preferably sea sand. The main motive of this project is to utilize the sea sand as fine aggregate in concrete for construction after the removal of chloride content from the sea sand. The corrosion making

properly that called chloride content can be eliminated from the sea sand by using natural sand washing process. In this study, Coconut Shell Charcoal was added into concrete mixes in varying percentages (0%, 2%, 4%, 6%, 8% and 10%). The coconut shell was grounded into a fine powder before use. In the present work a series of tests were carried out to make comparative studies of various mechanical properties of concrete mixes prepared by using Sea Sand. So in the present study, an attempt has been made to assess the suitability of Sea sand in concrete making. Cubes and cylinders were casted and tested for compressive strength and Split tensile strength after 14 days and 28 days. This study is to experiment the suitability to use sea sand as a substitute for river sand as fine aggregate for concrete. Traditionally, river sand has been the main source of supply but the restrictions now imposed by the Green Tribunal because of environmental degradation considerations has led to investigations into alternate sources.

However, when economy demands, it is used. Practically speaking, the aggregates are good to use as long as they are in compliance with respective codes of practice.

9. BLOOD BANK AUTOMATION "A LIFE".

COLLEGE	Mangalore Institute of Technology and Engineering, Mangalore
GUIDE	Prof.Padma Prasad
COLLEGE STUDENTS	Sanjat T R,Shruthi V Srujana
SCHOOL STUDENTS	Chinmayi Varma,Sharadhi SDM High school Ujire

ABSTRACT: The main scenario of the proposed concept is to reduction of time and to get more accuracy while testing the blood group in the hospital. Blood grouping is done so far clinical process. Hospitals and blood banks are concerned a number of blood samples have to be identified within a short of span of time. The clinical process is a laborious and time consuming. On an average, lab technicians take 10 min to identify the blood group, but if a person met with an accident and if doctor takes 10 min to find out the blood group it may lead to the death of patient.

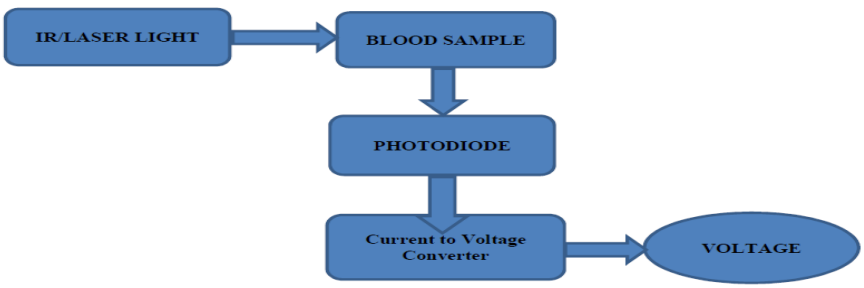
This device provides an easy and fast means of identification of blood group. The light from the pulsating IR LED is passed through the blood sample and transmitted light is then detected, conditioned and is converted into voltage signal. The variation in the intensity of the given signal due to the absorption of blood for different blood groups is translated into corresponding voltages changes, to classify the blood groups. Blood group is detected through their respective voltages.

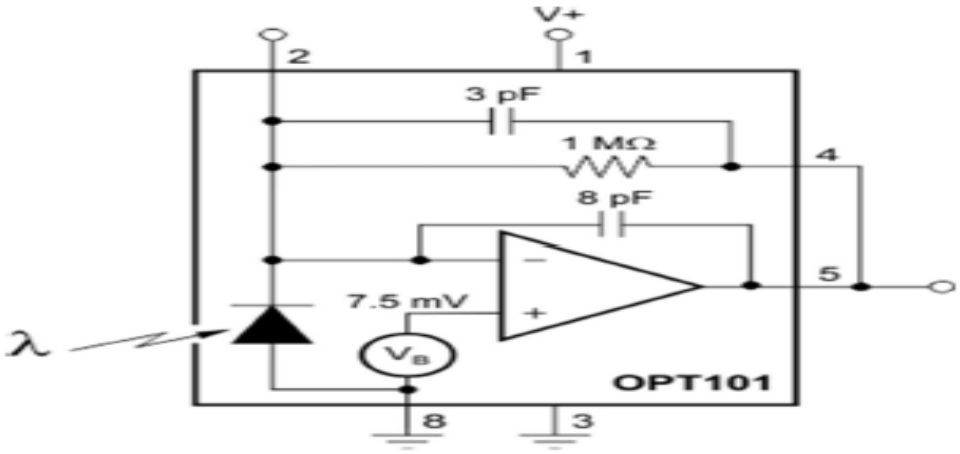
METHOD:

- **IR/LASER:** The infrared light or LASER light is made to fall on the blood sample.

- **Blood Sample:** As the light falls on the Blood sample the reflected light from the blood is made to fall on the photodiode OPT101.
- **OPT101:** It is a Tran's impedance amplifier which consists of photodiode and current to voltage converter and gives the respective voltages.

Block diagram





-Internal circuitry of OPT101-

Experiments

VOLTAGE LEVEL FOR DIFFERENTS BLOOD GROUP:

(As we measured for few blood samples, we obtain these voltage values)

BLOOD GROUP	VOLTAGE LEVELS
A	**0.2-0.6**
B	**0.9-1.2**
O	**1.5-1.9**
AB	**1.4-1.5**

SUMMARY:

At presently tests are conducted by lab technicians manually in the laboratory. When the test is done by technicians with large samples it becomes monotonous to do and sometimes it leads to incorrect results and even its time consuming to get the result. In current clinical system detection of blood group requires 10 minutes. In our proposed system blood groups are detected within a minute. This proposal is to reduce the physical work to identify the blood group.

This product can replace the manual system in laboratories which brings major changes. Healthcare as customer care in industries, since this product can be used as one of the components in first aid, helps in many of the emergency cases. Hence medical sectors will also be our customers.

DISTRIBUTION CHANNEL IDENTIFICATION:

- Providing awareness with respect to our instrument in the blood donation camps.
- By giving proposal to hospital about the introduced system.
- Proposing about a new instrument to the government and hence creating awareness.
- By introducing the system in First Aid Box of various vehicles so that it will be a great help when there is any kind of accidents.

PRODUCT DIFFERENTIATION w.r.t. COMPETITION & JUSTIFICATION:

• At presently tests are conducted by lab technicians manually in the laboratory. When the test is done by technicians with large samples it becomes monotonous to do and sometimes it leads to incorrect results and even its time consuming to get the result.
• In current clinical system detection of blood group requires 10 minutes. In our proposed system blood groups are detected within a minute.
• This proposal is to reduce the physical work to identify the blood group.
• The tested blood sample had a good accuracy rate.

TEAM PHOTO:

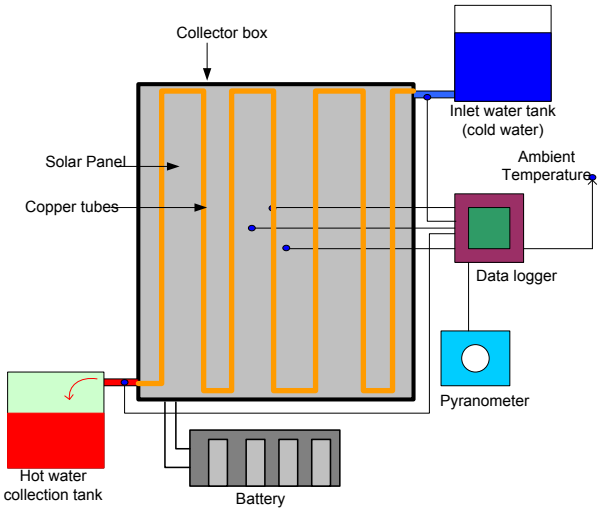
10. HYBRID PVT SYSTEM FOR RURAL

COLLEGE	R.L Jalappa Institute of Technology,Doddaballapura
GUIDE	Prof.Jagannath Reddy
COLLEGE STUDENTS	Sai Ranjith Reddy,Rajendra G
SCHOOL STUDENTS	Nithin Kumar,Chethan Kumar

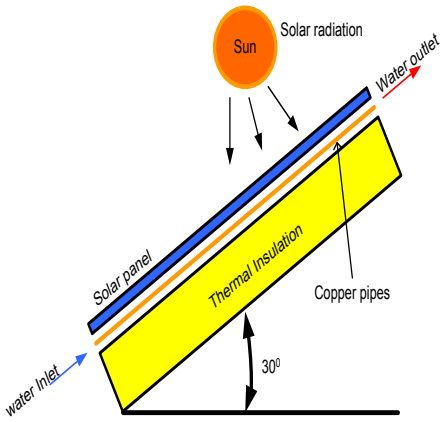
ABSTRACT: Solar energy is the most important source of renewable energy. Solar panel converts light energy into electrical energy directly. It converts 25 percentage of irradiation into electrical energy. One of the major problems in solar panel is increase in the panel temperature which leads to decrease in efficiency. For every one degree rise in temperature above the normal operating temperature there will be 2.2 mV reductions in the output voltage. Cooling the panel is the only way to overcome this problem of temperature rise. The paper presents a solution focused on increasing efficiency of photovoltaic module by reducing losses due to warming photovoltaic cells. The solution consists in a water cooling system applied to the back of photovoltaic module. This hybrid system produces dual energy output in the form of electrical energy and thermal energy. By using cooling system can increases the efficiency of the PV panel in terms of electrical energy. The application of hybrid system can be used in rural and urban areas for residential purpose and domestic purpose. Moreover present working system for hot water and electricity generation is separate and this kind of system requires more space to install the both systems. The uniqueness of this project is minimizing the rooftop surface or area to install the hybrid system. This hybrid system is cost effective and space effective system. In this project, experimental investigation will carried out to study the performance of PV panel with using water cooling system. PV modules show temperature increase during their operation due to the absorption of solar radiation, as most of it is converted into heat and not into electricity. Hybrid Photovoltaic/Thermal (PV/T) solar systems combine a simultaneous conversion of solar radiation in electricity and heat. These devices consist of PV modules and heat extraction units mounted together, by which a circulating fluid of lower temperature than that of PV modules is heated by cooling them. The water cooled PV/T systems consist of metallic heat exchanger placed at PV module rear surface, by which water circulating through pipes is heated. The system performance depends on the PV operating temperature and for lower values of its higher levels of electricity and heat can be obtained.

HYPOTHESIS: A hybrid Photovoltaic/Thermal (PV/T) solar system can simultaneously provide electricity and heat, achieving a higher conversion rate of the absorbed solar radiation than that of a standard PV module. This system consists of a PV module coupled with water or air heat extraction devices. Hence the solar panel temperature can reduce and increase the life of solar panel.

METHOD: The proposed project is hybrid Pvt System for solar water heating for the rural and urban areas by using solar panels to generate electricity and thermal energy for the need of residential buildings. The proposed methodology described in the schematic diagram with components used for the proposed project. The fig 1 and 2 represents the schematic diagram of hybrid PVT system and Table 1 shows the instrument details.



Schematic diagram of proposed project work Hybrid PVT System.

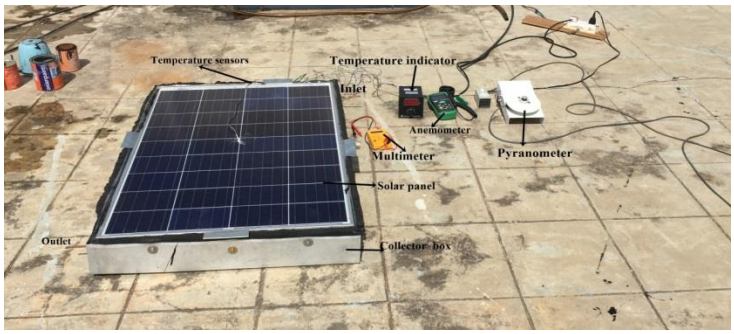


Schematic diagram of Side view of

Specification of Instruments

Sl.no.	Name of the Instrument	Unit	Range	Purpose
1.	Pyranometer	W/m^2	0 to 2000 W/m^2	To measure the solar radiation
2.	RTD PT 100 sensors	^0C	-40 to 200^0C	To measure the temperature
3.	Anemometer	m/s	0 to 50 m/s	To measure wind speed
4.	Multi-meter	Volt & Amp	0 to 10A 0 to 750Volt	To measure the voltage and current
5.	12 channel indicator	^0C	Temperature indicator	Temperature indicator

EXPERIMENT: The experimental setups mainly consist of a hybrid PVT system and storage tanks. Hybrid PVT System consists of a collector and a PV cell. The collector is fabricated in a wooden box of 100×67×21cm. The inner part the box is insulated using glass wool. At the inner bottom surface of the box. The TMS is placed at the middle part of the box on top of which a set of copper pipes of diameter 0.635cm are installed adjacent to the TMS for water circulation. The experimental photograph of the test section is shown in fig.2.

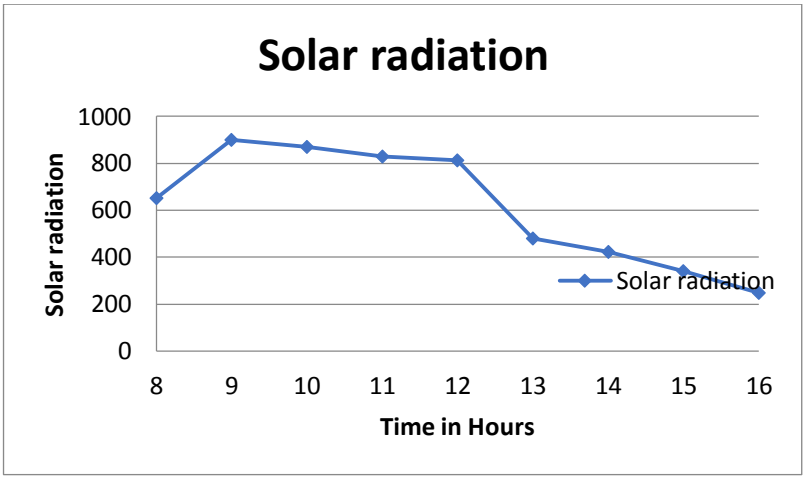


Photograph of Experimental setup

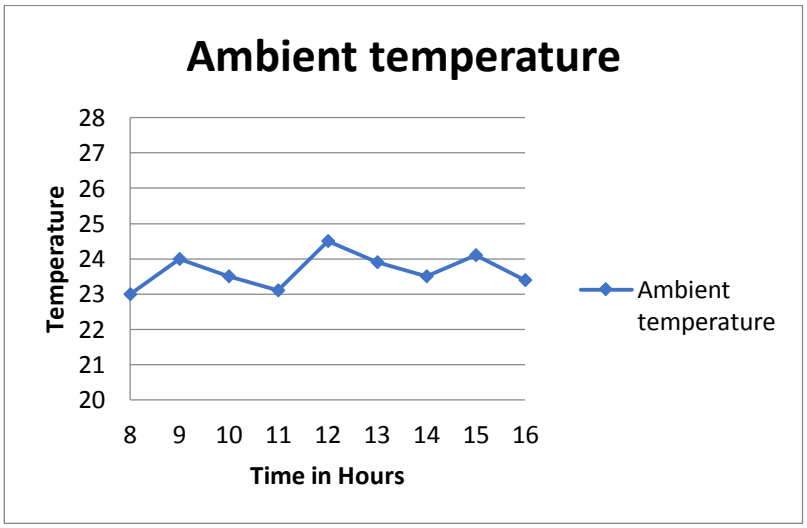
RESULTS AND DISCUSSION

The experimental investigation is carried out on 08-12-2019 for the climatic condition of Doddaballapura. The following graphs show the variation of temperature, solar radiation, voltage and current of the hybrid PVT system.

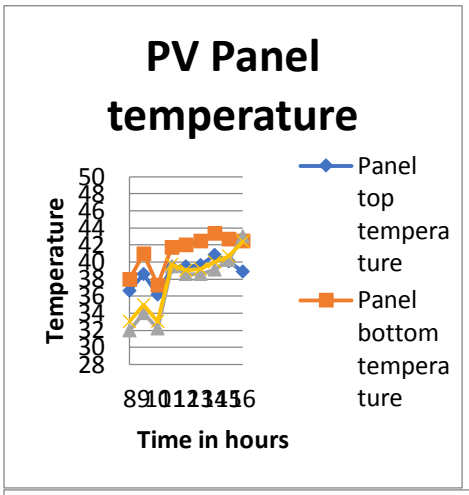
1. Variation of Solar radiation and ambient temperature

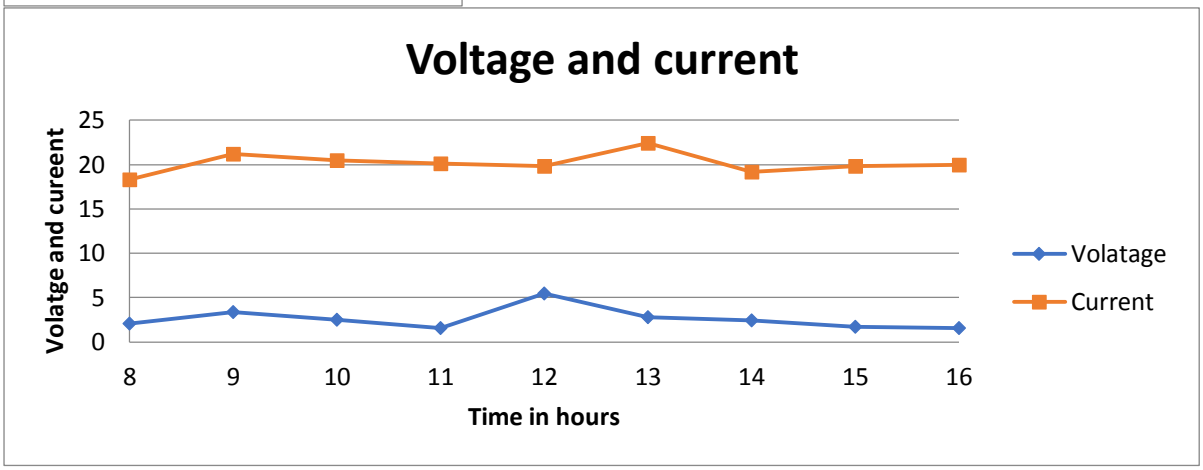


Variation of solar radiation



Variation of ambient temperature





Variation temperature of PV panel, Variation of voltage and current
Copper pipe and absorber plate

SUMMARY:

The aim of this project is experimental investigation of the Photovoltaic thermal collector based on water. The recent advancement in the field of PVT collector has been analyzed by investigating various related studies. Different types of PVT liquid collector were presented and discussed by highlighting their advantages and drawbacks. In addition, different absorber designs were studied in order to analyze their potential performance and production efficiency. The progress in the field of PVT collectors and absorber designs were analyzed, experiment trail runs and the results and discussion of this project is pending.

References

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TEAM PHOTO:

11. AIR REFORM

COLLEGE	Reva University, Bangalore
GUIDE	Prof.Prashanth N
COLLEGE STUDENTS	Tejas C,K Yaswanth
SCHOOL STUDENTS	Sachin,Chetan 8Th Std Jagadguru sri Jayadeva High school

ABSTRACT:

Air reform is an apparatus that utilizes dehumidification/consolidating, innovation that extricates water from the dampness noticeable all around. The water is then separated. An Air Water Generator Chips away at the equivalent standard as an icebox and forced air systems for example on the rule of cooling through dissipation. The Air water generator works by changing over climatic air to pressurized air utilizing a Blower and afterward this air is then gone through Condenser channels which diminishes it's temperature to dew point. The air consolidates to fluid and is gone through a filtration framework and it is then put away in a tank. The significant point or target of our undertaking is to give sheltered and clean drinking water to those regions which are confronting water deficiency issues or where water transportation through customary methods is costly (particularly rustic regions). The gadget yielded a yield of 35 liters in multi day which is perfectly clear, scentless tests.. The outcomes demonstrate that the values acquired for every parameter are well inside as far as possible given by ISO what's more, WHO.

HYPOTHESIS:

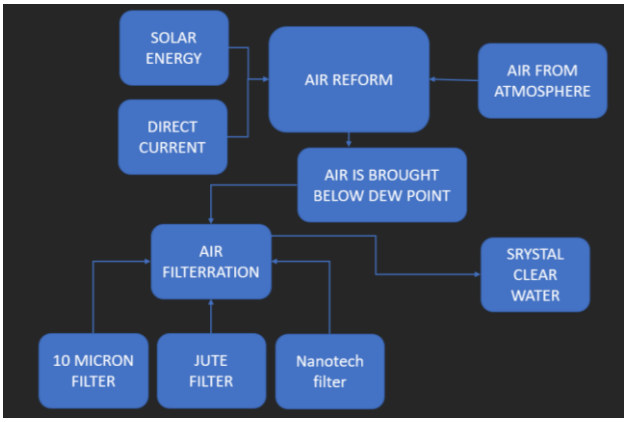
The Climate contains water as water vapor, dampness and so forth. Inside that sum practically 35% of the water is squandered. This measure of water can be utilized with the assistance of a Climatic Water Generator. This gadget is equipped for changing over barometrical dampness legitimately into usable and not withstanding drinking water. The gadget utilizes the rule of idle warmth to convert water vapor particles into water beads. In numerous nations like India, there are numerous places which are arranged in calm locale; there are desert, downpour woods regions and even overflowed territories where air mugginess is prominent. Thus, this undertaking will help broaden the uses of such gadgets further in the close future. As per past learning, we realize that the temperature requires to gather water is known as dew point temperature. Here, the objective is to get that particular temperature basically or tentatively to gather water with the assistance of some hardware gadgets. This venture comprises of a bike gear course of action for running a condenser which is utilized to make the earth of water gathering temperature or dew point, to be sure customary blower and evaporator framework could likewise be utilized to gather water by essentially trading the inert warmth of coolant inside the evaporator. The dense water will be gathered to utilize for drinking reason and different employments.

METHOD:

The Air Water Generator takes a shot at a similar guideline as a Cooler and Air Conditioner. All in all, how does a cooler work? Coolers and climate control systems both work on the rule of cooling through dissipation. The refrigeration procedure starts with the blower. Hydro chlorofluorocarbon is packed until it turns out to be hot from the expanded weight. This warmed gas moves through the loops behind the cooler, which enable abundance warmth to be discharged into the encompassing air. In the long run the smelling salts chills

off to the point where it turns into a fluid. This fluid structure of smelling salts is then constrained through a gadget called an extension valve. Since this vanishing happens at - 27 degrees F (- 32 degrees Celsius), the hydro chlorofluorocarbon draws heat from the encompassing territory. Cold material, for example, the dissipating hydro chlorofluorocarbon gas, tend to take heat from hotter materials. As the vanishing alkali gas ingests more warmth, its temperature rises. Loops encompassing the lower cooler compartment are not as conservative. The cool hydro chlorofluorocarbon still draws heat from the hotter articles in the ice chest, however not as much as the cooler area. The hydro chlorofluorocarbon gas is moved once more into the blower, where the whole cycle of pressurization, cooling and dissipation starts another

In a cooling air water generator, a blower circles refrigerant through a condenser and afterward an evaporator curl which cools the air encompassing it. This brings down the air temperature to its dew guide, making water gather. A controlled-speed fan pushes separated air over the curl. The subsequent water is then passed into a holding tank with refinement and filtration framework to help keep the water unadulterated and decrease the hazard presented by infections and microorganisms which might be gathered from the encompassing air on the evaporator curl by the consolidating water. The rate at which water can be delivered relies upon relative moistness and surrounding air temperature and size of the blower. Environmental water generators become increasingly viable as relative dampness and air temperature increment. As a standard guideline, cooling buildup air water generators don't work productively when the temperature falls underneath 18.3°C (65°F) or the relative stickiness dips under 30%. This implies they are generally wasteful at the point when situated inside cooled workplaces. The cost-adequacy of an AWG relies upon the limit of the machine, nearby dampness and temperature conditions and the expense to control the unit. Water is regularly consolidated from the air noticeable all-around conditioners when the encompassing air is muggy what's more, hot in beach front tropical districts. This water can be helpfully utilized for drinking reason.



Stream Graph Of The Procedure

EXPERIMENT:

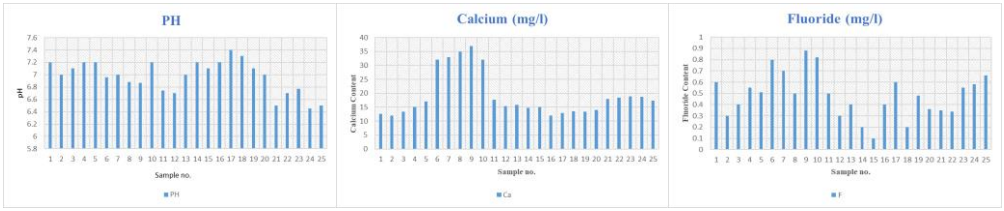
One of the reasons for study is to comprehend the nature of water separated from environment. The gadget yielded a yield of 35 liters in multi day which is perfectly clear, unscented tests. To evaluate the water nature of the examination territory, the examples gathered were investigated for 13 compound parameters. The synthetic parameters were surveyed inside 24 hours of test accumulation. The water tests were breaking down

embracing standard strategies in the research facility. School of Structural Building, REVA College, Bangalore. The aftereffects of the considerable number of parameters for various examples gathered from 25 unique areas are exhibited in Table 1

Consequences Of Water Quality Examination In Various Pieces Of Bangalore.

Sample no	location		PARAMETERS												
	latitude	longitude	PH	EC	TDS	TH	Ca	Mg	Cl	TA	F	Fe	NO3	Na	K
Sample no 1	13°5' 32.61"N	77°23' 35.95" E	7.2	268	160	36	12.6	1.16	24	76	0.6	0.24	6.01	10	0.11
Sample no 2	13°5' 39.66"N	77°23'13.91"E	7	260	158	39	12	1.11	24	75	0.3	0.2	6.05	10.2	0.2
Sample no 3	13°5' 24.84"N	77°23' 42.05" E	7.1	258	156	34	13.4	1.24	25.4	74	0.4	0.25	6.04	10.5	0.2
Sample no 4	13°5'32.42" N	77°23'17.72"E	7.2	270	162	30	15	1.5	22	75.9	0.55	0.26	6.02	10.7	0.3
Sample no 5	13°5'35.25"N	77°23'30.99"E	7.2	265	159	37	17	1.08	23.5	75.2	0.51	0.22	6.44	10	0.31
Sample no 6	13°2' 19.62" N	77°31'34.49" E	6.96	283	182	128	32	11.6	100	140	0.8	0.1	4.8	14	0.3
Sample no 7	13°2'4.4" N	77°31'34.77" E	7	285	185	129	33	11.5	101	142	0.7	0.11	4.9	14.6	0.1
Sample no 8	13°2' 6.3" N	77°31'21.48" E	6.88	289	188	125	35	11	98	138	0.5	0.1	4.5	14.2	0.2
Sample no 9	13°2'12.93" N	77°31'57.4" E	6.87	279	190	126	37	12	99	158	0.88	0.1	4.6	14.4	0.11
Sample no 10	13°2'6.74" N	77°31'48.10" E	7.2	290	192	124	32	11.8	100	150	0.82	0.12	4	14.3	0.12
Sample no 11	13° 0' 16.98" N	77°33'52.19" E	6.74	197	120	68	17.6	5.8	30	60	0.5	0.1	3.1	9	0.1
Sample no 12	13° 0' 14.1" N	77°33'52.29" E	6.7	190	125	70	15.4	5.6	32	60	0.3	0.1	3.3	9.2	0.2
Sample no 13	13° 0' 14.37" N	77°33'45.94" E	7	198	124	68	15.8	5.7	33	61	0.4	0.1	3	9.1	0.1
Sample no 14	13° 0' 16.12" N	77°33'55.13" E	7.2	188	130	64	14.8	5.4	30	65	0.2	0.1	3.5	9.4	0.3
Sample no 15	13° 0' 12.78" N	77°33'54.77" E	7.1	189	122	66	15.1	5.5	30	64	0.1	0.14	3.4	9.3	0.2
Sample no 16	13° 3' 30.2" N	77°40'12.65" E	7.2	199	140	40	12	4.5	42	66	0.4	0.13	4	4.5	0.3
Sample no 17	13° 3' 26.32" N	77°40'6.81" E	7.4	187	142	46	13	4	41	67	0.6	0.16	4.1	4.99	0.34
Sample no 18	13° 3' 24.64" N	77°40'22.6" E	7.3	186	143	47	13.5	4.2	44	64	0.2	0.11	3.5	4.87	0.29
Sample no 19	13° 3' 37.07" N	77°40'5.99" E	7.1	174	140	42	13.4	4.3	29	62	0.48	0.18	4	4.86	0.39
Sample no 20	13° 3' 21.59" N	77°40'1.18" E	7	186	141	41	14	4.1	35	63	0.36	0.17	5	4.77	0.4
Sample no 21	12° 59' 46.01" N	77°40'10.2" E	6.5	179	157	50	18	4.5	34	61	0.35	0.15	6.1	11	0.37
Sample no 22	12° 59'51. 35" N	77°40'11.02" E	6.7	154	156	54	18.4	5	36	64	0.34	0.1	6.2	11.5	0.22
Sample no 23	12° 59' 54.73" N	77°40'16.35" E	6.77	165	158	53	18.9	4.2	40	66	0.55	0.01	6.4	11.5	0.36
Sample no 24	12° 59' 59.86" N	77°40'14.37" E	6.45	187	154	52	18.8	4.3	42	65	0.58	0.05	6.05	11.8	0.44
Sample no 25	12° 59' 47.39" N	77°40'17.49" E	6.5	188	152	54	17.4	4.1	41	62	0.66	0.04	6.04	11.4	0.54

- Test 1 To Test 5 – Rustic Territory
- Test 6 To Test 10 – Modern Region
- Test 11 To Test 15 – Business Zone
- Test 16 To Test 20 – Local Location
- Test 21 To Test 25 – Traffic Zone)



SUMMARY:

Water test so acquired from the environment results in perfectly clear, unscented water.The gadget yields a yield of 1 liter/hour of water of least and over a period 24 hours the gadget gather 35 liters least which cost 5 to 15 rupees relying on the temperature and dampness. The expense per liter will be 50paise. Consequently the water so acquired is 97.5% lesser than filtered water. The gadget is a solid gadget which is fixed over the housetops and the main support required is cleaning of the channel media, which results in simple establishment also, less upkeep. From the investigation, we got results that air holds multiple times more water than in waterways as stickiness (dampness) as the water test that we gathered in different areas gave noticeable positive outcomes. Henceforth there is a plausibility of extricating water from air everywhere throughout the world. Amid early morning the gadget reaps more than 1 liter of water for each hour as there is greater dampness. So we can reason that in beach front regions dampness is to an ever increasing extent measure of water can be removed from the beach front district which means another innovation for desalination. There is where, when we make a vacuum air by evacuating dampness from air, a vacuum is made and the encompassing air will race into the vacuum locale and balance out.

12. WSN BASED SERICULTURE

COLLEGE	Sambram Institute of Technology,Bangalore
GUIDE	Prof.Sindhu
COLLEGE STUDENTS	Ashwitha R,Vidhya Vikraman
SCHOOL STUDENTS	Nikhal, Mohan Kumar 9Th Std Kendra Vidyalaya Jalahalli East.

ABSTRACT: Sericulture (silk production) is a major occupation of rural community. Producing about 15% share of the world silk produce, India is the 2nd largest silk producer after China whose total produce amounts to a staggering 80%. Analysis of sericulture practices in India shows a clear need of automation especially during pre-cocoon stages. Sericulture denotes to the rearing of silkworm to produce silk. Parameters like Temperature, Humidity and worms and suitable encouraging must to be done according to the requisites in every stage. Environmental variations assume as the important part in the growth and development of silkworm. The actuator sub-system achieves the corrective measures using the actuators placed in that zone of the unit. Sericulture is the important occupation in India and the techniques used by the agriculturists are yet outdated. Hereafter there is the need of developing modernization in sericulture cultivate. This endeavor gives a thought of providing automation in sericulture cultivate. The model goals at making use of developing technology that is IOT and smart Sericulture using automation.

HYPOTHESIS:

On the basis of requirement fan, light, and heater is turned on and off based on required environmental condition. The planned system is financially affordable and power effective organization. Implemented test of this prototype system validates that the proposed system can work gradually to observe the environmental conditions inside the silkworm raising house. The proposed system reduces the man power and reduces the chance of errors. The model is convenient to implement and use. The current system requires continuous internet and connectivity. The proposed system facilities and conduct the environmental conditions to be reserved inside the silkworm rearing house. Required edge values for parameters like temperature, relative humidity and light intensity can be stable based on the environmental circumstances. On the basis of requirement fan, light, and heater is turned on and off based on required environmental condition.

EXPERIMENT: The proposed system is implemented with the help of both software and hardware tools, that will carefully observe as well as control the variations in the environmental factors of silkworm raising house on the consistent basis. Below fig.1 shows the block diagram representation of the proposed system. The proposed system does the following-

- Testing and Validation of sensor.
- Signal conditioning.
- Receiving signal with the help of Internet of Things (IoT)
- Interfacing sensors to microcontroller to achieve the desired result.
- Based on sensor signal analyse the situation and provide appropriate.

The coding in Node MCU is done in the manner, that it will have the edge information and the capacity to watch and control the model.

SUMMARY: This “WSN Based Intelligent Control system for Sericulture” gives automation and guided control in sericulture advances by employing Node MCU and IoT technology based invention. The proposed system facilities and conduct the environmental conditions to be reserved inside the silkworm rearing house. Required edge values for parameters like temperature, relative humidity and light intensity can be stable based on the environmental circumstances. On the basis of requirement fan, light, and heater is turned on and off based on required environmental condition. The planned system is financially affordable and power effective organization. Implemented test of this prototype system validates that the proposed system can work gradually to observe the environmental conditions inside the silkworm raising house. The proposed system reduces the man power and reduces the chance of errors. The model is convenient to implement and use. The current system requires continuous internet and connectivity.

13. SPIDEY ROBO POOH HONEY EXTRACTOR

COLLEGE	Sambram Institute of Technology, Bangalore
GUIDE	Prof.Sowndeswari
COLLEGE STUDENTS	Varun M,Vivek A
SCHOOL STUDENTS	Devesh Jha, Sidharth Nayak 9Th Std Kendriya Vidyalaya Jalahalli East.

ABSTRACT:

We live in a world of concrete jungle and depleting nature in a phase faster than the speed of cheetah runs. We humans have to live in a harmony with the nature to balance the ecosystem of the earth. One such out of harmony thing is the Bees and their Beehives. These tiny hard-working creatures with the lack of trees are finding themselves on top of the skyscrapers with their homes risking themselves and causing threat to humans. To extract the honey from skyscrapers without causing threat to honey bees and humans, we propose Spidey Robo-Pooh Honey Extractor. This method helps in keeping the honeybees from going extinct which plays a major role in balancing the eco-system.

HYPOTHESIS:

The honey Bees make their hives at tall buildings, it is difficult for honey scavengers for gathering the honey from the bee hive. The proposed system is designed to climb the tall buildings using suction cups, where it can climb the buildings vertically, horizontally, and upside down to locate the bee hive and to extract honey without the human effort and reduces the risk of falling from the heights. This helps both the honey scavengers and honey bees without harming their lives.

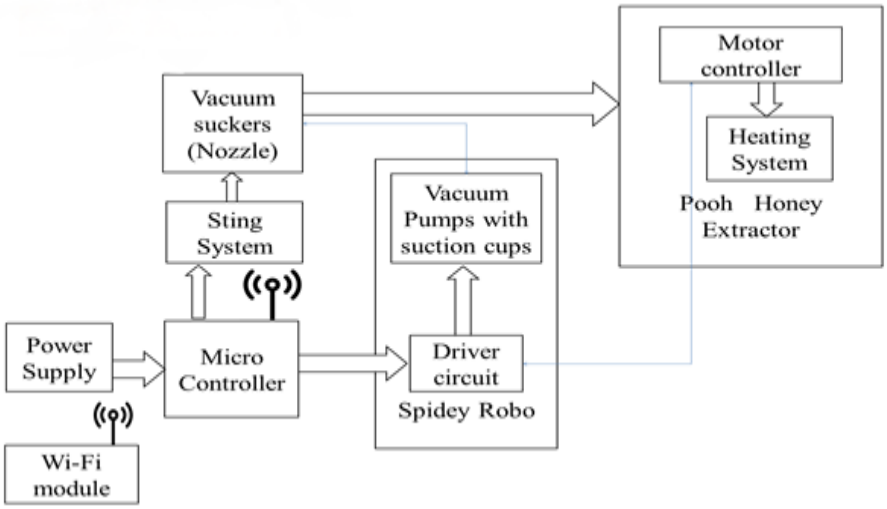
METHOD:

The proposed system is developed in two modules:-

i. Wall Climbing Module.
ii. Sting System and Honey Extraction Module.

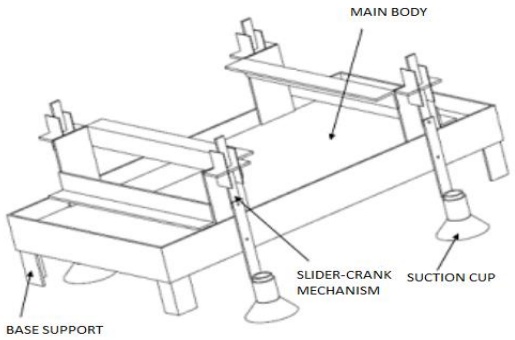
Bee hives are built on high altitude levels and it is difficult to reach it in long trees and tall buildings. Here we try to build a robot which has the ability to climb the tall buildings using suction cups attached to it legs. Where it can climb the buildings vertically, horizontally, and upside-down to locate the bee hive and to extract honey. The bot has a bag and a knife and holes in it. The bot closes the bag around the hive and the holes are connected to the vacuum where the holes suck out the bees without harming them and after clearing them out and knife is used to cut the comb and it drops into the bag and it is later converted into useful product. Finally, bees are left free into bee farms for further developments. A wall climbing robot is a robot with the capability of climbing vertical surfaces. The robot will be controlled using microcontroller and the movement of its legs will be powered by two servo motors. Each servo motor will control legs which are located on the left and right side of the robot. The leg rotations mimic stepping motions of a spider is controlled by the suction force supplied by two vacuum pumps that will turn on alternatingly. The main body of the robot will carry all the components except the compressor thus making spidey robot mobile.

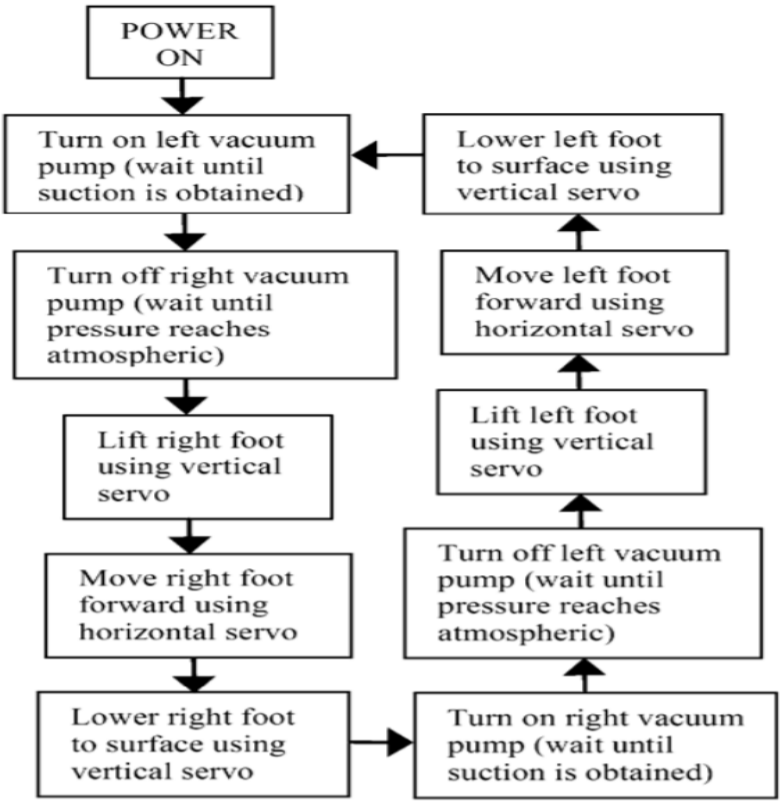
The bot closes the bag around the hive and the nozzles are connected to the vacuum pump where the nozzles suck out the bees without harming them and after clearing them out, a knife is used to cut down the bee hive (without bees) which drops into the bag. Later the honey and the bee wax are extracted. Finally, bees collected in a separate sack are transferred to the bee farm or beekeeping (Apiculture) to maintain the bee colonies. Hence ecosystem is balanced.



Wall climbing Bot is designed and is controlled by the micro controller using Wi-Fi module or RC.

- The wall climbing robot uses suction cups powered by the vacuum pump.
- Sting Cover material is used to cover around the hive.
- Vacuum suckers are fitted with nozzle and sprayed with flower scent, pheromones to attract the bees through the pipe and sensors are used to close the lid of the nozzle to not let the bees escape back.
- Bees collected in a separate sack are transferred to the bee farm or beekeeping (Apiculture) to maintain the bee colonies.
- Hive is cut down into a sack and it is processed to extract honey and bee wax for various applications like cosmetic industry, candle making.
- The collected honey is stored in the Pooh Jar.





SUMMARY: The honey bees which are drastically decreasing day-by-day due to modern civilization and there may be direct threat to our eco-system if they go extinct. The robo pooh bot is designed to accumulate honey and bee wax from the honey hive from far end of the tall buildings. It is mainly designed to extract without harming the bees. The bees are separated using vacuum and gently sucked into a cage and left into bee farm ecosystem. The bee hive is cut and processed to get the end products. The honey from skyscraper beehive is extracted without harming the bees and safeguarding from bee sting too. The extraction process of honey is done in ecofriendly manner and completely in an automatic robotic system.

14. STUDENT EYES CLOSURE AND YAWNING DETECTION FOR DROWSINESS

COLLEGE	School of Engineering and Technology-Jain (Deemed University)
GUIDE	Dr.Vinay Kumar S B
COLLEGE STUDENTS	Vishuvardhan,Varun
SCHOOL STUDENTS	Shadiya Taj, Varshini 9th Std Kasturba High School, Harohalli.

ABSTRACT:
Whenever we are thinking about any programmable devices then the embedded technology comes into force front. The embedded technology is now a day's very much popular and most of the products were developed with microcontroller or microprocessor based embedded technology. This smart system to detect drowsiness among the students in the classroom. The detection system is able to detect sleeping individual by using a web camera to obtain real-time continuous images. The camera is positioned directly towards the students in the classroom. An alert signal will be triggered when the system detects fatigue among the students. The developed system detects the condition of the eye: opening and closing conditions. The captured image is binaries in order to find the edges of the face of the students. The conditions of the eye will vary the distance between two consecutive dips of the light intensity. Experiments were carried out at several classrooms with one target of a student at one time. The effects of light intensity and the distance of camera placement were studied. The closing eye yielded greater distance value than the threshold value. Meanwhile, the open eye condition yielded shorter distance value than the threshold. The system is limited to detect one target at a fixed position.

HYPOTHESIS:
Many embedded system shave substantially different designs according to their functions and utilities. In this project design, structured modular design methods adopted and the system is mainly composed of a single microcontroller The drowsiness detection system is important to lecturers in order to monitor the sleepy student in the class. The students cannot give a proper attention to the teacher in the classroom. Leading to the problem in the classroom, many students have been seen to be sleeping during a lecture class .The teacher might need to observe while lecturing to provide optimum learning to students. The observation in the classroom is difficult to handle, due to the limitation of lecturers at the university. The aim of the project is to develop a prototype drowsiness detection system. This project aids lecturer in order to monitor sleepy student during a lecture in the classroom. Previous works were related to drowsiness detection among vehicle's driver. This project focuses on designing a system that can monitor the open and closed state of the student's eyes in real-time . The main aim of this project is to early detect drowsiness among students in the classroom by monitoring the eyes. For this project, it involves a sequence of images of the student's face and makes an observation of the eyes movements and blinks paterns.Then, this project is programmed to localize the eyes of the student, which involves screening the entire image of the face and then determining the position of

15. SUSTAINABLE TEXT CONVERTER

COLLEGE	Sri Dharmastala Manjunatheswara Institute of Technology,Ujire
GUIDE	Prof.Mahesh D S
COLLEGE STUDENTS	Chaitra Pallavi,Akilesh
SCHOOL STUDENTS	Krishkumar,Shikhar SDM School,Ujire

ABSTRACT:

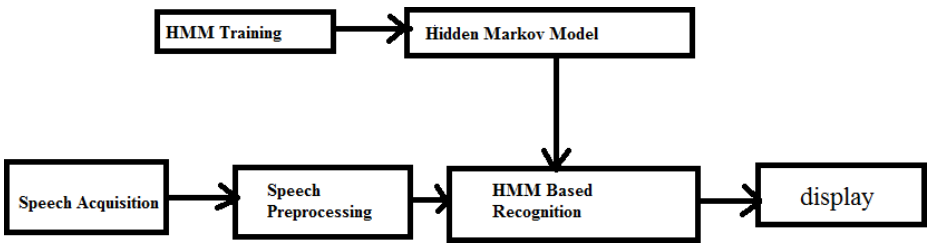
Speech is the first important primary need, and the most convenient means of communication between people. The communication among human computer interaction is called human computer interface. This project basically gives an overview of major technological perspective and appreciation of the fundamental progress of speech to text conversion and also gives complete set of speech to text conversion based on Raspberry-Pi. This project can be concluded with the decision on future direction for developing technique in human computer interface system in different mother tongue and it also discusses the various techniques used in each step of a speech recognition process and attempts to analyse an approach for designing an efficient system for speech recognition. However, with modern processes, algorithms, and methods we can process speech signals easily and recognize the text. In this system, we are going to develop an on-line speech-to-text engine. However, the transfer of speech into written language in real time requires special techniques as it must be very fast and almost 100% correct to be understandable. The objective of this paper is to recapitulate and match up to different speech recognition systems as well as approaches for the speech to text conversion based on Raspberry-Pi technology and identify research topics and applications which are at the forefront of this exciting and challenging field.

HYPOTHESIS:

Speech recognition is one of the fast growing engineering technologies.

Nearly 20% people of the world are suffering from various disabilities; many of them are blind or unable to use their hands effectively. They can share information with people by operating computer through voice input.

Our project is capable to recognize the speech and convert the input audio into text; it also enables a user to perform operations such as open calculator, WordPad, notepad, logoff computer.

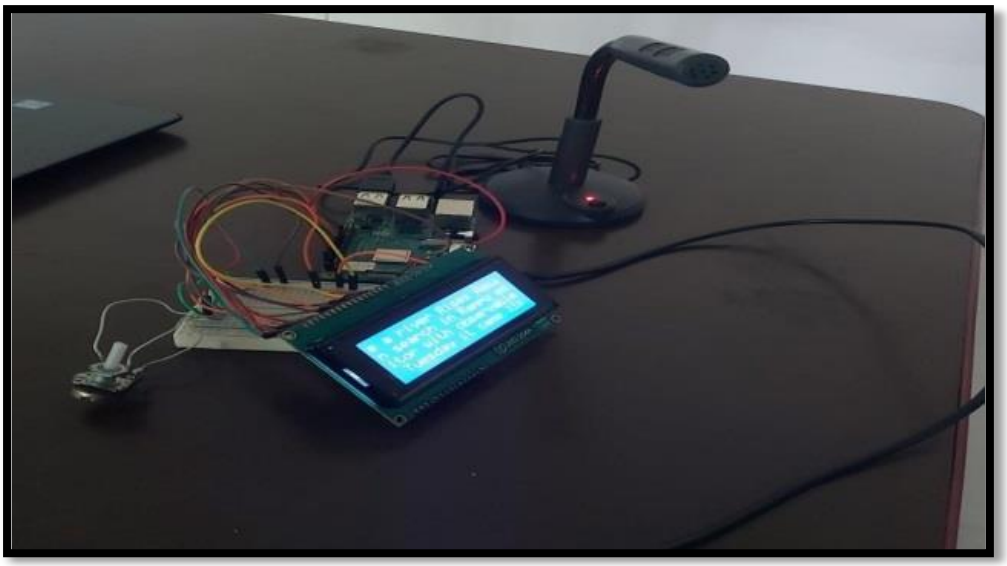


EXPERIMENT:

In this project conversion of speech to text is very important which is done by using Google API. This project is implemented by using raspberry pi which is faster and low powered. The product is designed in a portable format so that the end user can easily use this. This product is cost-effective since it uses less components.

While doing this project some problems were occurred and those are,

- When raspberry Pi board was interfaced with microphone, speech to text conversion program was can't able to recognize the input from microphone. This problem was solved after installing some library package.
- After speech is converted into text it is displayed on LCD but it was not readable. This was because of faster conversion, after introducing large delay this problem was solved.



SUMMARY:

In this paper, we discussed the topics relevant to the development of STT systems .The speech to text conversion may seem effective and efficient to its users if it produces natural speech and by making several modifications to it. This system is useful for deaf and dumb people to Interact with the other peoples from society. Speech to Text synthesis is a critical research and application area in the field of multimedia interfaces. In this paper gathers important references to literature related to the endogenous variations of the speech signal and their importance in automatic speech recognition. A database has been created from the various domain words and syllables. The desired speech is produced by the concatenate speech synthesis approach. Speech synthesis is advantageous for people who are visually handicapped. This paper made a clear and simple overview of working of speech to text

system (STT) in step by step process. The system gives the input data from mice in the form of voice, then pre-processed that data & converted into text format displayed on PC. The user types the input string and the system reads it from the database or data store where the words, phones, diaphones are stored. In this paper, we presented the development of existing STT system by adding spellchecker module to it for different language. There are many speech to text systems (STT) available in the market and also much improvisation is going on in the research area to make the speech more effective, and the natural with stress and the emotions.

Cost: INR 3000-4000 approx.
TEAM PHOTO:

16. PAYANA

COLLEGE	Sri Dharmastala Manjunatheswara Institute of Technology,Ujire
GUIDE	Prof.Madhusudhana K
COLLEGE STUDENTS	Satish dabbar,Vaishavi suvarna
SCHOOL STUDENTS	Samayam,Jerin 9th Std SDM School,Ujire

ABSTRACT:

'Happiness is a way of travel but, not a destination'. Mostly our day starts with traveling, so that we should travel happily and comfortably. Some travel to reach school-colleges and some to office, thus everyone has to travel to reach different destinations every day. But think about transportation facilities. Some can go with their own vehicles and most of them prefer bus. Travelling by bus is like challenging, because in some areas there may be limited buses or bus may full of people or if a person has to travel for longer distance it is difficult to track and get to know the status of seats like whether all the seats are filled or not. If any vacancy found, then how many seats are free. In Present days passenger has to wait until the bus reaches to his station if no seats found free, he leaves this bus and look for another. Hence his valuable time will be wasted by waiting for the arrival of bus only.

Hence, we are presenting a project called '**PAYANA'-** *an easy journey*, which provides solution for all those problems. Here we will make arrangements in ticket generating machine to send the real time status of that particular bus to a mobile which uses an application through Bluetooth. Also, it will support 'Digital India concept'.

HYPOTHESIS:

It is our prime duty to contribute something to our next generation by implementing new and some innovative ideas by using available resources. This product benefits any passenger who intend to travel in unreserved bus without any restrictions. It is very beneficial since we are providing android application to track and get to know the status of any unreserved buses.

In present days system, we can reserve the seats by pre booking manually for long route buses and also, we can know the arrival time of bus. But our project can be applicable for unreserved buses. In this all information about a particular bus will be available in mobile application. Our product 'PAYANA' uses an android application to real time updates about bus like total number of seats available, number of seats filled, number of tickets to particular destination, number of vacant seats, number of drops and pickups at each bus station, bus number. Status of bus will be sent frequently using ticket generating machine through Bluetooth to the mobile application. 'PAYANA' provides all the information about bus so that it saves the time of the people in the world where time is so precious. 'PAYANA' is cost effective.

METHOD:

Our project is aimed to provide solution for above stated problems. Here we planned to make a simple ticket generator. It will be connected to Bluetooth. This ticket generator includes counting the number of people present in the bus and how many people will de board at particular bus station, then we can find the available seats in the bus. This information will be updated in android application through Bluetooth. This much information is enough to passenger to make a decision about the bus.

Working:

Once power button is pressed the ticket generator machine is ready to generate the tickets for passenger. It means that microcontroller started to work. When a passenger gets into a bus at a particular station and took a ticket for his destination, the count of a particular station (his destination) will be increased by one. Thus, whenever passengers took tickets for their destination the count of that station will be increased. Conductor will lock the system at every bus station. The count of this station will be deleted and the status of the bus will be sent through Bluetooth module using android application. The passengers who are waiting for the arrival of bus at upcoming stations can get the information about a particular bus with bus number in their smart phone using android application.

PICTURES OF MODEL

EXPERIMENT:

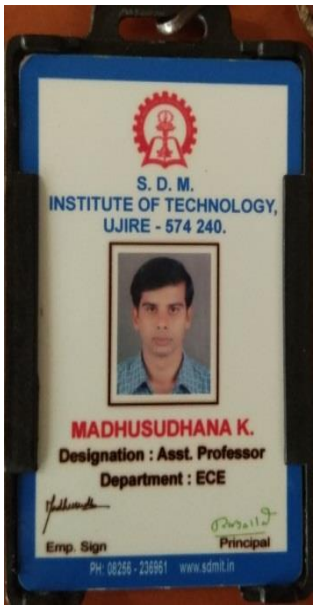
As the project conveys that the ticket is generated and it is shown in LCD display. So, we first started with hardware components that are required to carry out this project t. Studied that details of the hardware components like Arduino Uno, 20x4 LCD Display, 4x4 keypad, HC 05 Bluetooth module, Potentiometer, Resistor and then selected the suitable component. After this we proceeded with the programming part since it is the key part of our project. We used Arduino 1.8.1 software to do the programming part since Arduino is the heart of our project. We started with LCD display to display some characters, Keypad to print numbers. Then interfaced keypad and LCD display and displayed the character/integer pressed from keypad. After that we tried to display the statements using conditions.

SUMMARY:

Our product will help the passengers to decide whether they can wait for public transport like bus or they have to look for other source of transport to reach destination on time. It provides the complete details about the bus like number of tickets has been distributed and total collection has been made. Increases the effective usage of public transport like government bus. It can be even implemented in private transports which will help owners to keep track of their daily income.

This product assures real implementation as it is cost effective, consumes less power and easily adaptable. This can also be part of digital India. The important thing is that the cost of the product. Payana uses simple components which is unique, made it feasible, easily affordable, installed economically and user friendly.

TEAM PHOTO:



17. SMART COOLER

COLLEGE	Dr.MahalingamCollege of Engineering,Pollachi
GUIDE	Dr.R.Gnanaguru
COLLEGE STUDENTS	G M Shakthi shree,S.Kalaiselvan
SCHOOL STUDENTS	N.Ravikrishan,Gokul Chandran Govt High School Senguttapalayam

Abstract

This project outlines the implementation of photo voltaic driven cooling system. If the atmosphere is warmer than the required condition, then it gives the amount of cooling to the human body, without causing any side effects. The objective of this Cooling jacket is to create the most comfortable thermal environment for the user within an enclosed space of small proximity while providing comfort. With the use of the thermoelectric concept and a bit of ingenuity, this smart Cooling jacket can be realized. The Cooling jacket entirely depends upon the principle of "Peltier effect". The Cooling jacket simply uses electrons rather than refrigerants as a heat carrier. The jacket reduces the use of convectional refrigeration system, therefore effect of skin cancer, ozone depletion potential, and global warming potential reduces. Peltier cooling module is used to cool fluids stored in reservoir and it is circulated through the cooling tubes and provides cooling. Here, we examine the combined effect of heat source/sink thermal resistances and thermoelectric material properties on thermoelectric cooler performance. Cost benefit analysis shows that cooling over material volume for our optimized thermoelectric cooler is comparatively higher and efficient than that of the commercial modules. Ultimately the design of this jacket is to be made compact in size and is eco- friendly in nature. The jacket ultimately gives a cooling effect of 20 degree Celsius.

Keywords: Heat Impact, Peltier Effect, Water Reservoir, Cooling Effect.

INTRODUCTION

The seasonal summer gives its extreme impact on the humans and this leads to discomfort and also many health problems. Problems such as heat rash, heat stroke, hyperthermia and others, caused due to temperature inconvenience have been persistent problem for people throughout the history. People always complain that the weather is either too hot or too cold. Air conditioning and heating units have come a long way due to current technological solutions which helped in maintaining thermally comfortable temperature in people's dwelling (e.g. car, home, offices, and industrial sectors). If one has to be out in weather, the addition or subtraction of layers with coats and jackets or beach wear, are the most reliable solutions but do not always yields satisfaction, as layers become cold over time and sunburn is a serious problem. This is the reason A Smart Cooling jacket is a very beneficial product for the masses.

OBJECTIVE

The objective is to provide comfort of cooling for the soldiers who are affected by the extreme seasonal summer

The aim lies in providing compactable and user-friendly cooling jacket with more cooling efficiency.

TARGET BENEFICIARIES

Though the beneficiaries for the product applies for watchman, traffic police, drivers, farmers etc. My target beneficiary is the defense soldiers working in the desert regions.

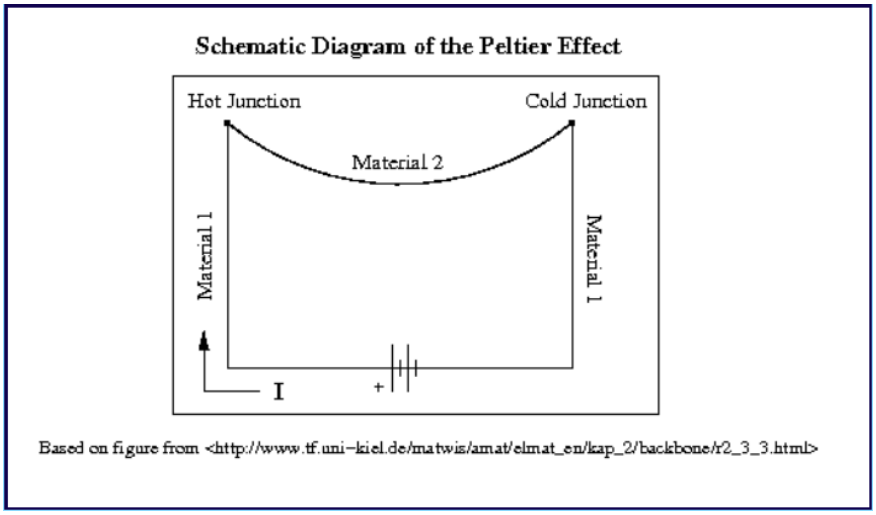
METHODOLOGY

Thermoelectric cooling is a method used for cooling purpose in various applications. It has good impact over conventional cooling system. Thermoelectric coolers are compact in size, no coolant is used in the system, no frictional element present in system, and weight of system is very less.

PELTIER EFFECT

Thermoelectric coolers operate according to the Peltier effect. The effect creates a temperature difference by transferring heat between two electrical junctions. A voltage is applied across the joined conductors to create an electric current. When the current flows through the junctions of the two conductors, heat is removed at one junction and cooling occurs. Heat is deposited at the other junction. The main application of the Peltier effect is cooling.

This effect is the opposite of the See beck effect (named after the scientist who discovered it in 1821). The See beck effect is that if different metals are connected in two separate places, and the intersections are kept at different temperatures, then a potential difference between the "junctions" (the intersections) will result Later, in 1834, Jean Peltier found that the opposite of the See beck effect is also true: that a potential difference (and thus a current) can cause a temperature difference, regardless of what the ambient temperature



DESIGN

Two unique semiconductors, one n-type and one p-type, are used because they need to have different electron densities. The alternating p & n-type semiconductor pillars are placed thermally in parallel to each other and electrically in series and then joined with a thermally conducting plate on each side, usually ceramic removing the need for a separate insulator. When a voltage is applied to the free ends of the two semiconductors there is a flow of DC current across the junction of the semiconductors causing a temperature difference.

The side with the cooling plate absorbs heat which is then transported by the semiconductor to the other side of the device. The cooling ability of the total unit is then proportional to the total cross section of all the pillars, many are connected electrically in

series to reduce the current needed to practical levels. The length of the pillars is a balance between longer pillars which will have a greater thermal resistance between the sides and allow a lower temperature to be reached but produce more resistive heating, and shorter pillars which will have a greater electrical efficiency but let more heat leak from the hot to cold side by thermal conduction.

For large temperature differences longer pillars are far less efficient than stacking separate, progressively larger modules, the modules get larger as each layer must remove both the heat moved by the above layer and the waste heat of the layer.

MATERIALS

Materials suitable for high efficiency TEC systems must have a combination of low thermal conductivity and high electrical conductivity. The combined goodness of different material combinations is commonly compared using a figure of merit known as ZT, a measure of the system's efficiency.

The equation for ZT is given below, where alpha is the See beck coefficient, sigma is the electrical conductivity and kappa is the thermal conductivity

There are few materials that are suitable for TEC applications since the relationship between thermal and electrical conductivity is usually a positive correlation. Improvements in reduced thermal transport with increased electrical conductivity are an active area of material science research

PERFORMANCE

A single-stage thermoelectric cooler will typically produce a maximal temperature difference of 70 °C between its hot and cold sides.[7] The more heat moved using TEC, the less efficient it becomes, because the cooler needs to dissipate both the heat being moved and the waste heat generated from its own power consumption. The amount of heat that can be absorbed is proportional to the current and time.

Q=PIt,

Where P is the Peltier coefficient, I is the current, and t is the time. The Peltier coefficient depends on temperature and the materials the cooler is made of.

In refrigeration applications, thermoelectric junctions have about 1/4 the efficiency compared to conventional means (they offer around 10–15% efficiency of the ideal Carnot cycle refrigerator, compared with 40–60% achieved by conventional compression-cycle systems (reverse Rankine systems using compression/expansion).[8]) Due to this lower efficiency, thermoelectric cooling is generally only used in environments where the solid-state nature (no moving parts), low maintenance, compact size, and orientation insensitivity outweighs pure efficiency.

Peltier (thermoelectric) cooler performance is a function of ambient temperature, hot and cold side heat exchanger (heat sink) performance, thermal load, Peltier module (thermopile) geometry, and Peltier electrical parameters.

Requirements for thermoelectric materials:

- Narrow band-gap semiconductors because of room-temperature operation
- Heavy elements because of their high mobility and low thermal conductivity
- Large unit cell, complex structure
- Highly anisotropic or highly symmetric
- Complex compositions

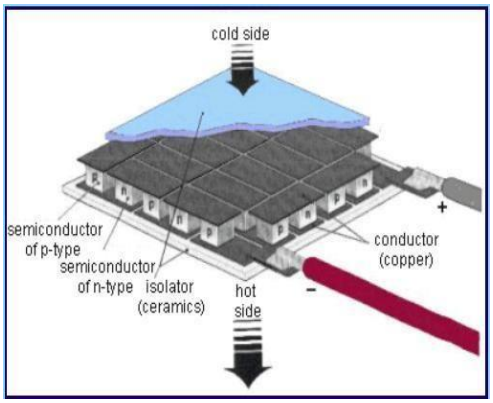
Common thermoelectric materials used as semiconductors include bismuth telluride, lead telluride, silicon germanium, and bismuth-antimony alloys. Of these bismuth telluride is the most commonly used. New high-performance materials for thermoelectric cooling are being actively researched.

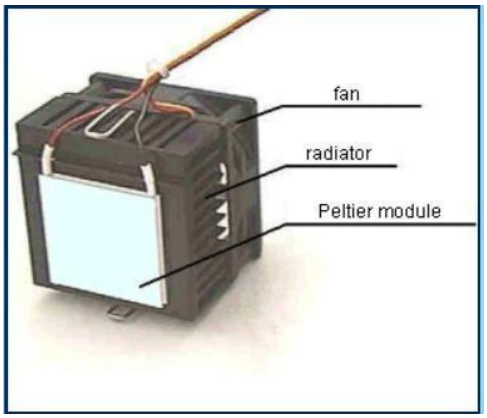
The method of thermoelectric cooling (using the Peltier effect) is useful because it can cool an object without any moving pieces or other complex machinery that isolates the cooler from its ambient surroundings. The devices that are constructed to take advantage of this phenomenon are known as Peltier elements, or thermo-electric coolers (TECs). The basic ideas from the simple Peltier elements can be connected in series to construct far more complicated Peltier modules (also known as practical TECs), which have greater cooling capabilities. However, the greatest temperature difference between the heat sink and the cool region for a Peltier device is on the order of 50°C.

Common uses for Pelier elements include cooling computer components, especially the CPU.

The most common combination of materials in the thermocouples of Peltier elements (TECs) is the two semiconductors Bismuth and Telluride. Generally, a TEC has an array of cubes or pellets made of the semiconductors, each of which is in contact with the radiators on the hot and cold side of the Peltier element. These cubes are "doped" -- that is to say that extra impurities are added so that there are extra or fewer free electrons in each cube. The semiconductor cubes with extra free electrons (and thus carry mainly negative charge) are known as N-type semiconductors, while those with few free electrons (and carry mainly positive charge) are P-type semiconductors.

The pairs of P and N semiconductor cubes are set up and connected in an array so that the pairs have an electrical series connection, but a thermal parallel connection. When a current is applied to this system (the TEC), the way the current flows through the semiconductors induces a temperature difference, and causes the heat-sink side of the Peltier element to heat up, and the cold side to cool (or cooling whatever is in thermal contact with that side).





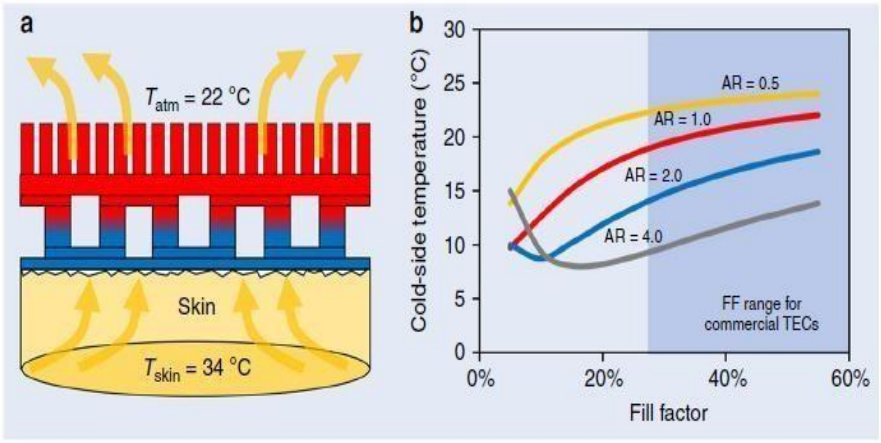
An inside view of a TEC (Peltier element)

The heat-sink side of the TEC gets very hot, so it is necessary to have a fan and/or some sort of radiator to dissipate this heat. Otherwise, the entire TEC would begin to heat up, and pieces would fuse together. "Normal" Peltier elements are roughly a few centimeters thick

and a few millimeters or centimeters on a side. To obtain greater cooling abilities, the individual elements are connected in stacks, or they can be connected in some combination of series and parallel electrical connections.

THERMOELECTRIC COOLER USE IN COOLING JACKET

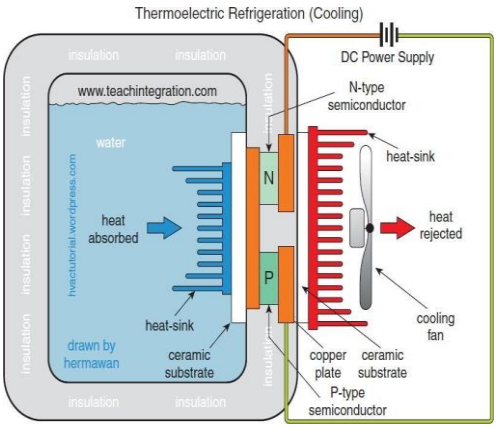
The purpose of jacket is to provide cooling mechanism. The thermoelectric cooler is used to chill water in the reservoir. Initially the water is filled in the water bladder using the pump and the inlet fills the water. The cooling side is exposed directly to the water contained in the water bladder. The heating side is insulated from the cooling side and the heat which is exposed to the outer environment which is done by using the axial fans and heat sink. Now the water keeps on decreasing its temperature as long as the Peltier is in the ON condition.



Fill factor Vs Cold side temperature

Working.

The Solar panel charges the battery via the controller. The current is supplied from the battery to the Peltier module, axial fan and to the pump. Now when the Peltier module is ON, the Peltier starts cooling the water inside the bladder by the thermoelectric principle. After a period of time when the water reaches the desired temperature which is needed for the user comfort which is seen through the temperature sensor, the pump is ON. Therefore the pump now circulates the cooling water through the plastic tubes to the cooling plate which is fitted inside the jacket. It keeps on circulating the cooling water and thus reduces the body temperature of the user. The heat is released from the Peltier through the heat sink and fan set up. Thus the electricity for the pump and Peltier is controlled through the switches and the flow is controlled through the throttle valve fitted in the tube. After cooling the water can be let out through the outlet tap. The water needed to fill the bladder and the cooling plate is 500 ml and the maximum cooling temperature that is reached by the water by the peltier effect is about 18- 20 degree Celsius which is more suitable for human comfort temperature conditions



18. IOT ENABLED SMART MUSHROOM CULTURE

COLLEGE	Dr.MahalingamCollege of Engineering,Pollachi
GUIDE	Prof.T Ananth Kumar
COLLEGE STUDENTS	A K Gowtam,Vinoth,Dinesh Prabhu
SCHOOL STUDENTS	Abdul Shaik, Kannan 9th Govt High School Senguttapalayam

Summary:

The primary focus of our project is to reduce the manpower needed to maintain and cultivate mushrooms. Further, it helps to make this a scalable business. Automation of the mushroom cultivation process will guarantee the reduced consumption of water.
This also paves a way to reduce productivity loss. We embed the required sensor (Temperature sensor and Humidity sensor) at appropriate places to collect the environmental conditions which can be visualized through an IOT console. User can also able to set the required conditions for the automation of the process. The major problem of mushroom cultivation is to maintain the accurate environmental conditions which are desirable for the growth of the mushroom. Using manpower to water the mushroom plants in a scheduled manner is a difficult process as humans are prone to error. Manual watering leads to the usage of the excess of water and also decrease the production rate during excess/reduced watering condition. In order to scale up the process, the user has to be more dependent on manpower.

How we do:

There are three modes of operation available for the convenience of the user. They are

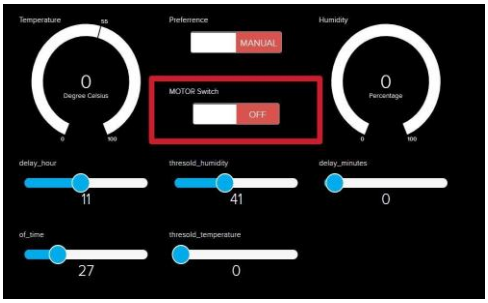
1. Automatic mode
2. Manual mode
3. Emergency mode

By embedding sensors, we continuously display the temperature and humidity value of the environment. We get two threshold values (Temperature and Humidity) from the user. Based on the input, the system maintains the environment temperature and humidity nearer to the threshold value.

AUTOMATED MODE

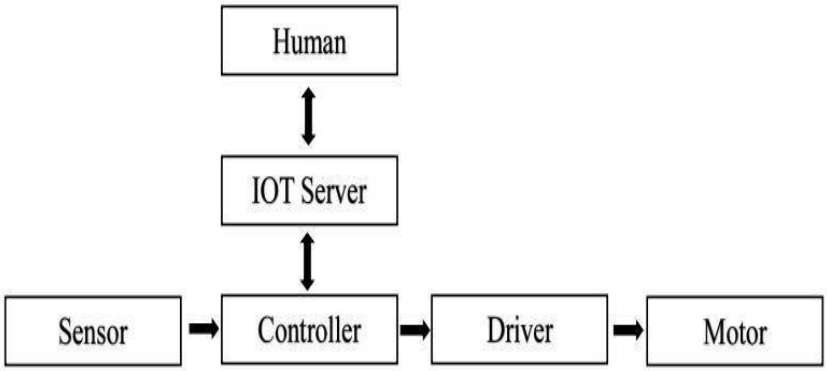
MANUAL MODE

EMERGENCY MODE



IOT

Block diagram



Components Used:

- Controller: NodeMCU - ESP8266
- Sensors: DHT22
- Indicator: IoT Console
- Power Supply: 5V
- Driver: Relay module

NodeMCU – ESP8266

Technical Specification:

- Voltage:3.3V.
- Wi-Fi Direct (P2P), soft-AP.
- Current consumption: 10uA~170mA.
- Flash memory attachable: 16MB max (512K normal).
- Integrated TCP/IP protocol stack.
- Processor: Tensilica L106 32-bit.
- Processor speed: 80~160MHz.
- RAM: 32K + 80K.
- GPIOs: 17 (multiplexed with other functions).
- Analog to Digital: 1 input with 1024 step resolution.
- +19.5dBm output power in 802.11b mode
- 802.11 support: b/g/n.
- Maximum concurrent TCP connections: 5

Temperature And Humidity Sensor **Relay Module:**

Technical Specification:

Power supply	:3.3-6V DC
Output signal	: digital signal via single-bus
Sensing element	:Polymer capacitor
Operating range	:humidity 0-100%RH; temperature -40~80Celsius
Accuracy humidity	:+-2%RH(Max +-5%RH); temperature <+-0.5Celsius
Resolution or sensitivity	:humidity 0.1%RH; temperature 0.1Celsius
Repeatability	:humidity +-1%RH; temperature +-0.2Celsius
Humidity hysteresis	:+-0.3%RH
Long-term Stability	:+-0.5%RH/year
Sensing period Average	: 2s
Interchangeability	:fully interchangeable
Dimensions	:22*28*5mm

Potential benefits of the solution:

By implementing our solution, we can gain values in economical, medicinal, agriculture sectors.

ECONOMIC VALUE:

- High-profit business for mushroom cultivators
- Reduced loss of mushroom wastage
- Reduce the man power required for the process
- Possible to scale up in the large sector

MEDICINAL VALUE: Protein-rich mushroom for diabetic patients
AGRICULTURAL VALUE: Minimum period growth Future is based on rapid cultivation
ENVIRONMENTAL VALUE: Reduced usage of water consumption

19. THERMO COOLER

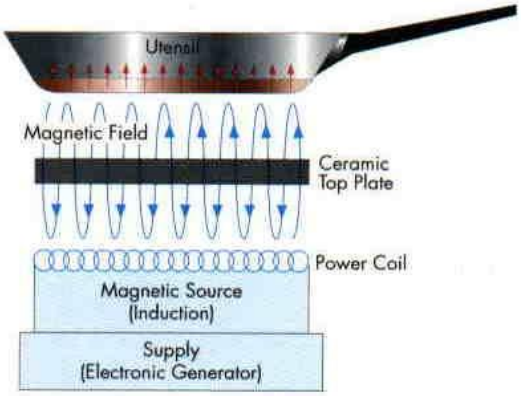
COLLEGE	Er.Perumal Manimekalai College of Engineering,Hosur
GUIDE	Prof.Pandiyan
COLLEGE STUDENTS	Naveen kumar
SCHOOL STUDENTS	V.Partha sarathi,K.G Dinesh Kumar

ABOUT.

In this project, By using solar we can heating and cooling. It consists of heating and cooling side and also Dual power supply like solar power and EB power supply

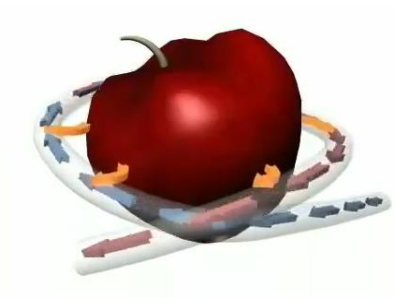
HEATING PART

It will PRESERVE the food minimum 10 hours and also cooking and baking the food. By using Electromagnetic Induction principle.



COOLING PART

- In cooling side HCFC (hydrochlroflurocarcon) act has a cooling gas, when the gas flows to the cappilary tube in the 45*c temperature at 8 bar. The out of the gas is -20*c at 0.6 bar.
- Example; one litter water will cooled in 15 to 20 minutes.



TO SOLVE THE PROBLEM

- It reduce to EB power source
- Time duration is less.
- Compare to before generation fridge and cooking products.
- Comparing to before generation model efficiency is high.

CUSTOMER SEGMENT

- It is used for both industrial and home application .
- This product power consumption is low so customer segment is high.
- It has very compact so the many travelers

VALUE PROPOSITION

- Power consumption is low.
- It consumes power per hour 0.026 unit.
- It will use as Dual purpose like Heating and Cooling.
- It has Dual power supply like solar and EB

CHANNEL MARKETING

- Social Medias such as pint rest, Instagram and Facebook.
- Advertisement in Television and Cinema theatres.
- Comparing to before generation fridge and cooking products, efficiency is high.

20. DRONE BASED SEARCH AND RESCUE

COLLEGE	Sri Venkateswara College of Engineering
GUIDE	Dr.Vijayashree R Budyal
COLLEGE STUDENTS	Sindhu Nitin Y N
SCHOOL STUDENTS	Shashank,Usha 8th Std Govt High School

ABSTRACT:-

Recently flood disaster has caused losses of life and damage to buildings and other structures, including bridges, sewage systems, roadways, and canals. Floods also frequently damage power transmission and sometimes power generations, which causes loss of power. Urgently required materials such as food items, utensils, cloths, toiletries, essentials like tarpaulins and ropes, mosquito nets, solar light and miscellaneous.

Drone, new emergence technology, has the capability to be deployed for search and rescue operation in flood disaster. This technology could improve the operation of search and rescue, reduce the cost incurred and fasten the time to respond when flood happens. It is due to its capability in terms of small scale size of equipment as compared to the conventional search and rescue facilities such as boats, helicopters, etc. Drones have noticeably outperformed humans at finding people in need of assistance. Furthermore, the fact that drones can fly makes it easier to locate at higher altitudes, like those taking shelter on rooftops during flood.

The main aim of the proposed work is that to identify affected people in flood areas and to give the exact location of that area using GPS module to rescue team. Drone was made water proof to survive the flood and other disaster condition. Drone is to drop life saving kits to the sufferer in the flood affected area. Voice recognition kit – 'Helper kit' for human intuition, The kit will sense and detect the voice signals of humans and in turn alert the drone pilot, if there is any emergency occurs, the message is send using GSM module. The Drone have more Efficiency and the Cost is Economical than other options.

HYPOTHESIS:-

- To identify affected people over flooded area by using camera and voice recognition system.
- To provide First-aid kit for the injured people and further medical help should be arranged and to give initial rescue by providing lifesaving jacket for identified people.
- To provide location for rescue team, to rescue the identified people of a disaster.

METHOD:-

Drone, new emergence technology, has the capability to be deployed for search and rescue operation in flood disaster. This technology could improve the operation of search and rescue, reduce the cost incurred and fasten the time to respond when flood happens. It is due to its capability in terms of small scale size of equipment as compared to the conventional search and rescue facilities such as boats, helicopters, etc. Drones have noticeably outperformed humans at finding people in need of assistance. Furthermore, the

fact that drones can fly makes it easier to locate at higher altitudes, like those taking shelter on rooftops during flood.

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Person shouting loud some words that is feed to voice recognition kit and it can be compared with already trained commands. if the Words match with each other then the GSM module will be activated. The GSM module is preprogrammed in such away that, in case of getting matching voice signals, it should send the location using the GPS receiver interfaced with it. A short message holding the location and emergency alert will send to the Drone pilot. If the words does not match, then the kit will move to the initial condition. The kit will be ready again to sense other voice signal or command.

The location is determined by prediction and human intuition. When a person lost in a floods zone , he/she will be found only by a response to a compliant. But that will create a delay where the person maybe dehydrated to death or face an more floods water in that certain delay. The 'HELPER' kit will sense the voice of emergency like this for an example when a person ask for 'HELP' or any other word, the kit will sense the voice signal. Then the kit will detect that voice and compare the words with already fed commands in kit. If the words match, then kit will activate the GSM module to send a Short message to the number held by Drone pilot.

The Necessary survival materials and emergency kits are dropped by the drone to the person suffering in a flood zone . The Sufferer can be found by camera. The location can be found by using GPS and it is transferred to Drone pilot using GSM module. After the drone reaches the sufferer location, it will identify the person by manual operation using camera. Then the kit carried by the drone is dropped near the sufferer.

In real time, the flooded zone is mapped and the predictions were made by using human intuitions and trials. The Drone user will predict the location and fix the helper kit where the lost person may come. The prediction may be based on easy way to selector by using psychology of human beings, etc., Thus when a person lost in the floods zone, he/she may be rescued using the helper kit in minimal time. Only thing is the people should be aware about the kit after implementing it.

EXPERIMENT:-

The prototype model is made up of a medium size quadcopter, transmitter, mobile phone, Arduino , camera and GPS/GPRS/GSM Module. The drone can fly height from the ground level. We can use GPS module to follow the location and direction of drone on its flight. We can also help the sufferers from flood using the kit carried by the amphibious drone. The delay of reaching the survivors by the traditional rescuers can be reduced efficiently by using the drone. The Helper kit placed in the forest can sense the voice of the survivors and can alert the people about their critical situation.

The speech recognition kit used in this project recognizes the words that are shouted by sufferers and immediately it senses the voice and compares the input with the code

dumped in arduino. Thus the message is sent using GSM to the mobile of the drone pilot. Using the access port software the default words are imported into the voice recognition module by dumping the code in the arduino these words is processed.

SUMMARY:-

The main objectives of the project have been successfully met. Development of search and rescue was a success even with some flaw. However in real situation implementation, more study and experiment need to be done. Drone technology have huge potential to be incorporated into search and rescue team, not only during disaster but also other searching mission because it can gather image and data over a huge area quickly, lessening the time and the number of rescuers required to find and rescue a lost person, greatly reducing the expense and risks of the missions. This project has great potential to be extended encompassing much functionality.

21. FORMULATION FROM MPRURIENS

COLLEGE	Sir M Visvesvaraya Institute of Technology
GUIDE	Dr.Rashni K V
COLLEGE STUDENTS	K Preksha machaiya,Yashika
SCHOOL STUDENTS	Prakash Karki,Syed Ajeem Govt High school,Hunsamaranahalli

ABSTRACT:
United Nations General Assembly in 2015 has set 17 global goals called "Sustainable Development Goals (SDGs)" for the overall sustainable development of the world in social and economic aspects like hunger, poverty, health, education, gender equality, global warming, sanitation, water, environment, social justice etc. These goals have set their target before the year 2030 towards transforming the world for sustainable development. The goals 2, 3 and 12 are on food security, good health, responsible consumption and production respectively. To achieve these goals, we are in the urge of exploring sustainable alternative nutritional sources. Popularizing the underutilized crops for cultivation can greatly contribute to achieve the SDGs related to food and nutritional insecurity. *Mucuna* is one such promising underutilized legume which offers enormous nutritional, pharmaceutical and agronomical features. *Mucuna pruriens* an annual member of this genus represents rich protein contents comparable with Soya bean. Because of very high content of L-DOPA (L-3, 4-dihydroxyphenylalanine) in the seeds, *Mucuna pruriens* is not popular in agriculture and food industries. In this study, we compare different processing methods to reduce the L-DOPA content in the seeds powder and subsequently blend the protein rich *Mucuna pruriens* seeds powder with conventional food additives towards developing a Protein rich nutritional formulation. The final formulation with less or no L-DOPA could be used to make nutritional cookies or health drinks to overcome the protein energy malnutrition.

Figure 1: Pods and Seeds of *Mucuna pruriens*

HYPOTHESIS:
Utilization of underutilized legume *Mucuna pruriens* to develop protein rich nutritional formulations by subjecting the seed meal to different processing methods to reduce the anti-nutritional factors

SPECIFIC OBJECTIVES:
1. Estimation of L-Dopa in common legumes and *Mucuna* seeds.

2. Estimation of Protein content in the respective legumes and *Mucuna* seeds.
3. Comparative analysis of L-Dopa and Protein levels in common legumes and *Mucuna* seeds.
4. Optimizing processing methods including roasting, soaking in saline water, soaking in distilled water and boiling in order to reduce L-DOPA.
5. Choosing the best suited processing method will be chosen to optimize an edible formulation from *Mucuna*

METHODS & EXPERIMENTS:

Estimation of L-DOPA:

The L-Dopa analysis was carried out as per the method described by Daxenbichler et al. (1971). The detailed protocol is as follows;

De-fatting: For initial defatting, 200mg of fine seed powder, 2 ml of petroleum ether was added and shaken for 48 h on a rotary shaker at 80 rpm; the resultant meal was dried at room temperature.

Figure 2: Samples in petroleum ether for de-fatting process.

L-Dopa isolation: 20 mg of the defatted sample was taken with 1 ml of 0.1N HCl and stirred constantly for 10 min at room temperature before incubating in boiling water bath with constant shaking for 1 h. To this, 2 ml of 80% ethanol + 0.1% ascorbic acid was added and mixed thoroughly for 10 min; the mixture was centrifuged at 4000 rpm for 15min.

For each sample, the above extraction step was repeated twice and each time the supernatants were collected separately. Later, the supernatants from each sample were pooled separately; made upto 100 ml and then filtered. L-Dopa concentration was determined by measuring the UV absorption of the supernatant at 283 nm.

Observations:

Table 1: Different Concentrations L-DOPA and OD values to plot the L-DOPA standard curve

Sl.no	Volume of standard L-DOPA	Amount of standard L-DOPA (µg/ml)	Volume of distilled water	Absorbance at 283nm
1	0 (Blank)	0	4	0.012
2	0.2	10	3.8	0.103
3	0.4	20	3.6	0.236
4	0.6	30	3.4	0.337
5	0.8	40	3.2	0.467

6	1.0	50	3.0	0.485
7	1.2	60	2.8	0.649
8	1.4	70	2.6	0.774
9	1.6	80	2.4	0.830
10	1.8	90	2.2	0.988
11	2.0	100	2.0	1.033
12	2.2	110	1.8	1.182
13	2.4	120	1.6	1.254

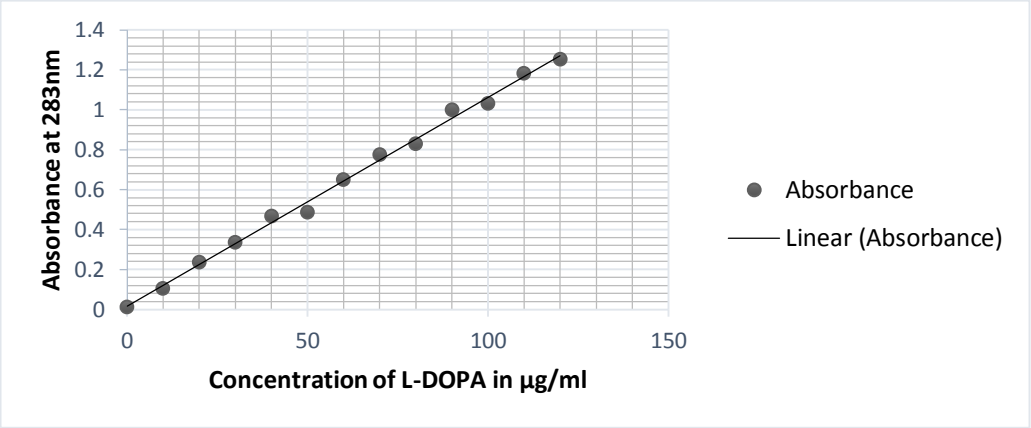


Figure 3: L-DOPA standard curve

Table 2: L-DOPA Estimation in fresh and processed common legumes and *Mucuna* seeds:

Sl.no	Sample name	Accession number	Concentration in % for 1g of sample	Concentration in % for 1g of ROASTED sample	Concentration in % for 1g of BOILED sample	Concentration in % for 1g of SALINE SOAKED sample	Concentration in % for 1g of DISTILLED WATER SOAKED sample
1	Regular Beans	-	0.191	0.129	0.142	0.240	0.222
2	Soya Beans	-	0.291	0.243	0.433	0.532	0.436
3	MPP	500153AP	1.027	0.712	0.948	1.319	1.262
4	MPU	500159PY	0.595	0.443	0.186	0.867	1.119
5	MPP	500177MH	1.597	0.645	0.619	1.514	1.119
6	MPP	500176MH	1.274	0.505	1.067	1.424	1.329
7	MPU	385928	0.862	0.535	0.381	0.838	0.638
8	MPU	500108KA	1.024	0.481	0.795	0.876	0.667

MPP: *Mucuna pruriens var. pruriens*; MPU: *Mucuna pruriens var. utilis*

Table 3: Comparison of L-DOPA in fresh and processed samples and choosing the suitable processing method:

Sl.no	Sample name	Accession number	Change in concentration of L-DOPA (%) ROASTING	Change in concentration of L-DOPA (%) BOILING	Change in concentration of L-DOPA (%) SOAKED IN SALINE	Change in concentration of L-DOPA (%) SOAKED IN DISTILLED WATER
1	Regular Beans	--	-32.460	-25.654	25.654	16.230
2	Soya Beans		-16.49	48.797	82.817	49.828
3	MPP	500153AP	-30.67	-7.69	28.43	22.88
4	MPU	500159PY	-25.54	-68.73	45.71	88.06
5	MPP	500177MH	-59.61	-61.23	-5.19	-29.93
6	MPP	500176MH	-60.36	-16.24	11.77	4.31
7	MPU	385928	-37.94	-55.81	-2.78	-25.98
8	MPU	500108KA	-52.97	-22.36	-14.45	-34.86

Protocol:

Estimation of Total Protein:

The colorimetric method of Lowry et al. (1951) was followed to estimate the total protein. From the finely chopped pooled samples 150 mg of tissue were weighed and homogenised in double distilled water using mortar and pestle and the homogenate was collected. 2ml from the homogenate was pipetted and mixed with equal volume of cold 10% (w/v) trichloroacetic acid and kept for flocculation for thirty minutes in an ice-bath. The protein precipitate was collected by centrifugation for 10 minutes and the supernatant was decanted off. The residue was washed twice with cold 2% (w/v) trichloroacetic acid, followed by washing with 80% (v/v) acetone. The precipitate obtained after centrifugation was digested in 2ml of 0.1 N NaOH and heated in a boiling water bath for five minutes. The resulting suspension was clarified by centrifugation. To 1.0 ml of supernatant 5.0 ml of alkaline copper reagent was added and shaken well. After 10 minutes, 0.5 ml of 1N Folin-Ciocalteu Phenol reagent was added and immediately shaken well and kept undisturbed for 30 minutes. The optical density was read at 700 nm. Bovine Serum Albumin Fraction V, (BSA) was used as standard.

Table 4: Protein standard curve

Sl. no	Volume of protein solution	Volume of water (ml)	Volume of alkaline copper(ml)	Incubate in room temperature For 15 mins	Volume of FC Reagent (ml)	Incubate in room temperature for 30 mins	Conc in µg/ml	Absorbance at 650 nm
1	0	1	5ml		0.5ml		0	0
2	0.2	0.8					20	0.061
3	0.4	0.6					40	0.078
4	0.6	0.4					60	0.135
5	0.8	0.2					80	0.184
6	1.0	0					100	0.225

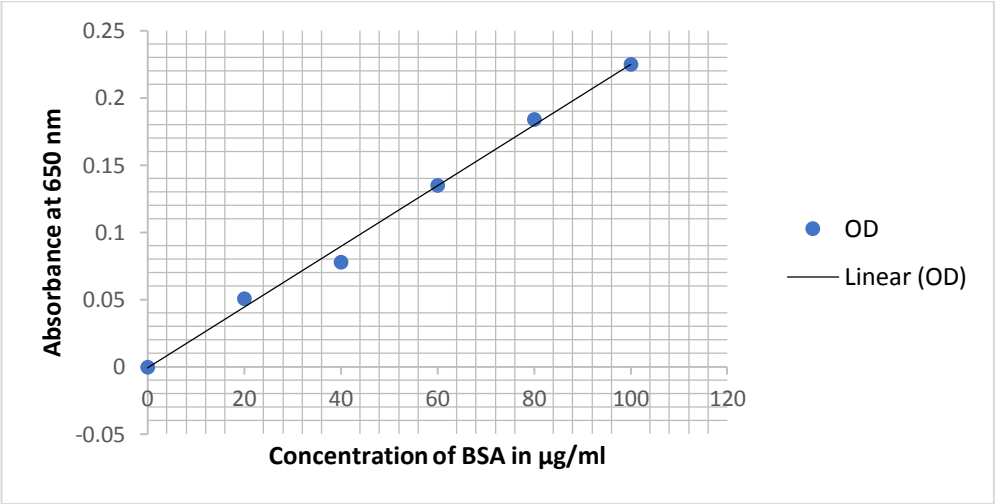


Figure 3: Protein standard curve

Table 5: Protein content in fresh samples

Sl. no	Sample name	Accession number	Concentration in mg/ml for 1g of sample	Concentration in mg/ml for 1g of ROASTED sample	Concentration in mg/ml for 1g of BOILED sample	Concentration in mg/ml for 1g of SALINE SOAKED sample	Concentration in mg/ml for 1g of DISTILLED WATER SOAKED sample
1	Regular Beans	-	8.489	5.363	9.928	6.962	5.7153
2	Soya Beans	-	8.394	7.711	10.838	7.315	3.880
3	MPP	500153AP	13.010	10.471	14.493	16.019	16.665
4	MPU	500159PY	10.742	7.814	11.601	13.774	9.781
5	MPP	500177MH	13.539	9.517	12.335	14.317	16.166
6	MPP	500176MH	12.291	11.645	13.920	13.906	14.845

7	MPU	385928	11.139	10.970	14.287	16.430	11.557
8	MPU	500108KA	11.601	11.102	12.364	11.469	11.484

Table 6: Comparison of protein content in fresh and processed samples

Sl. no	Sample name	Accession number	Change in concentration of Protein (%) ROASTING	Change in concentration of Protein (%) BOILING	Change in concentration of Protein (%) SOAKED IN SALINE	Change in concentration of Protein (%) SOAKED IN WATER
1	Regular Beans	-	-36.824	16.951	-17.987	-32.674
2	Soya Beans	-	-8.136	29.116	-12.854	-53.776
3	MPP	500153AP	-19.515	11.398	23.128	28.093
4	MPU	500159PY	-27.257	7.996	28.225	-8.941
5	MPP	500177MH	-29.706	-8.892	5.746	19.403
6	MPP	500176MH	-5.255	1.325	1.313	20.779
7	MPU	385928	-1.151	28.261	4.749	3.752
8	MPU	500108KA	-4.301	6.577	-1.137	-1

SUMMARY:

Different processing methods to reduce the L-DOPA content were analysed. The suitable processing method, which reduces the amount of L-DOPA with no significant protein loss is determined. From the results so far, it is observed the boiling method significantly reduces L-DOPA with minimal protein loss. Based on this, the sample with less L-DOPA is processed further for developing nutritional formulations.

TEAM PHOTO:

22. SIGH GLOVES FOR MUTE PEOPLE

COLLEGE	Vidya Vikas Institute of Technology, Mysore
GUIDE	Prof.Ganavi C N
COLLEGE STUDENTS	Rahul C Praveen Kumar H R
SCHOOL STUDENTS	

ABSTRACT:

It's very difficult for mute people to convey their message to regular people. Since regular people are not trained on hand sign language, the communication becomes very difficult. In emergency or other times when a mute person travelling among new people, communicating with nearby people or conveying a message becomes very difficult. Hence we propose smart speaking gloves that help mute people in conveying their message to regular people using hand motions and gestures. It makes use of a hand motion reading glove equipped with motion and flex sensors along with a speaker unit..

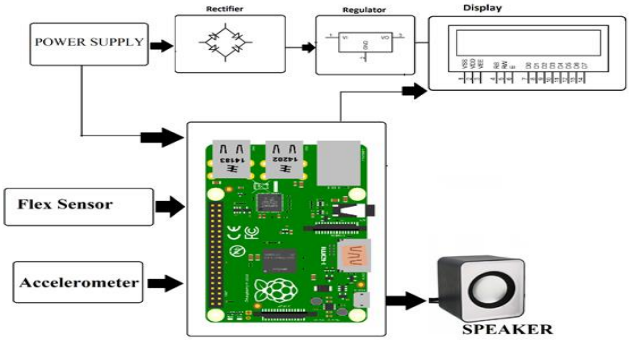
This glove is powered by a battery powered circuitry to run it. A raspberry pi is used for processing the data and operating the system. The system reads persons hand motions for different variations of hand movement. It also consists of a trigger sensor in order to indicate that the person wishes to activate the system and speak something. This ensures the system does not speak when the person is just involuntarily making hand motions.

The raspberry pi processor constantly receives input sensor values and then processes it. Now it searches for matching messages for the set of sensor values. Once it is found in memory this message is retrieved and is spoken out using text to speech processing through the interfaced speaker. Thus we have a fully functional smart glove to help mute people communicate with regular people using a simple wearable system.

HYPOTHESIS:

A sign glove is an electronic device to help deaf people communicate with others who don't have knowledge in sign language. It transforms the hand gestures using gloves into words displayed on the LCD and speech through speaker allowing users to transmit their intended messages in the language other people know.

Block diagram of the proposed system



EXPERIMENT:

The glove is lined with flex sensors, thin strips that detect changes in resistance indicating when a finger is bent. They produce voltage corresponding to the change in resistance and this is given as input to the raspberry pi or microcontroller, brain of the system that analyzes all these incoming signals and transmits messages corresponding to those voltage levels to the LCD display and the same is read by Text To Speech (TTS) engine to provide message through the speaker.

SUMMARY:

The sign gloves are described in this report. The objective of this project is to detect any change regarding the gesture of the hand which provides sufficient data or information to allow the system (sign gloves) to translate the sign into speech. This system is reliable and affordable enough which gives the chance for every mute people to communicate with other people.

23. JEEVA RAKSHAKA

COLLEGE	Vidya Vikas Institute of Technology, Mysore
GUIDE	Prof.Manjunatha B
COLLEGE STUDENTS	Sanjana,Vidya P
SCHOOL STUDENTS	

ABSTRACT:

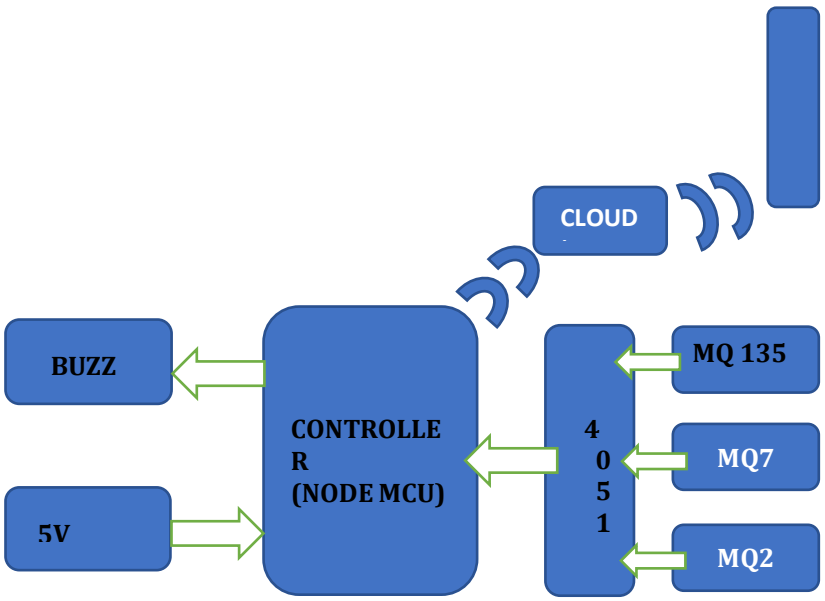
- Presently due to pollution and health hazards, the environmental awareness and safety are primary concern.
- The domestic and industrial waste products are drained out through sewer pipeline. Due to the decomposition of waste products in the manholes several hazardous gases are formed.
- Spillage of residential gas isn't just lethal to human and creature life, yet in addition aims colossal property misfortune.
- In this way, location and essential advances are to be considered to forestall unfortunate mishaps. Many accidents tendencies due to short circuits, gas leakages, etc. won't permit a normal person to enter the accident space, therefore on the scale back any harm
- Therefore, a monitoring system for gas leakage detection needs to be developed.
- For the development of this system, the combustible gas sensor was used in order to detect the present of harmful gases.
- This sensor will detect the concentration of the gas according to the voltage output of sensor and operated in the alarm system

HYPOTHESIS:

- The hazardous gases in the manhole are producing adverse effect to human health.
- To overcome all these problems effective monitoring system is needed in the drainage channels.
- The detecting system is incorporated with gas sensors, which senses the respective gases. When the gas level exceeds the threshold level, the proposed system will give alert through the buzzer. The message will sent to the authorized officer through IOT

METHOD:

- The gas is sensed by the specified gas sensor and sensed gases are fed to the nodeMCU unit through the multiplexers.
- Through the BLYNK cloud we can get the sensed values in the analog form.
- The threshold value will be set in the BLYNK app. If the sensed value is greater than the threshold value then the BLYNK app gives the notification as ‘Hazardous gas detected’ and Buzzer will activates.
- If the sensed values is less than the threshold value then it gives the notification as ‘Path is safe’. This will be done through the IoT.



SUMMARY:

- An innovative approach for the hazardous gas detection and alert system.
- The toxic gases like methane, carbon monoxide, ammonia, hydrogen sulphide are sensed by the gas sensor (hardware design).
- When the normal levels of gases exceeds the data is send to the receiver through IOT.
- If it exceeds the alert notification is send to the authorized person. This system is highly reliable and cost effective.

Group Photo

24. VEHICLE USING HEART BEAT SENSOR

COLLEGE	Vidya vardhaka College of Engineering, Mysore
GUIDE	Prof.Gowtam N
COLLEGE STUDENTS	Tejas Kumar,Shubangar
SCHOOL STUDENTS	

ABSTRACT: According to the World Health Organisation, more than 1.25 million people die each year as a result of road traffic crashes. Injuries from road traffic accidents are the leading cause of death among people aged between 15 and 29 years of age. Among them heart attack and anxiety is also one of the major reason for road accidents. 30% of road accident are occurring because of these reasons. We can technically tackle this by adapting certain sensors in the vehicles which can also be called as smart Vehicles.

COMPONENTS USED:

- NRF24L01 MODULE HEART BEAT SENSORS

NRF24L01 is a transceiver module which uses radio communication to send and receive data. It uses the 2.4 GHz band and it can operate with baud rates from 250 kbps up to 2 Mbps. If used in open space and with lower baud rate its range can reach up to 1000 meters.

The heartbeat sensor is based on the principle of photo phlethysmography. It measures the change in volume of blood through any organ of the body which causes a change in the light intensity through that organ (a vascular region). In case of applications where heart pulse rate is to be monitored, the timing of the pulses is more important. The flow of blood volume is decided by the rate of heart pulses and since light is absorbed by blood, the signal pulses are equivalent to the heart beat pulses.

GSM Module

GSM is a mobile communication modem; it is stands for global system for mobile communication (GSM). GSM is an open and digital cellular technology used for transmitting mobile voice and data services operates at the 850MHz, 900MHz, 1800MHz and 1900MHz frequency bands. GSM system was developed as a digital system using time division multiple access (TDMA) technique for communication purpose. A GSM digitizes and reduces the data, then sends it down through a channel with two different streams of client data, each in its own particular time slot. The digital system has an ability to carry 64 kbps to 120 Mbps of data rates.

GPS uses a lot of complex technology, but the concept is simple. The GPS receiver gets a signal from each GPS satellite. The satellites transmit the exact time the signals are sent. By subtracting the time the signal was transmitted from the time it was received, the GPS can tell how far it is from each satellite. The GPS receiver also knows the exact position in the sky of the satellites, at the moment they sent their signals. So given the travel time of the GPS signals from three satellites and their exact position in the sky, the GPS receiver can determine your position in three dimensions - east, north and altitude.

ULTRASONIC SENSORS IR SENSORS

The ultrasonic sensor works on the principle of SONAR and RADAR system which is used to determine the distance to an object .An ultrasonic sensor generates the high-frequency sound (ultrasound) waves. When this ultrasound hits the object, it reflects as echo which is sensed by the receiver .By measuring the time required for the echo to reach to the receiver, we can calculate the distance. This is the basic working principle of Ultrasonic module to measure distance.

An infrared sensor is an electronic instrument that is used to sense certain characteristics of its surroundings. It does this by either emitting or detecting infrared radiation. Infrared sensors are also capable of measuring the heat being emitted by an object and detecting motion.

- EPS32

ESP32 is highly-integrated with in-built antenna switches, RF balun, power amplifier, low-noise receive amplifier, filters, and power management modules. ESP32 is capable of functioning reliably in industrial environments, with an operating temperature ranging from –40°C to +125°C. Powered by advanced calibration circuitries, ESP32 can dynamically remove external circuit imperfections and adapt to changes in external conditions.

Arduino is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on the computer, used to write and upload computer code to the physical board.

WORKING PRINCIPLE: The heart beat sensors are used to monitor the heart beat of a driver ,so we are placing it on the seatbelt , the usage of these sensors are for following purposes , one is to monitor the heart beat and to sense the variation of heart beat and the another is that the vehicles are able to move only if the sensor senses the heartbeat ,by doing this we can make sure that the person is wearing seatbelt which is also one of the traffic rules. Usually the heart beat variation occurs because of two reasons ,one is in the case of heart attack and another is when the sudden obstacles like cattle or any other person or vehicles comes on the way, so we are adapting a buzzer and a button near the steering wheel during the variations in the heart beat the buzzer starts buzzing and if the variation is temporary then by using a button we can switch off the buzzer. When the buzzer starts buzzing immediately the car changes from driving mode to automatic mode. The car is automatically moved to the left side of the road by using a servomotor which is connected to the steering wheel. During this the accidents may occur due to obstacles which are avoided by using ultrasonic sensor and IR sensor. Here practically to show the condition of variation in the heart beat ,we use two heartbeat sensors which are interconnected with each other using a two way switch ,where one sensor is used to show the normal heart beat and when the switch is switched on other side the second sensor is sensed which indicates the condition of heart attack and the above mentioned process occurs

Conclusion: By adapting all these technology in a vehicle we can avoid accidents and also we can save few lives. The circuits made here are small so it consumes less space and they are cost effective and the programming of devices are easy and they are regenerative, work efficient and also power consumption is not that high.

25. AGRICULTURE DRONE

COLLEGE	Dayananda sager University
GUIDE	Prof.Sharana Basavaraj
COLLEGE STUDENTS	Suha shaik,Mazhar S.B
SCHOOL STUDENTS	Shweta,Misba Kotwal 8th Std Govt High School,Bommanahalli

ABSTRACT

Drones commonly referred, as UAVs are mostly associated with military, industry and Other specialized operations but with recent developments in area of sensors and Information technology in last two decades the scope of drones has been widened to other areas like agriculture. The drones manufactured these days are becoming smarter by integrating Open source technology, smart sensors, better integration, more flight time, tracking Down criminals, detecting forest and other disaster areas. The aim of this project is to highlight the importance of drones in agriculture and for Agriculture monitoring and observation for yielding better crop quality and preventing fields from any sort of damage.

CHALLENGES

One of the challenges is the balance between the UAV cost and performance. High performance of UAV with the long flight time stability as well as limited interference will be expensive and prevent farmers from adopting the application as they are vary resistant to any new cost. The second challenge is the farmers need time to accept new technology and to be convinced that profits from this scheme are guarantee.

HYPOTHESIS

The farmers are suffering yield losses due to improper fertilizer applications if we do more of this

It could impact soil health as well. We can tell apart a health plant from an unhealthy one.

As drones entered use in agriculture, the FEDERAL AVIATION ADMINISTRATION(FAA)

Encourage farmer to use this new technology. To monitor the fields however with unexpected boom of agricultural drones, the FAA quickly retracted such encouragement, pending new rules and regulations.

The use of agricultural drones has ethical and social implications. One benefit is that they are able to monitor and control the use of pesticides properly. This allows minimizing the environmental impact of pesticides. However, drones don't need access authority to flying overs someone's property at under 400 feet (130 m) altitude. They may have microphones and cameras attached, and the resulting concern for potential privacy violation has caused some opposition towards drones.

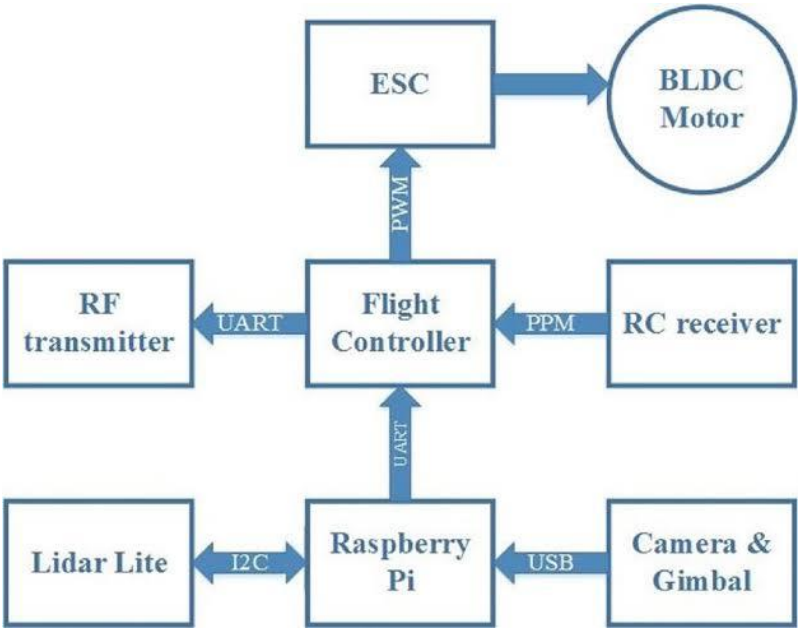
METHOD

INTRODUCTION

Unmanned Aerial Vehicles (UAVs) also commonly known as Drones are regarded as pilotless aircraft systems used in diverse applications like Industrial monitoring, photography, battlefield

surveillance, air ambulance, package delivery and many more. Drones operated by single-operated pilot, are regarded as short distance flying objects, and on the other hand, there are long distance flying drones known for flying at High Altitude. Considering past few years, there has been considerable development in the area of drones for all possible kinds. Drones provide sophisticated advantages as compared to anything else like ease of use, accurate monitoring of those areas which are difficult to reach by man, illegal activities tracing, forest fire observations and surveillance of crop yields of large agriculture farms.

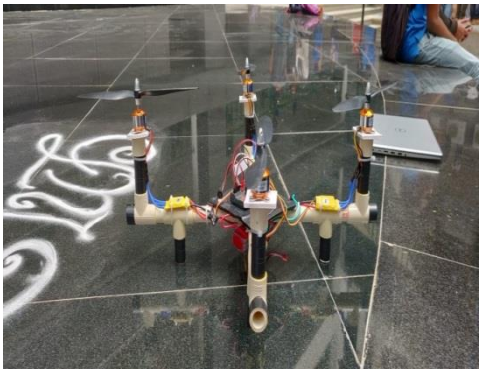
WORKING PRINCIPLE
Block diagram:



This model consist of kk2.15 a flight controller it regarded as the brain of the UAV .it houses the sensor such as the gyroscopes and accelerometers which will control all the 4 brushless motors through ESC the electronic speed controller it controls the speed of the motors or tells the motor how fast to spin at the given time. It has 4 propellers, two “normal” propellers that spin counter-clockwise, two “pusher” propellers that spin clockwise to avoid body spinning. UAV can be programmed and controlled in many different ways but the most common ones are by RC transmitter in either aerobic or stable mode. The difference is the way the controller board interrupts the orientations feedback together with the RC transmitter joysticks. In rate mode only the gyroscope values are used to control the UAV.

The raspberry pi is used for automation and image processing. Payload is fixed with sprinkles for spraying pesticides.

EXPERIMENT:



ADVANTAGES:

1. Agricultural drone has successfully paved a new means of increasing productivity by the farmers.
2. These drones are becoming popular tools similar to any other customer device.
3. The drone will play a crucial role in agriculture in the next decade, which will help the farmer to transform the agriculture industry with little technical knowledge.
4. Drone can help farmers in various aspects such as soil fertilization, spraying pesticides and seeding. It will also help cattle farming to keep count of their livestock gone astray or stolen**.**

DISADVANTAGES:

1. They are best suitable for large farms compared to the smaller one as they cover larger area, which is not the case with the smaller farm.
2.one of the major disadvantages of using drone is linked with the privacy concerns. Majority of country follows loose guideline to govern the use of drones.
3.another disadvantage of using drone in agriculture is the it has limited access to carry the load.
4. most of the farmer believe in adopting traditional means of crop care compared to the agricultural drone as use of these drone requires technological know-how.

SUMMARY

In the past decade latest technologies are included into the precision agriculture to improve the productivity of the crop. These technologies are useful where human interventions are not possible for spraying of chemicals on crops and scarcity of the labor. It also helps the spraying job easy and faster. The proposed system describes the crop monitoring through the multispectral camera which is mounted in UAV. In one flight the camera takes pictures and
analyze by the geographic indicator. Based on the results it could be easy to find the area where to spray the pesticides. The UAV sprinkling system auto navigated with the GPS coordinates to spray the pesticides on the infected areas where no vegetation identified by the NDVI. This could
also be reduced the wasting of water and chemicals.

Cost Estimation:

	COMPONENT NAME	APPX. COST
1	DRONE FRAME (3D PRINTED) 4 BRUSHLESS MOTORS 4 PROPELLERS KK 2.15 MOTHER BOARD 4 ESC 1 BATTERY	**RS.5000/-**
2	RC TRANSMITTERS AND RECEIVER	**RS. 1500/-**
3	RESPBERRY PI	**RS. 1200/-**
4	PI CAMERA	**RS. 500/-**
5	CONTAINERS AND SPRAYERS	**RS. 1000/-**
	TOTAL	**RS. 9200/-**

PHOTO:

26. FARMAR'S FRIEND

COLLEGE	Dayananda sager University
GUIDE	Dr.C V S N Reddy
COLLEGE STUDENTS	Mythri J L,K Divya sree
SCHOOL STUDENTS	

ABSTRACT:

Soil is a mixture of organic matter, minerals, gases, liquids, and organisms that together support life. Soils are essential for life, they provide the medium for plant growth, habitat for many insects and other organisms. India is known as one of the famous agricultural country. The crops can be grown more with more profit if the farmer know the soil constituent's, pH value and moisture content of the Soil. Proper nutrition is required for satisfactory crop growth and production. There are 16 elements which are essential for plant growth. They are nitrogen, phosphorous, potassium etc which act as macro nutrients. The deficiency of macro nutrients greatly effects the growth of the plants. Even micro nutrients play an important role in the growth of crops but, they are required in a very less amount whereas macro nutrients are required in a large quantity.

A pH value ranges from 1 to 14, pH value below 7 is acidic whereas above 7 is alkaline. Soil pH is called as main variable in soil as it will control many chemical and biological processes that take place in the soil. The most suitable range for many plants is between 5.5 to 7.0. Soil moisture and its availability to support plant growth is a primary factor in farm productivity. Too little moisture can result in yield loss and plant death. Too much causes root disease and wasted water. Most of the farmers do not perform soil testing because existing methods consume time and money. The use of soil tests can help to determine the status of soil. Very few farmers rely on soil testing done by government labs which are not available near them. In order to overcome this, we can install sensors in the field as static or make bots which move all along the field and find the required values from the soil. The moisture level of the soil is determined using the moisture sensor.

The pH sensors are available for solution medium, which requires manual work and thereby failing for the farmers to use. In order to overcome this problem, we can find the RGB value of the soil by image processing the picture taken by the camera of the field. There is a particular pH level corresponding to the RGB value. obtaining the information of this from database and thereby we can predict the pH value of the soil. Once we find the moisture level, pH level and nutrients of the field we can predict which crops are suitable to grow in that field with maximum yield. And thereby the farmer can either choose a crop which he desires to grow and add the fertilizers accordingly or he can get a list of crops which can grow on his field.

HYPOTHESIS:

The common problem existing among the Indian farmers are they don't choose the right crop based on their soil requirements. Due to this they face a serious setback in productivity. This problem of the farmers has been addressed through this project. This project uses the soil characteristics, soil types and suggests the farmers the right crop based

on their site-specific parameters. This reduces the wrong choice on a crop and increase in productivity.

METHOD:

The smart irrigation technique is established using a soil moisture sensor. The moisture content of the soil is continuously screened by the microcontroller. If the moisture content of soil reduces, the microcontroller will turn on the pump. The pump will water the plant and the moisture content of the soil increases. Once the moisture content of the soil increases the microcontroller will turns off the pump.

The humidity and temperature of the soil will be displayed on the LCD screen which is sensed by a humidity and temperature sensor DHT11.

The soil pH is determined using image processing. The picture of the soil is taken with the help of Raspberry pi camera. This image is processed and the Red Green Blue values of the image is obtained. There is a particular pH value corresponding to all the RGB values, thereby we get the pH value of the soil and it is displayed. The picture below shows the Red, Green, Blue values corresponding to a particular pH level.

Picture 1: RGB Values corresponding to the pH level (reference IEEE explore)

EXPERIMENT:

Picture 2: The project setup

Hardware requirement

- Arduino Uno board
- Moisture sensor
- Jumper wire
- USB cable
- Raspberry pi
- Raspberry pi camera
- DHT11 temperature and humidity sensor
- 16*2 LCD display
- I2C driver for the LCD display
- Plant

Software requirement

- Arduino IDE
- MATLAB

The hardware requirement of the project is integrated with the microcontroller. The microcontroller is programmed according to the requirement.
Temperature and humidity and pH values are displayed on the LCD display. On the basis of this values the list of crops which can grow in the soil characteristics is sent as a message.

SUMMARY:

Soil is a mixture of organic matter, minerals, gases, liquids, and organisms that together support life. Soils are essential for life, in the sense that they provide the medium for plant growth, habitat for many insects and other organisms.

The common problem existing among the Indian farmers are they don't choose the right crop based on their soil requirements. Due to this they face a serious setback in productivity. This problem of the farmers has been addressed through this project. This project uses the soil characteristics, soil types and suggests the farmers the right crop based on their site-specific parameters. This reduces the wrong choice on a crop and increase in productivity
Moreover, in dry areas where there is inadequate rainfall, irrigation becomes difficult. Hence, we require an automatic system that will precisely monitor and control the water requirements in the field. Installing the Smart irrigation system saves time and ensures judicious usage of water.
A pH value ranges from 1 to 14, pH value below 7 is acidic whereas above 7 is alkaline. The most suitable range for many plants is between 5.5 to 7.0. The pH sensors are available for solution medium, which requires manual work and thereby failing for the farmers to use. In order to overcome this problem, we can find the RGB value of the soil by image processing the picture taken by the camera of the field. There is a particular pH level corresponding to the RGB value. Obtaining the information of this from database and thereby we can predict the pH value of the soil

Once we find the moisture level, pH level and nutrients of the field we can predict which crops are suitable to grow in that field with maximum yield. And thereby the farmer can either choose a crop which he desires to grow and add the fertilizers accordingly or he can get a list of crops which can grow on his field.

TEAM PHOTO:


SRI S.
CHARTED A
SRI RAM
REDDY
MLA & FORM
ON MINISTER
K.E.S
Electric Motorcycle

27. HYDROGEN THERMAL POWERPLANT

COLLEGE	Jawaharlal Nehru National College of Engineering,Shivamogga
GUIDE	Prof.Abdul Saleem
COLLEGE STUDENTS	Kedar jois K Nikhil S T
SCHOOL STUDENTS	Mubarak khalandar,Pramod S 8th Std National college High school section

ABSTRACT: Hydrogen being an excellent energy carrier is most widely used in different modes or forms. The only problem is it is not available in its free form, it is present in its complex states viz metal hydrides etc. Sewage water contains biomass which is an excellent source for hydrogen. Sewage water after primary and secondary treatment will be subjected to microbial fermentation process where bacteria breakdown the complex molecules into simple molecules which yields hydrogen as a by-product. Some of the examples are purple bacteria, Rhodospirillum etc. By using that hydrogen in traditional steam powerplants by replacing coal or natural gas by hydrogen as the fuel, an efficient operation could be done. Hydrogen as a fuel is almost 5 times stronger or powerful than coal because hydrogen has a lower calorific value of almost 120 MJ/kg, whereas coal has 20-25 MJ/kg.

HYPOTHESIS: In present situation, most of the electric generation takes place in steam powerplants and hydro power stations. Steam power plants are undoubtedly efficient process for the power generation, but the fuel used for the operation viz coal, natural gas etc emits harmful gases after combustion.

Typical combustion is as shown

Combustion equations:

- C + O2 = CO2 + 8084 Kcal/ Kg of carbon (33940 KJ/Kg)
- S + O2 = SO2 + 2224 Kcal/Kg of sulphur (9141 KJ/Kg)
- 2 H2 + O2 = 2 H2O + 28922 Kcal/Kg of hydrogen (142670 KJ/Kg)
- 2C + O2 = 2CO + 2430 Kcal/Kg of carbon (10120 KJ/Kg)

Coal combustion products

- Combustion of coal produces following products:
- Ash (bottom ash and fly ash)
- CO_2
- CO
- SO_2
- H_2O
- NOX
- Suspended particulate matte

The combustion products not only harm humans but is a contributor to global warming. So a replacement is must to avoid further consequences, hydrogen being powerful than any other fuel on combustion yields energy and water as a by-product under controlled conditions.

METHOD: As we know, Indian govt. has adopted and suggested the use of non-toxic fuel for the future due to drastic global warming. Few studies show that hydrogen might yield nitrogen oxide as a by-product if burnt openly, but if it is used under controlled conditions in a closed environment as in steam power plants, hydrogen combustion will give water as its by-product. So it is suitable to use and consequently replace the existing fuels like coal when the time is correct.

Production of hydrogen might seem to be a hectic topic, few countries like USA, USSR use steam methane reformation process for hydrogen production, which could potentially cause global warming because reformation process gives carbon dioxide which is the greatest cause for global warming. But the idea we are proposing is an innovative as well as eco-friendly.

Fermentation is a natural process which occurs without human intervention. It simply means breaking up of complex molecules to simpler molecules. Since sewage is abundantly available, all we need is a proper conditioning and allow the microbes to do their work and finally yielding hydrogen in its gaseous form (free form). A study from University of California, and a Japanese sewage treatment plant shows that 1kg of sewage could give about 70g of free hydrogen (free state- usable form).

EXPERIMENT: The combustion equation of hydrogen is as follows

Oxidation of H_2

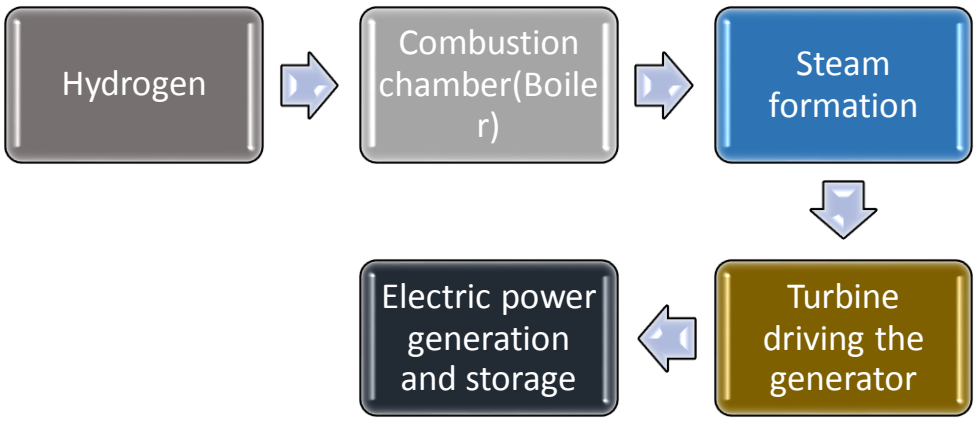
$$2\,H_2 + O_2 \longrightarrow 2\,H_2O$$

$\Delta H = \Sigma$ BE(bonds broken)- Σ BE(bonds formed)

- H-H 2 @ 432 kJ = 864 kJ
- O=O 1 @ 494 kJ = 494 kJ
- H-O-H 4 @ 460 kJ = 1840 kJ

$\Delta H = (864 + 494) - (1840) = -482$ kJ

The process can be easily understood by a block diagram



SUMMARY:

In this era of innovation, new technologies and products are being brought up, which might be useful to us but most of the technological aspects are a potential disaster to mother earth. As Engineers we need to innovate in such a way so as to not harm things around us. Its time to upgrade ourselves and shift to eco-friendly ways and also not losing our comforts. Hydrogen thermal power plant is one such intuitive idea to reduce emission and obtain power without causing harm to the environment. Our main aim has been clearly plotted with this report enclosing importance about nature friendly technology.

28. BRIDGE CAPACITOR

COLLEGE	Presidency University
GUIDE	Prof.Sachidanand
COLLEGE STUDENTS	Mallikarjun sangam,Jyoti
SCHOOL STUDENTS	Pramod,Trisha 9th Std Govt High school,Rajanukunte

ABSTRACT:
Many Techniques are available to monitor bridge safety in real-time for heavy structures. Whereas the small bridges constructed one river with lower loading capacity are hardly monitor because of economic issues. These bridges are more prone to failure becomes of exploitation of use. Many accidents are reported in such cases because of heavy load vehicles passes on the same bridge for which it is not designed. In this study a sensor-based monitoring system is designed to restrict the movement of heavy load vehicles on such bridges, this sensor will automatically enable a barricade for such vehicles and sends the alarm for further action. This model may avoid accidents because of heavy load vehicles and safeguard the Bridges.

HYPOTHESIS:
Overloaded trucks, including some extra-heavy trucks, often cause serious threats to bridges, such as deterioration, fatigue damage, or even collapse, fig 1 and fig 2 shows some of the examples. Compared with the standard traffic design loads in design specifications, the actual characteristics of overloaded trucks, such as truck weight and types, are very difficult to predict or define. Aging bridges create safety concerns for the departments and agencies responsible for bridges. Jurisdictions do not have the resources or funding to replace every structurally deficient bridge. It is imperative that these bridges be preserved and driving made safer.

Bridge Broken by Illegal Load

Overloaded truck damages bridge

Using the latest technology with minimum efforts this kind of failure can be curbed easily. This project aims to avoid accidents because of the overloading of bridges and minimize the losses caused by this.

The architecture of the model:

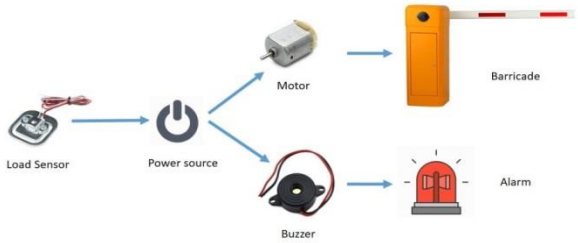


Fig 3: Architecture of the concept

Working Principle:

The weight sensor is enabled with the weight limit if the vehicle weight is within the limit then the vehicle is allowed pass through, if it exceeds the limit then the load sensor will send a signal to the power source and which in turn activates the motor which is responsible for controlling the barricade, which will not allow the vehicles to pass through it. Simultaneously the siren alarm automatically, so that the security can take the necessary action.

29. SILLA-DE-RUEDAS

COLLEGE	Sai ram college of Engineering,Anekal
GUIDE	Prof.Reji thomos
COLLEGE STUDENTS	Ajith M,Brunda S
SCHOOL STUDENTS	Drashan M,Mohamad Aslam 9th Std Karnataka Public School,Anekal

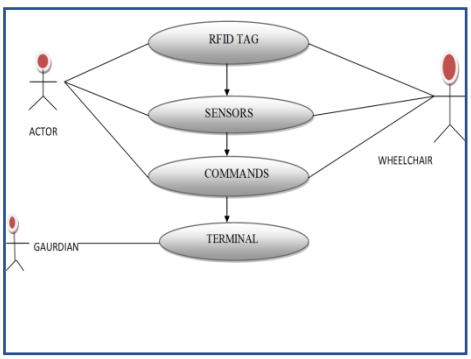
ABSTRACT: Wheelchair can extend the lives of many disabled people. For handicapped people human found a wheel chair which can be moved by using hands for those who don't have legs. But the peoples who don't have legs as well as hands cannot move their wheel chair by themselves. There has to be a care taker to look after the person at all time. Our wheel chair is moved by neck movement to overcome above situation.

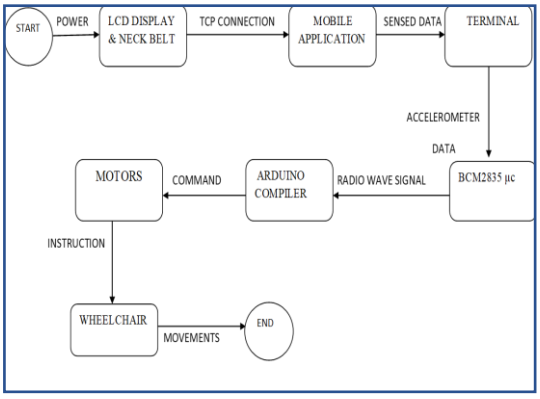
HYPOTHESIS: The population of disable people is increasing due to various reasons such as road accidents, premises fall, suicide cases, natural disasters like earthquakes, etc. There should be some means of machine that could help this population to make locomotion. Where Humans came with an Idea of automatic wheel chair. We already have Wheel Chair controlled by hands but what about peoples who don't have legs as well as hands cannot move their wheel chair by themselves. There has to be a care taker to look after the person at all time.

METHOD: peoples who don't have legs as well as hands cannot move their wheel chair self. They need some other person to move their wheel chair. But sometimes such person faces so many problems if they didn't get any person to move their wheel chair.

This project "Silla De-Rueda's" aims to resolve the above mentioned issue. In this project we are going to make a wheel chair which can be controlled with the help of neck movement. This wheel chair controlled manually through neck of the person sitting on it. He/ she just need to move his/her hand into the direction it wants to move by using accelerometer. In automatic control user just need to press keys for saved destination. Then the wheel chair will automatically move into the direction of saved destination by using encoder wheels. In this project we are presenting an IOT based system which will help disabled people to move the chair safely and efficiently. Along with this we RFID Technology.

- It is easy to access for the disabled peoples.
- It is one time investment for the real life application and a bit advanced and comfortable to use.
- They are durable, adjustable and feature special seats with soft pads for orthopedic patients.
- Our system can be used in residential areas and rural areas.



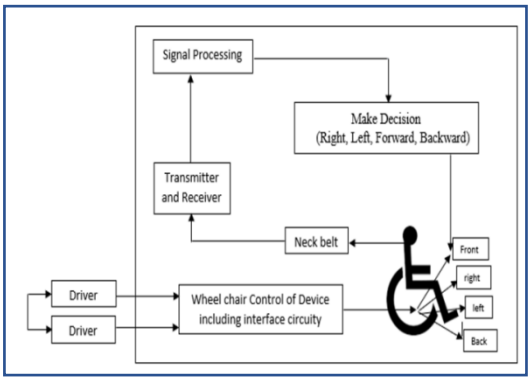


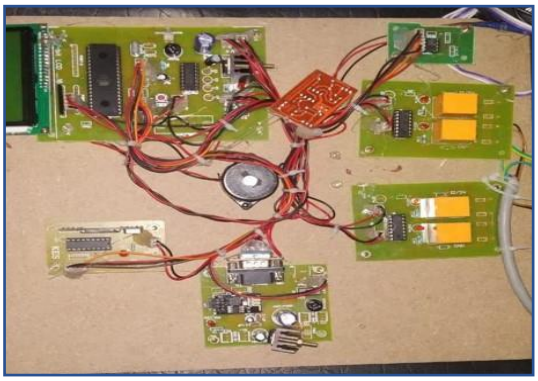
Use Case Diagram **Dataflow Diagram**

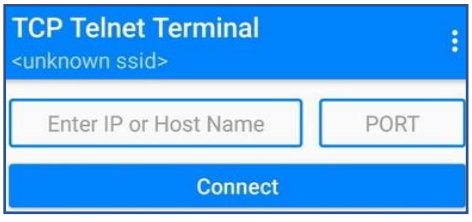
EXPERIMENT: Software Requirements
- Arduino Compiler
- IOT app

Hardware Requirements
-Accelerometer
-BCM 2835
- RFID Tag wireless
- Heart Beat and BP Sensor
- WIFI Modules
- Motors
- Wheelchair

The person who is operating the wheelchair will be equipped with a device using RFID technology which is placed around the neck of the person which is helpful to move the chair. The project uses 2 geared motors of 60RPM to drive the prototype of the wheel chair. We are using the IoT technology to interface the modules. We are also using four switches in the circuit which will be ON when the person will move neck forward and backward. This project uses BCM2835 as its controller. Communication between neck belt and controller As soon as power is supplied the RFID reader will send the signal to tag. Uses radio waves to automatically identifying and tracking of object. RFID tags which is placed in neck belt will return the feedback signal to the controller. Communication between the Micro-controller and the motor Controller will send the signal to the motor. A motor driver is a little current amplifier. The function of motor drivers is to take a low-current control signal and then turn it into a higher-current signal that can drive







SUMMARY:

- Our wheel chair can be completely controlled by neck belt.
- We can monitor room temperature and pulse rate
- It is one time investment for the real life application and a bit advanced and comfortable to use.
- They are durable, adjustable and feature special seats with soft pads for orthopedic patients.

30. MONITORING OF HIGHWAY WIND POWER

COLLEGE	Shridevi Institute of Engineering and Technology
GUIDE	Prof.Sandhya R
COLLEGE STUDENTS	Raghu raj G K,Kavya S
SCHOOL STUDENTS	Manoj,Yashas N C,9th Std Kendra Vidyalaya

OBJECTIVE:

To reduce the energy consumption of conventional resources and increasing the use of non-conventional resource to provide electricity supply for the highway lights.
The main prospect of this project is to save energy effectively.

INTRODUCTION:

The main prospect of this project is to save energy effectively and that is our prior responsibility. As we all know, that the highway light system are one of the main city's assets which provide safe roads and enhanced security in homes as well as city centres. The present survey describes that the average 30% of a city's electricity is consumed by lighting the streets and highways. The present situation of highway lights, at evening before the sun sets lights get on and they get switched off by next day morning after there is enough light on the highway, sometimes the lights remains ON in daylight. To overcome with this issue, this project gives the best solution to save the electricity. If the traffic decreases significantly at midnight say between 1:00AM to 6:00AM, then dimming of lights is the best solution. It will reduce the illumination of the street lights to 20% whenever no vehicle was detected.

In addition, here another remarkable side of this project is that we can avoid electricity supply for lighting the highway lights, instead of that we can use wind energy for the power supply which can save around 30% of electricity wastage. As the population increasing day by day the demand of electricity is also rapidly increasing. Electricity can be generated by two different resources, one is conventional energy and another is non-conventional energy sources.

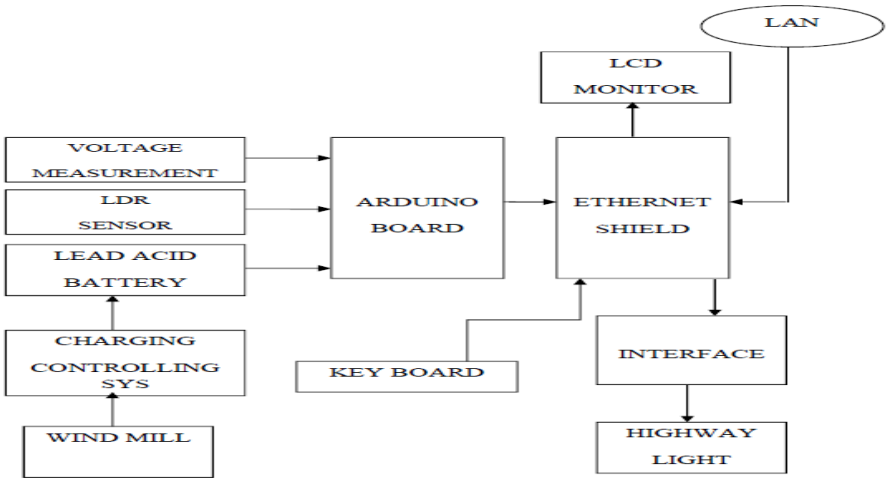
As the conventional energy resources are very costly and harmful also so, here the non-conventional energy is being used. The wind energy is also one of the form of non-conventional resources. And it is the fastest growing sources, but the major drawback of this is fluctuation in wind. So the energy will not be constant every time, the wind turbine can be used to provide constant wind on highway. And due to the rapid movement of vehicles the generator will generate the power and it can be store in rechargeable battery in day time, it can be used back at night time. And all these parameters can be controlled via using IoT.

LITERATURE SURVEY:

"A Smart Street Lighting System Using Solar Energy"Fares S. El-Faouri, Munther Sharaiha, Daoud Bargouth, and Ayman Faza Electrical Engineering Department Princess Sumaya University for Technology Amman, 978-1-5090-3358-4/16/$31.00 ©2016 IEEE.

- This project demonstrates a prototype for a smart street-lighting system, in which a number of DC street lights are powered by a photovoltaic (PV) source.
- **IoT Based Street Lighting and Traffic Management System"** Mohd. Saifuzzaman, Nazmun Nessa, Moon Fernaz Narin Nur, Daffodil International University Dhaka, Bangladesh, 978-1-5386-2175-2/17/$31.00 ©2017 IEEE.
- The main purpose of this project is to invent an intelligent system which can make decisions for luminous control considering the light intensity. Another remarkable part is to maintain the traffic signal automatically without any help of traffic police and monitor the entire system through internet by installing surveillance camera.

BLOCK DIAGRAM:



COMPONENTS:-

Arduino Uno:-

Arduino is an open-source physical computing platform based on a simple i/o board and a development environment that implements the Processing/Wiring language.

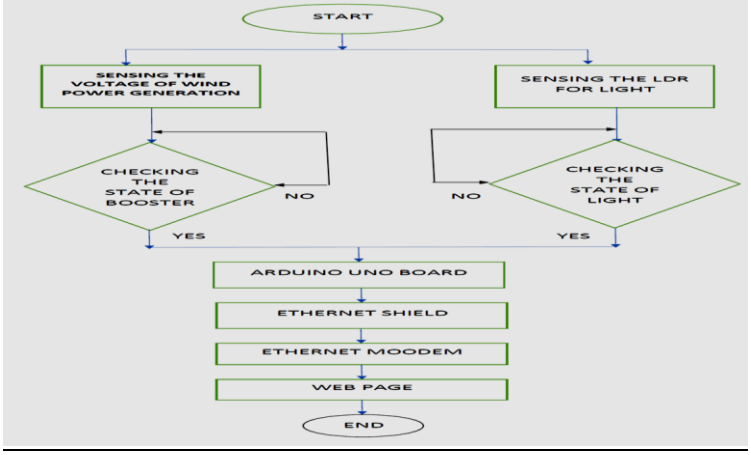
Arduino Ethernet Shield:-

An Ethernet shield allows a device to connect to the Internet through the use of an Ethernet cable and a local access network (LAN).

LDR SENSOR:-

An LDR or light dependent resistor is a one type of resistor whose resistance varies depending on the amount of light falling on its surface.

Flow chart



METHODOLOGY:

If the efficiency of a wind turbine is increased, then more power can be generated thus decreasing need for expensive power generators that cause pollution. This would also reduce the cost of power for the common people. The wind is literally there for the taking and doesn't cost any money. Power can be generated and stored by a wind turbine with little or no pollution.

The aim of this project was to study the influence of the different designs on rotational speed and power of rotor in different wind speed. They use horizontal axis wind turbine, but in horizontal axis wind turbines lift and drag forces plays the roles to operate the wind turbines. But it has high maintenance cost and investment cost. To overcome these issues the vertical wind axis turbines are used to generate wind energy at low cost.

Hybrid is the combination of two or more energy resources. In US, the wind flow is low in the summer and strong in winter. Because of this peak operating times for solar and wind systems occur at different times of the day and year. Vertical wind axis turbine is a special purpose wind mill, they are designed in such a way that the vehicle moving on both the sides of the highway are capable to cut the blades of VAWT, the blades are connected to the shaft intern connected to the generator; it generates the power; the power developed by the VAWT is stored in battery, the power is used for various applications.

The following steps are followed under the proposed work:-

- Initially wind mill is placed on the meridian of the highway.
- Due to the movement of vehicles on the highway, the wind mill rotates and generates the power.
- This power is used by nearby street light and villages.
- If there is any problem in generation of power by wind mill the mail will be send to the base station, that wind mill is not working.
- This is done by use of Arduino Ethernet Shield, the whole process repeats.

If the efficiency of the common wind turbine is improved and widespread, the common people can cut back on their power costs immensely. There are two types of wind turbines, mainly Horizontal wind axis turbine, and Vertical wind axis turbine. The vertical wind axis turbines are purely operates based on the drag force. But in horizontal wind axis turbines, lift and drag forces plays the roles to operate the wind turbines.

The aim of this project is to improve the efficiency, quality and improving of the street light using GPS model. The automatic control of street light and maintenance solves the problem like maintaining of street light, display problem, and connectivity problems.

DEVELOPED WORK:

The aim of designing highway wind turbine is to produce electricity by wind. Wind is natural and renewable resource which is freely available everywhere. Mainly wind turbines are designed in city sides and hill stations but in this particular project wind turbines are used in cities. The main objective of this project is to reduce the amount of pollution produced by fossil fuels during the generation of electricity.

The features of this project are as follows:-

- Power from highway vertical windmill.
- Auto highway light control.
- Parameter monitoring from base station through the IOT.

DESIGN CHALLENGES:

- The cost of wind turbines increases as the height of wind mill increases.
- The wind mill must be able to store the data, and effectively use this data for nearby street lights and villages.
- The major problem in designing this deals with placing of the wind mill.
- As we placing the wind mill on the traffic area, extra care must be taken to protect it.
- The safety measures may include warning labels and making a fence around the windmill.

ADVANTTAGES:

- No man power required.
- Wireless communication.
- Automatic switching of street lights.
- Higher efficiency.
- It is suitable for rural and urban area.
- Simple construction.
- Efficient method of control and power generation.
- Less consumption of electrical energy.
- Less maintenance cost.
- Cheap and economical.
- Saving of electrical supply at effective amount.

DISADVANTAGES:

- The strength of the wind is not constant and it varies from zero to storm force.
- Wind turbines are noisy.
- Large wind forms are needed to provide entire communities with enough electricity for 475ohms, when running at full capacity..
- Rain precautions.

APPLICATON:

- It is used in telecommunication sector to communicate between the generating station and the receiving station and distributor.
- It is also used to access the radar system.
- It is also used in Air traffic controlling system to make use of wide range of non-conventional energy resources present in nature.
- The wind power is also used for catholic protection.
- It is also used in pipe controlling point.

FUTURE SCOPE:

- The energy which is produced by wind turbines due to rapid movement of vehicles on highway is basically controlled from the base station through IOT.
- The amount of energy that is generated by wind turbines are used for nearby street lights on highway and nearby villages. This method is environmental friendly.
- As the population increases increasing day by day, the demand of electricity are also increasing. Generation of energy from non- renewable resources is insufficient to fulfill the need of common man and damaging the environment.
- The wind and solar are renewable resources which are freely available everywhere and we are using it effectively for generation of electricity.
- This may fulfill the demand of electricity to some extent.

31. FOOD MANAGEMENT USING IOT

COLLEGE	Sri Jagadguru swamiji Chandrashekaranatha swamiji Institute of Technology,Chikkaballapura
GUIDE	Prof.Prof.Ravi M V
COLLEGE STUDENTS	Thirumala Samhitha K M,Supriya N
SCHOOL STUDENTS	Javeed,Yallamma 9th Std Govt High school,Chikkaballapura

ABSTRACT: Prevention of food is very important. Storage areas such as warehouses, store rooms and refrigerated areas keep the food products in good condition depending upon the natural calamities in these respected areas. Because of ineffective monitoring of the environmental conditions within the storage area results in food losses through physical volume such as weight loss, decay or damage of the food products and economic value of the product like quality or color changes have been decreasing. The proposed system provides monitoring of the environmental conditions that avoids food from decay or perishing. Effective monitoring of the environmental conditions within the cold storage and warehouses preventing loss of food products and food grains. The proposed system mainly consists of monitoring nodes, router nodes, the control center node and the Management Centre. The warehouses or cold storages fresh food areas generally are divided into several small scale units, which are closed each other.

Monitoring nodes consisting of sensors are the leaf nodes of network, mainly responsible to collect data such as light, temperature, humidity and other environmental factors that help food and food grains from decaying. All these nodes pass vital environmental information obtained from different sensors to a Central node via GSM Modem. The Central node is responsible for passing the information to management node.

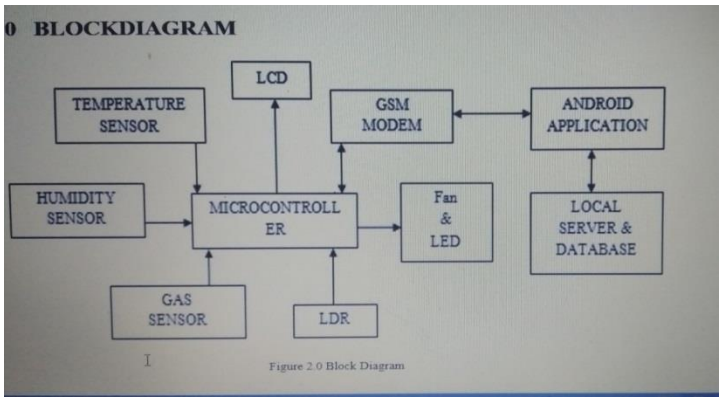
HYPOTHESIS: The project aims at creating a real-time environment monitoring system within the warehouses which will be able to provide the user the conditions within the warehouses and with a remote location it can notify the user by the user by the use of Android mobile. This is achieved by data in the form of SMS to the user whenever he asks for it or whenever there is a change in the conditions above the threshold level. Also, the data is periodically being stored in the server.

HARDWARE ELEMENTS:

1. Renee's microcontroller
2. temperature sensor
3. humidity sensor
4. gas sensor
5. liquid crystal display
6. light dependent Resistor
7. GSM modem

SOFTWARES USED:

1. Cubesuite+
2. Renasas Flash Programmer
3. MySQL
4. ECLIPSE



EXPERIMENT:

The proposed system measures any change in the conditions, send that information to the registered mobile via GSM and stores this information in database created using MySQL. Also, whenever the user wants to know the current conditions within the warehouses, he can get that information by toggling the status button in the android app.

The temperature and humidity sensor checks for any change in temperature and humidity within the warehouses or cold storage facility, whereas gases emitting from rotting food or food products. Certain food products such as food grains need proper lighting facility for maintaining of their quality, hence LDR sensors generate an output voltage with change in their surrounding environment. These output voltage change with change in their environment. These output voltages are fed to the pins of ADC unit of the microcontroller. The microcontroller processes the incoming voltages fro the sensor depending on the program embedded within it. The output of the mc is passed to Android cell phone via GSM. From the cell phone, the controlling system(FAN,LED)which are kept at the onsite can be turned ON/OFF and the data is then send to the local server via WiFi-Network. A database is created using MySQL software, which maintains the data on the local server. By accessing the database, the event logs of the system can be seen from anywhere using the software.JAVA coding using ECLIPSE, along with the android 4.0 SDK is utilized to create the front-end of the server.LCD is utilized to demonstrate the working of the entire unit.

SUMMARY:

A real time, effective monitoring and controlling of the environmental conditions within any storage unit has been successfully achieved by the proposed system wherein a user is informed whenever there are any changes in the environmental conditions and also can get to know about the same through the android application developed.

32. ARTIFICIAL INTELLIGENCE BASED VISUALIZATIOPN DEVICE

COLLEGE	Sri Venkateswara College of Engineering, Bangalore
GUIDE	Prof.Sarvesh araballi
COLLEGE STUDENTS	Akshitha A,Geetha G,
SCHOOL STUDENTS	IndushreeK S, Santosh K 9th Std Govt high school,Tanisandra

ABSTRACT

In this fast moving world visually impaired people are left underprivileged because of their dependency. These people are unable to lead normal life and require some assistance. Already there are few methods which provide some level of mobility comfort. Conventional methods such as dogs or cane are limited in providing sufficient information about the surroundings. In this project, an artificial intelligence based assistive device is developed which incorporates small computer, camera and sensors. This device provides sufficient information about the surroundings and possible dangers through the wearable headphones, thus making visually impaired people non-dependent and lead normal life.

HYPOTHESIS

According to the 'WHO' there are about 253 million visually impaired people, in which 36 million are totally blind and 217 million suffer from moderate to severe vision impairment. In this fast moving world, visually impaired people face constraints such as they are left behind and not treated equally because of their dependency. There are many solutions which provide them some degree of assistance. One of the method is orientation and mobility, in this someone helps the visually impaired people and also train them to move on their own. Another method is using dogs, were the dogs are trained to support the blind people. This is unreliable to handle the dogs and thier cost of training.

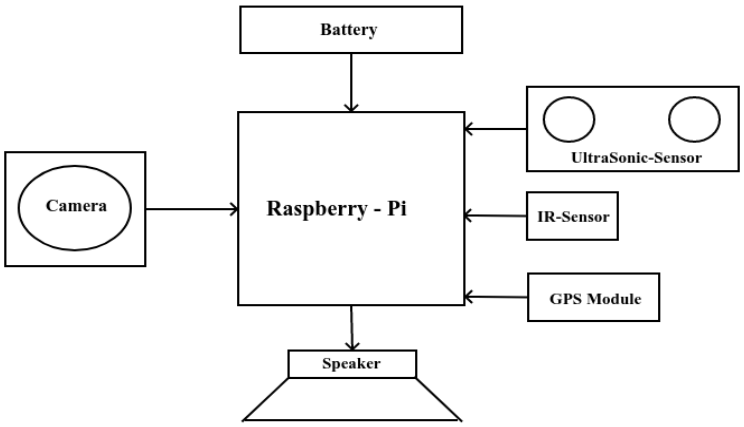
Recently different types of smart canes are used, however these have constraints. The cane is unhandy in public place because of the long length and also has limitation in sensing the surroundings.

To help the visually impaired and blind people to be independent, this project proposes a portable electronic assistive device based on artificial intelligence technology. This device utilizes different sensor including IR sensor, GPS sensor, ultrasonic sensor and camera for sensing the surroundings. Raspberry Pi a small computer which processes all the sensor data and provides the information about the surroundings through the headphone and thus makes the blind people's life easier. This device has a special feature, which provides location tracking of the blind people.

Methodology

The proposed device uses the Computer Vision and Deep Learning technologies which comes under the artificial intelligence. This artificial intelligence technologies is used for the object detection using the camera. Ultrasonic sensor and IR sensor are used for the

distance measurement. GPS provides location tracking capabilities which enables the care-taker to track the blind people.



The figure.1 shows the block diagram of the proposed device. Raspberry-Pi forms the central part integrating all the components like- sensors, camera, GPS and speaker/headphone. Python programming language is used to program the whole system/device which helps raspberry-pi to communicate with all the sensors. Then it processes the sensor data and converts to the human readable information and finally delivers to the blind people through speakers.
The system consists of different modules, which are as follows-

Object Detection
First ML Model has to be created & trained. Once the model is ready, it takes video streams from the camera then ML model predicts objects using features from the video.
Text-to-Speech Conversion
The predicted object is in the “ASCII-Text” format, this should be converted to “audio” by using TTS (Text-To-Speech) synthesis and finally playing this audio through the speaker.

Obstacle & Distance Measurement
To detect any obstacle in the forward direction of the device, IR-Module is used. It will alert the user (Blind Person) by audio-warning through speaker.
The device also employs distance measurement of the obstacle/object in the sensors view, Ultrasonic sensor is used for this purpose. Once distance is measured it is converted to audio and played to speaker.
(Instead of IR, Ultrasonic sensor can be used for both obstacle & distance sensing, but IR has fast response, hence seperate sensor are used.)

Location Tracking
To have track of the Blind the device employs GPS and current location of the Blind can be shared and tracked by the care-taker.
EXPERIMENT

This experiment is done in three stages which are Setup, Installation and Coding.
Setup

Raspberry-Pi is a 'Single Board Computer' which works similar to the general-purpose computer such as desktop and laptop, hence it requires Operating System to work. Raspberry supports linux OS and officially released raspbian OS can be installed. Along with the OS it also requires monitor, keyboard and mouse to operate the OS initially, which can increase the cost of the system. The solution for this is 'Headless' computer, one that operates without monitor, keyboard and mouse. Once the 'headless installation' is done, raspberry can be operated remotely by the host computer.
Following is the steps for the 'Headless Raspberry-Pi Installation'
Required Materials- Raspberry-Pi, Power suppy and micro-SD card (Min. 8GB)

Flashing the OS

Download the latest version of Raspbian OS image from the raspberrypi.org website.
To flash OS image to micro-SD card, use Etcher tool. Download and install it. Plug micro-SD card into host computer and run Etcher. It will walk through selecting the OS image file, selecting micro-SD card and then flashing it.

Enabling WiFi

With the micro-SD card plugged into host computer, navigate to the boot partition and

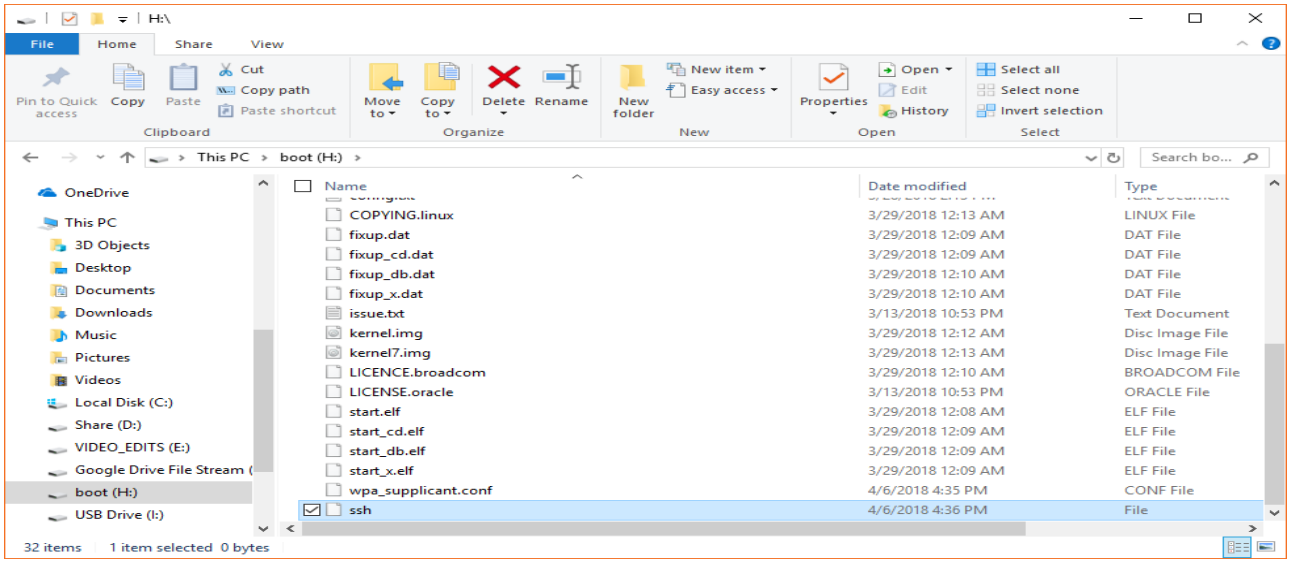
```
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1
country=<YOUR TWO LETTER COUNTRY CODE>

network={
    ssid="<YOUR NETWORK NAME>"
    psk="<YOUR NETWORK PASSWORD>"
    key_mgmt=WPA-PSK
}
```

create a file named wpa_supplicant.conf.

Enabling SSH

By enabling the ssh raspberry-pi can be operated remotely over the network connection. In the boot partition, create an empty file with the name ssh. Unmount the SD card from host computer and insert it into the Raspberry Pi.



Find the raspberry-pi's IP address

Power on the Raspberry-Pi and wait for it to connect to specified WiFi network. Open wireless router's configuration page. From there, find and note the Raspberry Pi's IP address.

Find the raspberry-pi's IP address

Power on the Raspberry-Pi and wait for it to connect to specified WiFi network. Open wireless router's configuration page. From there, find and note the Raspberry Pi's IP address.

Connecting over SSH

Secure Shell (SSH) gives a terminal into an operating system over a network and encrypts the traffic, giving a level of security. Depending on the host operating system, there are number of options available. In windows 'PuTTy' application can be used. In linux there is a built-in 'sash' command. Use "ssh username@ip-address' command, when asked for password enter "raspberry".

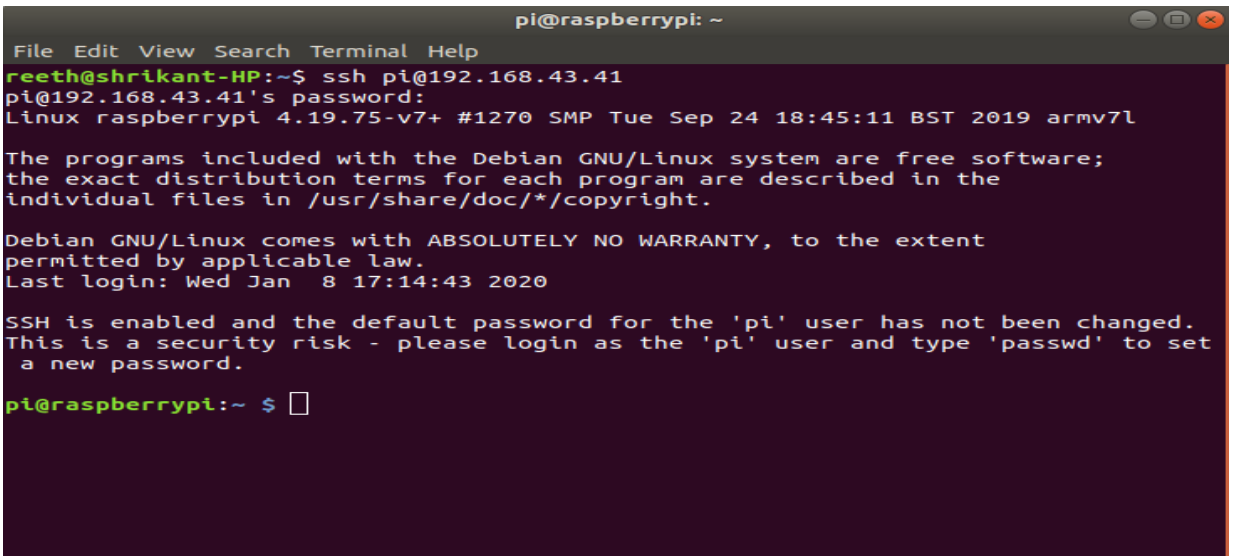
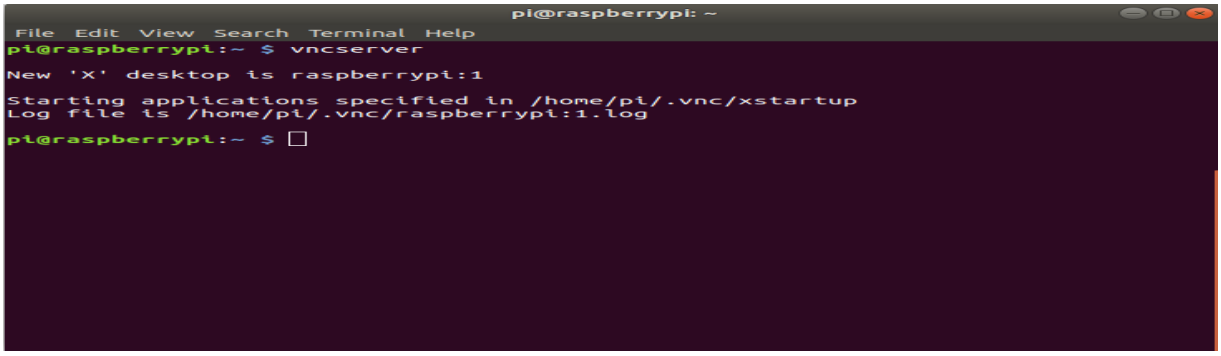


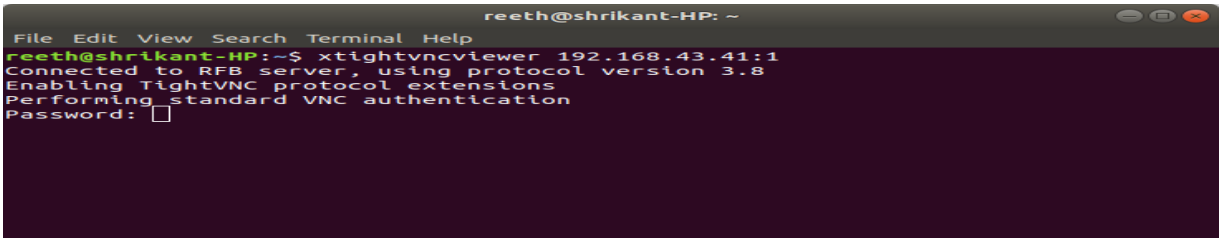
Figure 6- Logging-In

Once logged-in to raspberry-pi, enable vncserver to get the graphical user interface (GUI) and exit from the Ssh connection using “exit” command.

Now again from the host computer, connect to raspberry-pi using vncviewer. First install the xtightvncviewer in the host computer then use “xtightvncviewer ip-address:1” and when asked for password type “remote”



Enabling vncserver



Installation

After completion of setup stage next stage is the installation of Tensor Flow and other supporting libraries. TensorFlow is the tool for the object-detection and hence is the main part of the whole system.

This stage constitutes of different steps as follows-
Update raspberry-pi
First, the Raspberry Pi needs to be updated. Open a terminal and issue following commands:
“sudo apt-get update”
“Sudo apt-get dist.-upgrade”

Install Tensor Flow
Install TensorFlow by issuing following command:
“pip3 install tensor flow”

Tensor Flow also needs the Libels package. Install it by issuing the following command:
“sudo apt-get install libels-base-dev”

Install dependencies that will be used by the Tensor Flow, issue:
“Sudo pip3 install pillow lxml Jupiter matplotlib cython”
“Sudo apt-get installs python-tk”

Install OpenCV
TensorFlow’s object detection typically uses matplotlib to display images, but for easier work use OpenCV.
To get OpenCV working on the Raspberry Pi, there are few dependencies that need to be installed, issue:
“Sudo apt-get installs libjpeg-dev libtiff5-dev libjasper-dev libpng12-dev”
“Sudo apt-get installs libavcodec-dev libavformat-dev libswscale-dev libv4l-dev”
“Sudo apt-get installs libxvidcore-dev libx264-dev”
“Sudo apt-get installs qt4-dev-tools libels-base-dev”
Now install OpenCL. Issue:
“Sudo pip3 install opens-python”

Install Protosun
The Tensor Flow object detection API uses Protosun, a package that implements Google’s Protocol Buffer data format. Issue:
“sudo apt-get install protobuf-compiler”

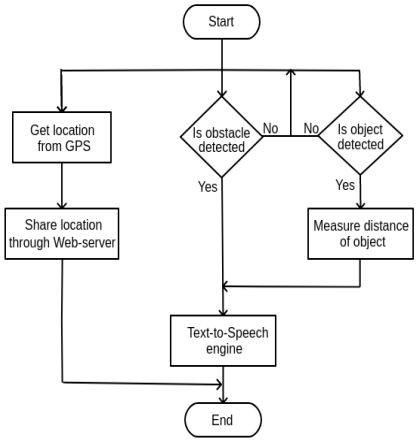
Set up Tensor Flow Directory
Once all the packages are installed, set up the TensorFlow directory. Move back to the home directory, then make a directory called “tensorflow1”, and cd into it.
“Mkdir tensorflow1”
“Cd tensorflow1”
Download the tensor flow repository from GitHub by issuing:
“gilt clone --depth 1 https://github.com/tensorflow/models.git”
Next, modify the PYTHONPATH environment variable to point at some directories inside the Tensor Flow. Open .bashrc file and issue:
“Scudo nano ~/.bashrc”

Move to the end of the file, and on the last line, add following export PYTHONPATH=$PYTHONPATH:/home/pi/tensorflow1/models/research:/home/pi/tensorflow1/models/research/slim

Then save and exit the file. This makes it so the “export PYTHONPATH” command is called every time you open a new terminal, so the PYTHONPATH variable will always be set appropriately. Close and then re-open the terminal.

Detecting Objects

Now everything is set up for performing object detection on the Pi. The Python script “Object_detection_picamera.py”, detects objects in live feeds from a Picamera. Basically, the script sets paths to the model and label map, loads the model into memory, initializes the Picamera, and then begins performing object detection on each video frame from the Picamera.



TEAM PHOTO:

33. TECHNO GLASSES

COLLEGE	Sir M Visvesvaraya Institute of Technology, Bangalore
GUIDE	Prof.Divya rani M S
COLLEGE STUDENTS	Kshitiz dayal,Swapnil
SCHOOL STUDENTS	Kavya S,Praveen 9th Std Govt high school Hunsamaranahalli

ABSTRACT:

Techno glasses are basically a small prototype of smart glasses which we have tried to build. Our project is very simple and effective. We are trying to make a pair of glasses that will be totally voice operating along with a small screen on its lenses.

Basically we are trying to make the glasses that will be connected to our smart phones and whatever will be displayed on the smartphones can be seen on the glasses. We can also connect the glasses to Google Assistant through our smart phones. So if we give any command to the google assistant it can be implemented on phone and can be displayed on the glass screen.

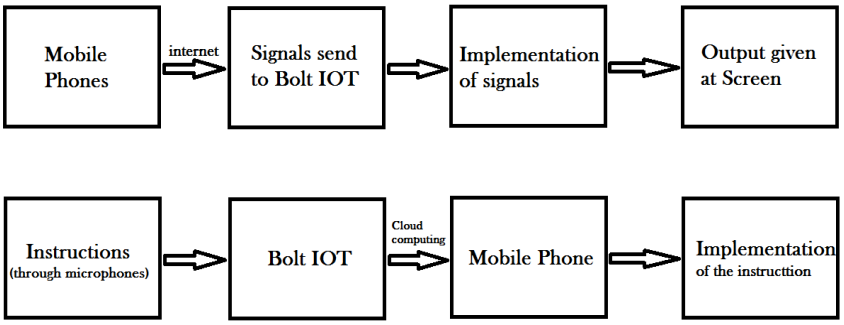
HYPOTHESIS:

A great part of the development of human civilization has involved a technological evolution towards better, more efficient tools. Early examples of the fusion of man and machine include the first attempts to fly, the design of various kinds of prostheses, and extended installations such as attached weapons, armour and gear.

However, it is only with the development of the computer that we really see technology merging with human beings. Over the last 20 years, computers have developed from stationary computers, via laptops, to the computers that the user can carry around constantly. . In the future, this development will approach total integration with intelligent clothes, intelligent contact lenses, and the incorporation of computers in the skin.

The impact of this development is already visible today – now that young (and old) people publicize their lives on Facebook, Twitter and Instagram. Smart glasses, which do not require users to look down or away but present information right in front of their eyes, allow them to publish exactly what they see when they see it. With the development of smart glasses, online and offline world is starting to converge, because people can be in the virtual as well as real world at the same time. The main reason for developing techno glasses is to minimize the time that is being used on the phone's display.

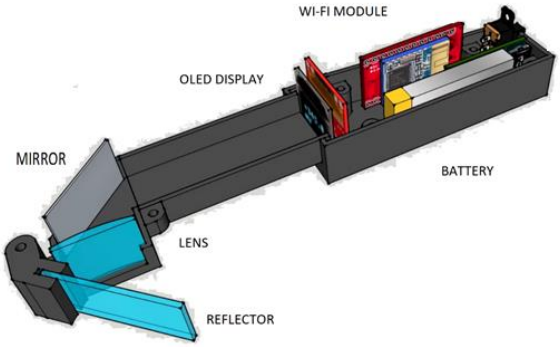
METHOD:



This is the method of working of the techno glasses. We are going to connect our mobile phones to the Bolt through the Bolt cloud. Now as soon as any signal is sent to the bolt through our mobile phones, the Bolt will implement that the signal and the output will be shown on the display screen. In the display screen we are connecting a LCD display.
Same thing will be done in reverse process if we have to give any command to the phone. First the microphone will take the command. Now it will send these command to the mobile phone through the Bolt IOT cloud. The mobile phone will implement those required command and give us the output.

EXPERIMENT:

We have used the following components in the making of our project Techno Glasses:
• Wi-Fi module (Here we are using BOLT-IOT as a wi-fi module) – Bolt is a device where we can monitor and control our other devices and sensors through Bolt cloud.
• OLED Display or LCD – The display is being used for displaying the content out of the Bolt.
• Earphones - We are using a Bluetooth earphone which will act as a microphone to take command as well as speakers to give output in audio form.
• Battery – We are using a battery to power the Bolt device.
• Mirror, Reflector and Lens – These are used for displaying the content out of the LCD display to the screen which will directly focus on our retina.
On combining all these in a plastic body set we get:



The set will not contain the Bluetooth earphones because it can be manually configured with the Bolt and it need not be present inside the body set.

SUMMARY:

In today's society we have become quickly accustomed to the emerging technologies around us, cell phones becoming Smartphones and androids, iPads, tablets, augmented reality, camera, mp3s, GPS, robots… that's a whole different story. Technology has changed dynamically throughout the years from computers to laptops to now everything being all-in-one on our phone. Our Techno glasses is a small effort on bringing our smartphones to our spectacles. By using Techno Glass one can minimise the use of smartphones either for seeing the time or the notifications and many other small works that can be done just by seeing on the display screen.
At last we want to conclude that through these glasses our society is going to be benefited a lot and it can be used for many other purposes.

34. RECLAMATION OF POMEGRANATE INDUSTRY WASTE

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COLLEGE STUDENTS	Darshini B M,Ayan Khanra
SCHOOL STUDENTS	Lakshminarayan,Surekha 9th Std SriKodandaramaswamey High school

ABSTRACT:
The peel and seeds are important sources of high value components. There has been an important in the demand for natural products like in the food, pharma and cosmetic industries as a replacement to synthetic compounds. The peel comprises of minerals like potassium, calcium, phosphorous, magnesium, sodium, and bioactive like proanthocyanins, flavonoids, ellagitannin etc. The seed comprises of essential fatty acids like punicic acid which is a conjugated form of alpha linolenic acid. The seeds are rich in lipid sources and its weight is composed of 12-20 percent of lipid. The oil content varies from 12 to 20 percent of the seed on dry weight basis. The seed contains 65-80 percent conjugated fatty acids. The seed oil is characterized by polyunsaturated fatty acids such as linoleic, linolenic, and other fatty acids such as punicic acid and palmitic acid. It's extremely healing and can be used to remedy dry and cracked skin and alleviate skin issues such as psoriasis and eczema. And this oil can also be used for preparing animal feeds because it contains large amount of proteins, carbohydrates etc. And these have several potential health benefits such as antioxidant, antitumor, anticancer, immune modulatory, anti-atherosclerotic and serum lipid lowering activities. Hence, both the peel and seeds possess biologically active components, can extremely use in food industries as food ingredients, natural colors, food additives, nutraceuticals and for antimicrobial applications.

The ultimate goal of this project is combat the occurrence of mastitis and other bacterial infections in veterinary/pet animals by developing products from the wastes discarded from the pomegranate fruit industries.

Till date, there has not been any channelized approach for the conversation of these co-products into valuable products. The major goal of this project is the reclamation of the pomegranate seed and peel obtained from the juice industries and develops products in the form of soaps/ lotions for the veterinary applications and further develops natural food colors from peel extracts.

HYPOTHESIS: The pomegranate seeds comprises of 18 to 20 percent oil which is rich in fatty acids like linoleic, gallic and ellagic acids, sugars, vitamins, polysaccharides, minerals and phenolic compounds like punicic acid and punicalagins. These provide therapeutic properties like cholesterol reduction, anti-diabetic, antitumor, anti-inflammatory, anti-oxidative, anti-atherosclerotic, immunomodulatory, anti-microbial properties and also wound healing properties. It is used as an ingredient in Ayurveda medicine for several formulation related to heart.

Likewise, pomegranate peels are known for their antioxidant properties due to their richness of polyphenols, anthocyanins and tannins, flavonoids, vitamin C, gallic acid,

vitamin A, B6, C, folate, potassium and oxalic acid. It is used in several ailments related to heart and skin.

METHOD:

1. Pomegranate peel and seeds are collected, dried and powdered.
2. Standardization of extraction protocol for Bioactive extraction from pomegranate peel and seed.
3. Quantification of bioactive using analytical techniques.
4. Antimicrobial studies using the extract, depicting the benefit of extracts.
5. Formulation of tropical product.
6. In-vitro studies of formulated product.

EXPERIMENT: We collected pomegranate seeds and peel from near by juice shop in MVIT campus. We found out the moisture content present in the seed and the peel. Then we kept that in the hot air oven for drying. Later we took the dry weight of the seed and the peel. We weighed out the known amount peel and seed and then grinded it and made as powder. We took a known quantity of pomegranate seed powder. Then extract oil using soxlate and distillation methods by taking petroleum ether as a solvent in soxlate process. Then quantified the oil and analyse the quantity of the oil by conducting series of tests like GC, acid-value test, peroxide value test etc. We did antimicrobial test on oil. We made a soap from the extracted oil, comprising of antimicrobial properties which can be used in the veterinary applications. Likewise, we took a known quantity of pomegranate peel powder. Then we extract the color from powder using ethanoic HCL as a solvent in the ratio of 85:15, filtered it and obtained a cooler. We got a natural food colors produced from the pomegranate peel.

SUMMARY: The drastic increase in the pomegranate cultivation led to the generation of by-products such as peel and seeds which constitute 50 percent of the whole fruit. These contain high levels of moisture and are rich source of soluble sugars, thus creating problems of disposal leading to environmental pollution due to over dumping.

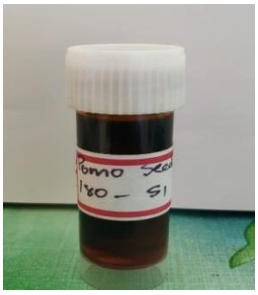
The pomegranate seeds comprises of 18 to 20 percent oil which is rich in fatty acids like linoleic, Gallic and ellagic acids, sugars, vitamins, polysaccharides, minerals and phenolic compounds like punicic acid and punicalagins. These provide therapeutic properties like cholesterol reduction, anti-diabetic, antitumor, anti-inflammatory, anti-oxidative, anti-atherosclerotic, immunomodulatory, and anti-microbial properties and also wound healing properties. It is used as an ingredient in Ayurveda medicine for several formulation related to heart.

Likewise, pomegranate peels are known for their anti-oxidant properties due to the richness of polyphenols, anthocyanins, and tannins, flavonoids, vitamin C, gallic acid, vitamin A, B6, C, folate, potassium and oxalic acid. It is used in several ailments related to heart and skin.

Through this project we aim standardize the extraction protocol for bioactive extraction from pomegranate peel and seed. Further to this PoC can be established for antimicrobial studies of the extracts. It is said that extracts of pomegranate peels helps in preventing oxidation of LDL thus reducing 50 percent of heart diseases that is caused due to atherosclerosis. The available products use the whole fruit for preventing atherosclerosis, but through this project we are trying to utilize the waste peel discarded from fruit industries to formulate the tropical products like moisturizer cream, soaps, and shampoo.

Collection and pre-processing of pomegranate peel and seeds. The main objective of this project is extraction of bioactive from pomegranate peel and seeds and its quantification. Antimicrobial studies using the bioactive extracted from the pomegranate peel and seeds Formulation of a tropical product and validation through in-vitro studies.

POMEGRANATE PEEL



35. BEACH CLEANING ROVER

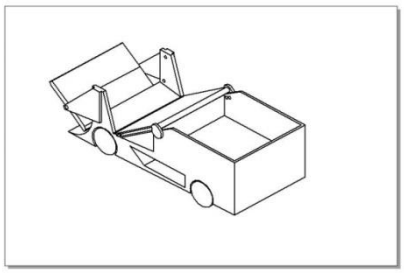
COLLEGE	Bearys Institute of Technology, Mangalore
GUIDE	Prof.Imran Mokashi
COLLEGE STUDENTS	Ibrahim apraz,Davood Hakeem
SCHOOL STUDENTS	Nooh sameera,Mahizumar 9th Std Beary's High school

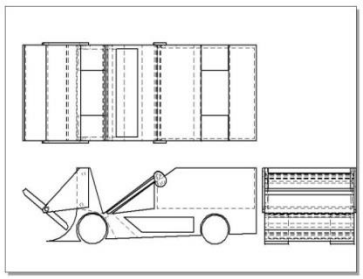
CONSTRUCTION:

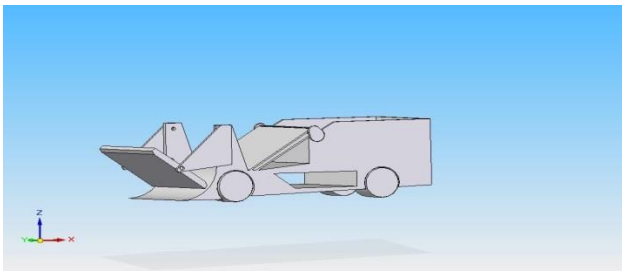
Beach cleaning rover consist of several parts ,in front end there is a rotating gripper which is actuated by a motor and curve is made along the rotating gripper to rotate smoothly and to push the waste inside the machine. This rotating gripper is supported by a roller support. After the rotating gripper there is a small inclination

Downward and elevator or elevating roller is used and the another end of the roller is fixed to the top end of the bin . the elevating material is made up of fine plate material which works as a sand and waste separator. at bottom end of elevator there is a vent hole for sand election and next to bottom elevator there is a small inclination upwards till the bin. and there is small in base side which is used for battery compartment and electronics. and it consist 4 wheels on 4 sides to move the beach cleaning rover to particular direction.

(shown in figure 1)







WORKING:

The working of this machine is from electrical to mechanical, first it takes waste inside by the help of rotating gripper . the carver plate which helps the waste to move inside the machine. when the waste enters to the machine it move down due to the small inclination downward .and the waste move upward by the elevator which takes both waste and sand ,in the elevator the material used works as fine plate which separates sand and waste . waste move to the bin and fall on bin, sand fall downward below elevator and sand move downward direction due to inclination from bin to vent hole . sand will ejected by vent hole present between both inclination and elevator. the machine can be driven automatically or

manually by pairing the device. there is 4 wheels at 4 sides which help to move the vehicle for particular direction.

ADVANTAGE:

1. It reduces the pollution.
2. Cleaning of beach become easier.
3. If it programmed to work smark by the help of artificial intelligence , it can automatically sense and clean the beach.
4. It can also work by the help of solar energy by adding solar panels.
5. It keeps the beach clean where the people can spend their time with clean environment.
6. Scavengers not needed.
7. It can be helpful when there is harmful waste present.
8. Efficiency is less
9. The project comes under swatch bharath abhiyan.
10. When beach is clean, pollution will be less and people enjoy their time with good environment.
11. it also prevent water and air pollution occurring from harmful smoke causing materials like thermacoal and plastic which live black smoke while burning where it can affect the atmosphere air. Which may harmful for small birds and surrounding living animals?
12. water pollution occurs in many ways , but it also occurs due to throwing of garbage to water , when the garbage in more numbers the pollution will be more such pollution can prevented by such machine which collects waste on ocean side before it reach water bodies.
13. By adding sensors it can sense the waste and can collect.

36. BLDC HYBRID TWO WHEELAR

COLLEGE	PES College of Engineering,Mandya
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COLLEGE STUDENTS	Ganesh M,Prajwal T R
SCHOOL STUDENTS	Prajwal,Sharath PES High school.Mandya

ABSTRACT: The progress of automobiles for transportation has been intimately associated with the progress of civilization. The automobile of today is the result of the accumulation of many years of pioneering research development. In the modern trend automobiles have certain disadvantages as fuel cost relative to mileage, pollution and less efficiency. Then our "HYBRID TWO WHEELER" is an aspect. The goal of this project is to implement the most efficient and less polluting vehicle. In our project the hybrid electric vehicle model combines the internal combustion engine of a conventional vehicle with the battery and electric motor of an electric vehicle, resulting in twice the fuel economy of conventional vehicle. We implement this hybrid electric vehicle concept for two wheelers. This work deals with modification two wheeler systems. In recent days availability of fuel source is depleting day by day and also pollution is increasing globally with increased number of vehicle. This leads to the evolution of various alternative fuels and concepts, in that HEV system (Hybrid Electric Vehicle) is one of the effective systems. This project involves the modification of two wheeler (HEV) which is driven by both fuel and electric energy with the help of engine and electric motor. The electric motor is the hub motor which drives the front wheel which is driven by the battery and the engine drives the rear wheel. By driving the modified two wheeler in engine mode and electric mode. This vehicle hugely reduces the pollution, fuel consumption and vital scope in future. 'Hybrid electric vehicle' is a vehicle which runs not only on batteries but also on an internal combustion engine which drives a generator to provide the electricity and may also drive a wheel. It is also a major source of air pollution. The objective is to modify a two wheeler hybrid electric vehicle powered by both battery and gasoline.

HYPOTHESIS: Several economic and environmental factors are contributing to increase interest in alternative vehicle technologies. These factors include rising global demand for oil, increases in fuel prices and climate change. Rising global demand for oil has both economic and political consequences. Increasing demand has a direct economic impact via increased commodity prices as well as a number of geopolitical implications that create political challenges for countries that effect on imported oil for economic activity. The implementation involves development of Hybrid Electric Vehicle (HEV) that uses motor that is run by a battery as well as petrol engine for propulsion of vehicle. 'Hybrid vehicle' has been the most sorts after concept in today's automobile industry. As a result of several researches and over many decades, hybrid vehicles were realized. Initially and majorly, the concept of hybrid was implemented in cars.

The diesel-electric hybrid cars were revolutionary in the field. The focus slowly shifted towards the two wheelers. Now there is a grave need for implementation of hybrid in two wheelers. Two wheelers are popular means of transportation in Asia and play a very

important role in providing personal transportation in most cities in Asia. Because of their small size and easy man oeuvre ability, two wheelers help to alleviate traffic congestion and reduce energy consumption for the transportation of one or two passengers, compared with passenger cars. An electric vehicle is pollution free and is efficient at low speed conditions which are prevalent in high traffic areas. But battery charging is time consuming. However, it cannot provide high power required by drives during high speed conditions or in slopes of hilly areas. Petrol engine proves its efficiency at higher speeds in high ways and wastes a lot of energy in urban areas. Another problem associated with the ever-increasing use of personal vehicles is the emissions.

METHOD: HYBRID TWO-WHEELER involves two modes, the first mode involves when the vehicle is running by means of internal combustion engine, second mode involves when the vehicle is running by means of an electric motor.

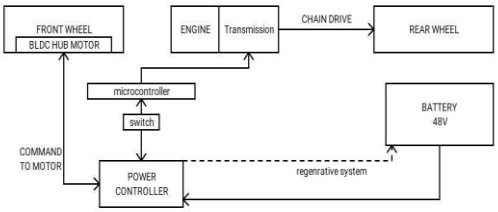
- The front wheel of the bike is retrofired by a wheel Hub motor.
- Batteries are connected in series and are further connected to the Hub motor through the controller.
- The connections from the IC engine are also made through the controller.
- A circuit will be designed to switch the vehicle from the battery source to fuel at a particular speed automatically.
- A manual switch will also be provided to run the vehicle either in battery source or fuel.

EXPERIMENT: Hybrid Two Wheeler has basically two modes of operation.

- Petrol mode.
- Engine mode.

1. Petrol mode.

Like the battery only mode, the entire motion of the vehicle is dependent on the IC engine alone. The self-starter motor is connected to one of the terminals of a 3-way switch and when it is switched to the engine mode, the engine starts as a result of starting of self-starter motor. In this mode the PLC send a high signal to the relays 2 and 3(for 750 MS). This essentially cuts off the power to the hub motor and turns on the engine through the starter motor. In petrol mode, engine will supply power to the rear wheel. When the switch is moved to this position, the microcontroller will sense the position of the switch and transmits signal to the relay, which will energies the ignition coil and operate the starter motor.



2. Electric mode.

This mode is a battery only mode, i.e. the hub motor alone runs the vehicle at any speed, essentially, in this mode, and the vehicle can be considered an Electric vehicle. The battery

mode is useful during low speed and beneficial in high traffic conditions. Also, the battery mode can be used when the fuel is low. During this mode the PLC through the sends a high signal to the relay 1 due to which the battery circuit is on. Here we are using the BLDC hub motor, which is running with help of battery power. Battery is placed in the goods space under the seat as shown fig.6. The motor are fixed on the front wheel of the vehicle and it is controlled through the controlled unit. The hub motor is steadily emerging as a standard drive method just like e-bikes, scooters, solar cars, and many other light electric vehicles. With a hub motor conversion, there is no need for external mounting brackets and drive chains to support a motor and transmission. The direct drive hub motor is about as simple as things get. The motor are exactly fixed as in center axis of the wheel hub. Now the vehicle rim starts to spin over the axis body for rotation of wheel. The electric power supply is charged to the battery through the separate charger. Here some losses may be occurred due to mechanical friction. Here we are also having the fuel drive, which is coupled with the back wheel of the vehicle.

SUMMARY: In heavy traffic and inside the city there is no chance for moving fast. At that time, if vehicle is run by IC engine, more fuel is wasted due to variation of acceleration. If the vehicle is run electric hub motor through battery, the consumption of power is reduced. During less load operation, vehicle can be easily run by mean of battery instead of by engine, when high torque is required it can be changed to IC engine mode. Further we are going to implement this idea in the Bajaj spirit and planned to conduct performance test.

37. ARTIFICIAL PLANT EMOTION XPERESSOR

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COLLEGE STUDENTS	M N Subhash,P.Rakshith
SCHOOL STUDENTS	Ramsuraj raj,Somanya kumara 9th Std Govt HS Hunsamaranahalli

ABSTRACT:

Our project APEX(Artificial Plant Emotion Expresser) is an implementation of smart plant monitoring system which monitors various required parameters for the plant growth and survival, our system can be implemented in conventional farming as well as modern farming techniques (like hydroponics, aquaponics and aeroponics etc..,). Currently we are implementing our project to make the hydroponics type of farming easier. In case of hydroponics we are monitoring different parameters required by the plants like the temperature, pH level of the nutrient solution being given to the plants(which is important for the plant growth), the level of the nutrient solution in the reservoir, and also the level of the nutrients in the tubes where plants are grown i. e in case of NFT(nutrient film technique) which needs to be monitored to prevent root rot, and also the light period and its intensity in case of artificial lighting conditions and also the TDS and EC values (which are also important for plant growth) are continuously monitored and sent to a cloud database from where it is take to an mobile application and this data can be accessed from anywhere in the world. In this way the plants health can be monitored and taken care if any attention is required. This makes the farming simpler, efficient and user friendly.

HYPOTHESIS

Problem Statement:-

The problem of inadequate and unplanned irrigation by farmers in various parts of the country which is resulting in reduction in the yield, because of which the income of the farmers is affected. And also the complexity of farming had made it less popular among the people

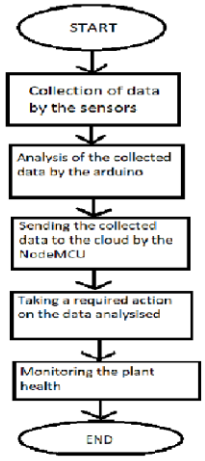
Scenario Description:-

As many farmers suffer a lot due to the scarcity of water and due to which they are not able to give enough amount of water to their crop, and even if they have enough water due to unplanned irrigation, they lose their crop. This is a major problem in many parts of the Country. If the irrigation is properly planned then the loss of crop and loss of water can also be prevented.

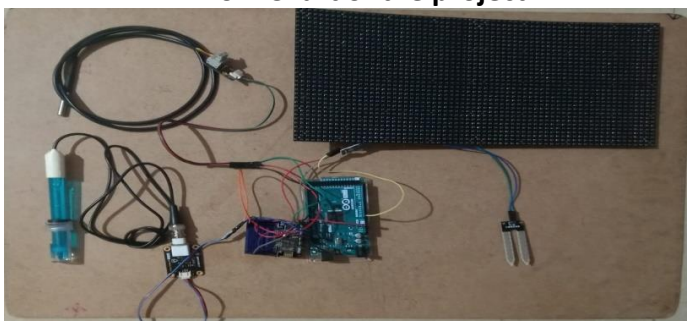
This can be solved by implementing modern farming techniques like hydroponics which are water efficient and give good yield but are less popular among the people due to their complexity and lack of awareness among people. If modern farming are being used by the people, it will not only increase the yield but also be beneficial to the environment as these techniques no fertilizers and very less pesticides which are used are herbal, these can't be avoided as pests are always present in nature and also the growth of the plants will be high due to the contact of the roots with the nutrient rich solution and also there will be less requirement of water as the plants are already in contact with the nutrient solution which is not the case is conventional farming where excess water given to the plant is wasted (i.e

evaporated) during the process of irrigation. And also these type of farming techniques require less space as plants can be stacked on one above the other due to which more no.of plants can be grown in the less place.
But this type of techniques is less popular because of the reason of complexity and awareness.
Our project APEX will reduce the complexity involved in these type of farming by making the various parameters required for the keeping the plants healthy easy to monitor and control them from anywhere in the world.

METHOD:
To implement our project APEX we are using very cost effective sensors and microcontrollers. So, that the entire cost of the product will be cheaper and affordable by a common man in the market and lets him to grow his own set of plants in his own space easily and effectively.
In APEX we are making use of two microcontrollers one is Arduino MEGA and the other is NodeMCU. Arduino Mega is used to collect and analyse the data from various sensors which are being used in the project and get an inference out of it. So, that an action can be taken.
NodeMCU is used to take the data analysed by the Arduino and send it to the cloud (As of now we are using Unidots or ad fruit but in future will upgrade to the firebase). From the cloud the data is taking by the App which is with the end user who gets notified if there is any variation in the data coming from the plants from the threshold set. So, that he can take the required action or by the inbuilt trouble shoot system which we have employed in the project the system will automatically take a step to resolve the problem it got.
The various sensors used are **pH sensor**- used to monitor the pH of the nutrient solution in the reservoir.
Temperature sensor – It is used to monitor the temperature it is important for the plants which are temperature dependent and bear flowers and fruits depending on the temperature
Moisture Sensor – It is used to measure the moisture of the coco peat used as the holding material in Hydroponics it is important to monitor as it's excess may lead to root rot.
TDS/EC sensor – Used to measure the total dissolved salts in the reservoir and the electronic conductivity of the solution in it
Display screen – It is used to give the overall expression of the plant which is directly mapped to the health of the plant.



Flow Chart of the project



Component used in our project

EXPERIMENT:

We started our experiment by first implementing our project in conventional farming (i.e. in soil) and developed a prototype as shown in the picture.

Phase one implementation in soil

Phase two implementation

And then we started to do our research on the hydroponics type of farming by growing "Palak". And our observation is as shown in the pictures.

These are some of the snapshots of the palak in the sapling stage

We then noted the amount of nutrients required, the lighting conditions, and the maintenance of the pH and EC of the nutrients and also the level of the nutrients in the system and various pests which attacked it and some other parameters. And then went on

automating the problems we faced. So, that if the same thing repeats again it can be monitored and troubleshot.

Picture of Beans in Grow bags with cocopeat as holding material

Picture of Palak in the NFT system after growing them for 21 days in the seedling tray

We did our hydroponics research on two different types of hydroponics techniques one is then NFT(Nutrient film technique) which is shown above and used for growing leafy greens and the Grow bag technique used to grow large plants. Pictures are as shown above

SUMMARY:

As a whole we were able to note down as many problems as possible and tried to automated them. So, that the hydroponics type of farming becomes easier to implement and remains as cost effective as possible making it affordable to everyone. And revolutionizing the way the plants are grown. Hence, It could benefit a large no.of people by allowing them to grow plants in the space available with them effectively and at last benefit the country as a whole.

38. HELP OUR FEEDERS FARMERS

COLLEGE	BMS College of Engineering, Bangalore
GUIDE	Dr.Kali Prasad
COLLEGE STUDENTS	Dheeraj R,Ananya Markande
SCHOOL STUDENTS	Sanjana,Manikanta 7th Std Rajarajeswari High school

ABSTRACT: Agriculture is the basic source of food supply for all the countries in the world. Water is the essential resource for agriculture. The modern challenge for improving plant growth and reducing costs justifies the development of an automated irrigation system that will minimize the waste of water and reduce labor.

The automated irrigation and crop field monitoring system is used to optimize the use of water resource for agriculture. The system consists of sensor network for humidity, temperature, soil moisture, color and water level sensors. Soil moisture, temperature, water level, color sensor are placed in the root zone of the crops. The microcontroller of the controller unit is programmed with threshold values of the temperature and moisture content.

The controller unit is used to control the irrigation motor thereby controlling the water flow to the field. In addition to that water level sensor is placed in this field, if it is excess water, then the motor automatically pumps the water into the next crop placed in the field. Colour sensor provide the appropriate color of leaf and the user gives the pesticide before destroying plants and the soil nutrients testing devices are placed in the soil. Hence the nutrient deficiency can be noted and accordingly crops are saved. Field measure data about the crops in the field. Raspberry pi or Arduino is used in the controller mode. Internet of Things (IOT) is an ecosystem of connected physical objects that are accessible through the internet. Real time monitoring data can be utilized and the performance can be tracked. Hence high yield can be achieved. And hence the user or the farmer can monitor the system through the smart device and if GSM is not supported. We provide an extra passage button /switch near the crop zone to carry the process. The entire system is connected to IOT and processed. This project is mainly focused on improving the agricultural fields yield by providing a monitoring system with effective and efficient usage of water resource. Thus further development in this project will lead to a greater efficiency in the field of agriculture.

Keywords: Internet of things, water level, temperature, humidity, soil moisture, colour sensor.

HYPOTHESIS: NULL HYPOTHESIS:

Irrigation and nutrients condition of plant or crops are monitored and controlled from a remote location through internet using IOT and secure mobile application and start /stop automatically depending upon soil moisture and nutrient deficiency read by various sensors.

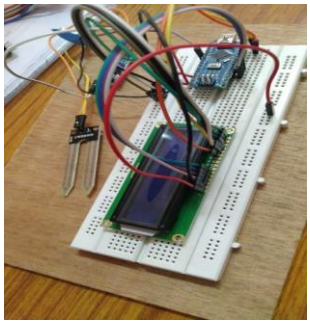
ALTERNATIVE HYPOTHESIS:

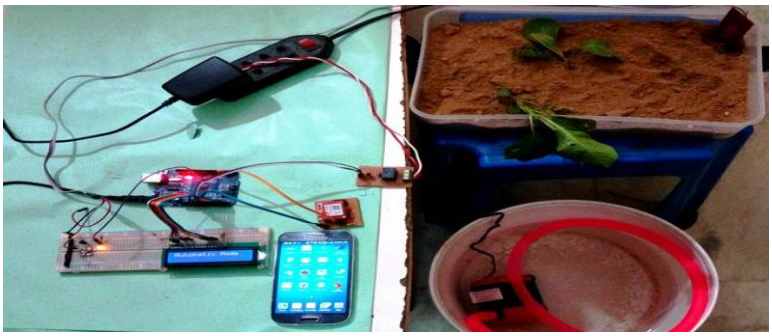
Irrigation and nutrient conditions of plants or crops cannot be monitored and controlled through internet using IOT and a secure mobile application and cannot start/stop

automatically depending on signals sent by various sensors and ph testing device through soil conditions and nutrient deficiency conditions.

METHOD: The water maintenance of various crops as per their requirements and the mineral nutrition of various crops is well maintained by using various sensors and using a processor where in the signal feed from the sensors are given as input to the processor and the it is driven to the motor or the pump as per requirements which is connected to Internet of things through a GSM module or WIFI module and the user can control the irrigation process by his / her phone or any other digital means where in the relay plays a role of opening and closing of valve at the required point of time .Along with this the ph sensor plays a crucial role in determining plant nutrient condition and thus changes can be done accordingly to save the crops by adding the minerals as per the required deficiency and protecting the plant.

EXPERIMENT: In the Experiment we used a wooden board and divided the space into 4 different fields and then placed required sensors in each field, along the ph testing device to note down the changes in nutrient deficiency conditions. We used ARDUINO UNO as the processor to control the entire unit. we used solenoid valves at each and every field and connected the 4 way channel 5V relay to control the pump in the setup .Depending on the moisture condition sensors sends signals as per our programming to the processor, this processor will now control the relay and relatively flow sensor gets activated and water flows through the valve by the pump as per requirement. Similarly the same procedure runs for nutrient testing using ph testing device. We connect entire setup to IOT through a Wi-Fi and Bluetooth module and monitored through an application in mobile to make it a user friendly one.

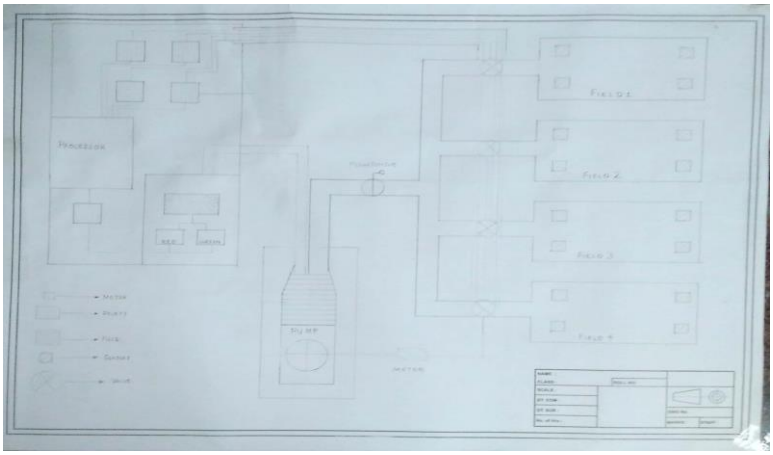




Set up of Soil Moisture Sensor

SUMMARY: With this project, we achieved successful results by testing out various means of using sensors and applying it to save crops in terms of water as well as nutrient deficiency and making it user friendly for farmer. The purpose of the smart irrigation system for large or small scale and make it smarter and more effective. Different sensors (Soil Moisture, Light, Temperature, level, rain, flow) with different another device (water pump, Battery, LCD, Solenoid valve) have been used in this project. Using Arduino proved profitable, it is able to serve numbers of different sensors, at the same time and the markets offer various type and sizes of sensors. Arduino boards are another device. Furthermore, wooden slabs and grass mats have been used in the project. Several of design criteria had used in this system. The sensors used was perfect in detecting and sending signals to Arduino, to control the water pump and to open the solenoid valve, it has been

tested indoor as it is on the farm. The purpose of screen monitor is to show the flow for each line, which shows if there is any passing of water in pipes. Also, if it is raining the system will not work in order to save the water. The mobile application is to control the system remotely. Which allow a user to monitor the whole system and if there is any problem or passing of water user can switch off the system through the application



Flow chart

TEAM PHOTO:

39. ARECANUT PULKING MACHINE

COLLEGE	Mangalore Institute of Technology and Engineering,
GUIDE	Prof.Bhanuprakash H S
COLLEGE STUDENTS	Pramith Shetty,Venkatesh prabhu
SCHOOL STUDENTS	Dayakar,Sujeeth 8th Std Govt High school,Neerkere

ABSTRACT

In recent years, labour scarcity has emerged as one of the foremost challenges in farming sector. This is mainly due to unwillingness of current generation people to carryout hard work in the field, using traditional tools and equipment. Also life risk involvement in field work due to non-availability of proper machine and tools is leading cause for non-availability of man power in agriculture sector.

Areca nut farmers are facing a major problem of skilled labor scarcity during the season of harvesting and preventive pest control medication. Areca trees attain a height of about 50-60 feet. It is mandatory to climb the trees a minimum of five times a year for a successful harvest, twice for the preventive pest control medication, and thrice to harvest the crop. Only skilled laborers can carry out these farming operations. They have to climb the trees using muscle power. In an acre that has about 550 trees, a laborer has to climb a minimum of 100 to 150 trees in a day. As this involves real hard, physical exertion, Younger generations of laborers are losing interest in such tasks. Lack of availability of proper insuring companies for such risky tasks is one of the drawbacks leading to scarcity of labor.

Due to these kinds of problems faced in field, some of the innovative farmers with technical background have developed machines for climbing the trees. Some of these machines are manual effort based where as some of them are either fuel powered or electrical power driven. However all such machines also demands presence of the user at top level of tree for carrying out operations. Also there may be a chance of casualties due to failure of machinery during the operation as a result of improper holding by climbing/sliding mechanism. Currently existing innovative power driven machines can be further improved by introduction of remote controlled robotic machinery which replaces the position human operator from top level to bottom level of the tree. Due to introduction of robotic machinery the weight of the machine is reduced to about one third of that of live weight of the conventional power driven machines.

The newly improved machine meets the requirement of safety, economy and ease of operation as well as trouble free operation during the useful life. This new version of machine also opens gateway to research and development to new innovations in this way.

INTRODUCTION

In India the problems faced by the farmers' ranges from scarcity of water for raising the crops to in adequate profits after harvesting. Lack of knowledge about suitable harvesting technique leads to reduced profit margins in majority of cases. The leading cause

of this problem is lack of availability of man power as well as economically viable machines during the event of harvesting. Therefore development of machines which assists the farmers in timely economically viable harvesting methods by self-owning of maintenance free machines is of utmost importance.

The semi-automated areca nut plucking machine developed in this project is economically affordable one for the small scale farmers. Technology used in building this machine is simple and offers maintenance free operation over a long running life due to incorporation of low cost durable spares used in the production which are available at many of the general hardware shops.

With the introduction of robotic machinery and remote controlled access for harvesting operation this new innovative machine will definitely meet the requirement of the farmers in upcoming years. Also the Smart Phone App reduces cost of procurement to the farmer since any available smart phone can be utilized as a remote controller for the machine.

This machine works by climbing onto a central tree in the array of 3x3 and plucks areca nuts from all the nine trees in a shift. A typical shift for complete operation takes about an hour for its completion. Thus a total of about seventy trees can be subjected to harvesting in a day by considering working duration of 8 hour/day. The cost of operation is about INR 20 per tree by considering all expenditures involved in operation, which is comparative with INR 50 per tree, as charged by professional tree climbers in traditional method of harvesting, by subjecting their life to risk.

The cost incurred in the production of the model is about INR 18,000/-. The mass production cost will be within this ceiling limit, by incorporating the advanced manufacturing techniques in near future.

This machine has a leading “pro” in comparison with all the existing techniques currently in practice for plucking of the areca nuts from the tree, the leading “con” with the rest of the techniques being “Involvement of Human life risk”.

HYPOTHESIS

All the existing machines as well as methods for the purpose of plucking nuts from areca trees involves human user involvement at top level of the tree, thus involving a life risk.

To overcome this drawback it is necessary to develop a remote controlled machine for plucking nuts from areca trees.

Therefore a Semi automated areca nut plucking machine is developed by combining conventional analogue mechanism of climbing and plucking, with the aid of remote controlling for plucking operation.

The remote controlling feature enables the user to carry out plucking operation by standing at a safe distance from the tree, with the help of a real time video-graphic screen for the control of plucking arm.

To increase the advantage of owning this kind of machine to the farmer, an additional feature “spray gun” is also implemented in this machine, which can be used for spraying pesticides, thus increasing the value for money.

Inspired by the conventional climbers this machine is implemented with an innovative feature of covering about 9 trees in an array of 3x3, while climbing a single tree at the center of the array with the provision of telescopic extension arm. This feature helps in increased performance by reducing the time required for climbing and sliding operation

over 8 trees. Also by selecting a suitable central tree in the array for climbing/sliding, other tree trunks can be utilized for growing Pepper and vanilla, in multilayer cropping system. This kind of feature has never been introduced till date in any of the existing machines as per the vast existing literatures.

Incorporation of robotic technology is a new effort in this area of research and development. Cost effective robotic technology for has been introduced in this machine, which opens gateway to innovative programmers to increase the efficiency of this machinery.

METHODOLOGY

This machine adopts climbing/sliding mechanism by utilizing normal force acting over the trunk of the tree in a direction exactly opposite to each other, through two sliding roller wheels, which are made up of nylon rolls. These two roller wheels move over the cylindrical trunk of areca nut tree by tracing two linear parallel paths which are diametrically opposite to each other with respect to the axis of the cylindrical trunk.

Sliding resistance offered by the two normal forces which are equal in magnitude but opposite in direction governs the safe movement of the machine over the trunk of the tree. Grooves are provided on the wheels for further improvement of sliding resistance. An idler roller is provided at the bottom of the column in order to grip and provide a locking mechanism to the machine, which further adds to the sliding resistance.

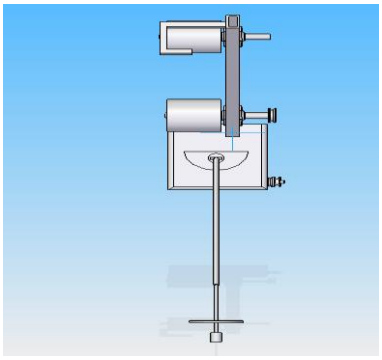
Two rechargeable batteries of rating 9Ah with potential of 12v are used as a source of the power. These batteries are protected using box compartments made using G.I. sheets. Source of power is embedded in machine for cordless control of the machine from a remote controller application which can be operated using 4G enables smart phones.

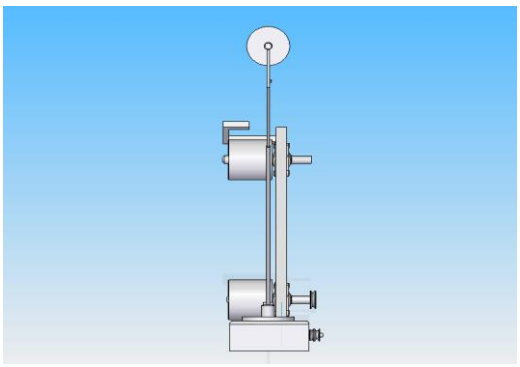
A driving motor is used for driving the machine, by means of sprocket-chain transmission technique. This motor is placed inside a protective cabin to avoid damages. The adoption of sprocket-chain arrangement is keenly to overcome slippage problems associated with belt drives, which may lead to disastrous casualties during the service.

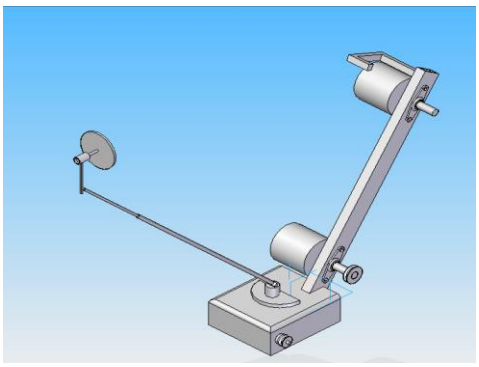
The entire set-up can be rotated by 360 degrees over primary base in a horizontal plane, for covering all the surrounding trees in the array of 3x3. For serving this purpose a separate dedicated motor is provided.

The plucking arm is mounted on a secondary base which can be rotated in vertical plane for plucking nuts. For serving this purpose one more separate dedicated motor is used in the machine.

The telescopic extension arm is provided with a chain saw blade at the end, for cutting operation. This arm end is also equipped with a Wi-Fi camera to assist the user during operation.







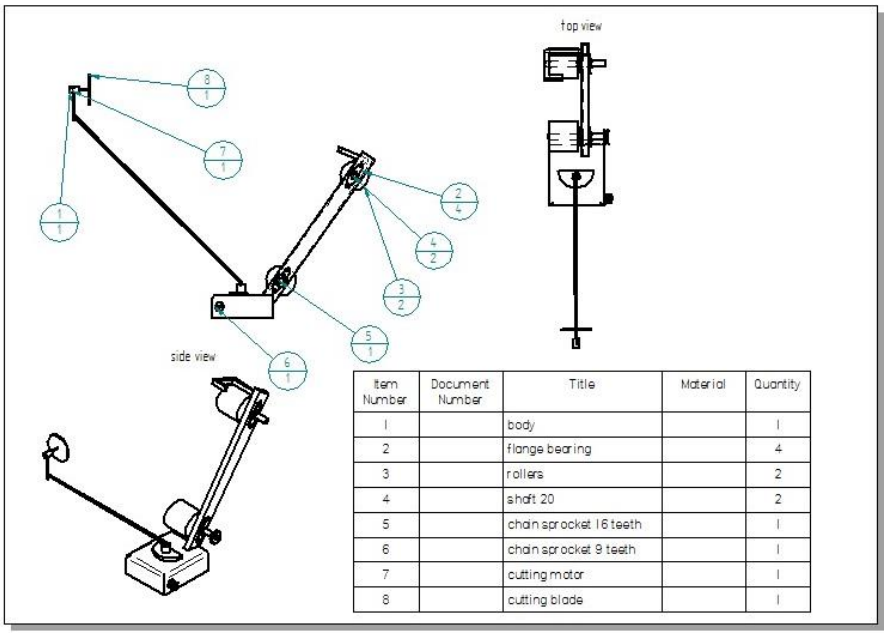
LIMITATIONS AND FUTURE SCOPE OF THE PROJECT

Even though the outcome this research has succeeded in providing a risk free platform for areca nut harvesting further improvements which can add up to the value of this innovations are listed below for guiding the innovators, who are all interested to carryout improvement in this design.

The current design enables risk free plucking of the areca nuts by cut and drop method. However improved design can be proposed and developed by incorporating suitable arrangements in the current design, which enables collection facility.

The current design is composed of several motors adding to the dead weight of the machine. In future the assembly can be further improved with the introduction of gears and smart circuits.

The extension arm used in the design is threaded rod, which can be replaced with pneumatic telescopic type arm for compact and portable design.



Item Number	Document Number	Title	Material	Quantity
1		body		1
2		flange bearing		4
3		rollers		2
4		shaft 20		2
5		chain sprocket 16 teeth		1
6		chain sprocket 9 teeth		1
7		cutting motor		1
8		cutting blade		1

40. PLANTONOMUS

COLLEGE	Dr.Mahalingam College of Engineering and Technology
GUIDE	Dr.Karthik Jayaraman
COLLEGE STUDENTS	Manoj K sri Vardhan,Gokul
SCHOOL STUDENTS	M.John vesli,R.Mei Ram 9th Std Govt High school,Kollapatti

ABSTRACT:
The main objective of this project is to flourish the agricultural environment by implementing the Plantonomous machine. Precision Agriculture aims to fulfil the agronomical needs of the crop growth. Precision autonomous farming addresses the operation, guidance and control of autonomous machines to carry out agricultural tasks to satisfy agronomical needs. It works on the basis of machine learning. The machine has various types of sensors to monitor the plant growth, sand quality and other agricultural issues. It is noted that the above process is taken care by a **mobile application**. All the agronomical activity are clearly controlled and operated by this application.

The **PLANTONOMOUS** is an autonomous machine which senses the environment by using various sensors. It is controlled by a mobile application. This application is totally integrated with the machine. The **Plantonomous** has the capability to blend its environmental perception with intelligent controls in order to affect planning strategies that not only avoid obstacles but also minimizes the criteria such as time travel, fuel consumption etc.., For example if any livestock is noted in the field the vehicle will adjust the direction by itself and change the path of the working. The **Plantonomous** is a single machine which has the capability of doing various types of field works by changing the simple actuators. With the help of mobile app we can change the function such as seed sowing, tilling etc., we are going to minimizes the cost by using feasible sensors available in the market. This should be a beneficial and feasible product to all farmers. It is more efficient because of its strong algorithm we structured. The biggest advantage of our project is its exposure to cutting edge technology.

HYPOTHESIS:

By 2050, there will be 9 billion mouths to feed and its projected that food production will need to increase by some 60% to meet this demand yet the amount of land available to grow it remain virtually unchanged. We cannot simply press more land into cultivation as in the past, the requirement to build more homes in rural communities, and farm land seems to be gripped in an ever-tightening vice. As a result, today's farmers need to farm smarter not simply till more acres.

METHOD:

This system encompasses the operation of all farming machinery, whether partially or completely automated. Such operations include crop seeding, crop sensing, follow-up operations, and harvesting, the following briefly describes the machinery operations.

(i) Seeding System:

Arguably one of the most important operations, the seeding systems must adhere to the PFDS **[Precision Farming Data Set]** in positioning each plant. All subsequent machinery-based operations on the crop will be then based on the seeding placement accuracy. In farming situations, it can be difficult to achieve implement accuracy due to several factors, the most pronounced being significant disturbance forces which act on it. These disturbance forces are predominantly due to either significant ground engagement, or gravitational effects, and can cause the implement to deviate from its desired course.

(ii) Crop Sensing System:

Various parameters can be measured, such as foliage growth soil moisture content, and weed prevalence, type, and growth. These measured parameters are then fed into the continually evolving PADS **[Precision Agriculture Data Sets]**, to ensure the efficient and accurate utilization of the machinery used for follow-up operations. So, delivery of inputs such as fertilizer, herbicides, and pesticides for example, can be done more accurately from a dosage point of view as well as spatially. Crop sensing can be done with the aid of the PFDS for ground based vehicles, or alternatively, sensing may take place via aerial means to detect such parameters as foliage growth.

(iii) Follow-up Operations:

Follow-up operations include such operations as fertilizing, and application of herbicides and pesticides. These operations are controlled by the PADS which are updated via crop sensing data, as well as the PFDS originally constructed for spatial guidance. Autonomous machinery can be used to undertake these tasks, possibly consisting of a mobile platform such as a tractor, and a means to perform the specific operation.

(iv) Harvesting;

In the final stage of the crop cycle, harvesting lends itself also to autonomous operation. Harvesting machinery can traverse the crop field once again guided by the PFDS, and may include the use of autonomous grain collecting vehicles operating adjacent to, and coordinated with the harvester. Importantly also, the harvesting stage should accommodate on-the-fly crop yield and quality measurement, input into the PADS.

Farming Layout:

Various inputs, including information about land geometry, contour maps, available resources, and crop type are considered in order to determine the best or optimal crop layout and thus optimal traffic directions for the machinery. This will improve the crop laying accuracy as well as the efficiency of the machines being operated.

EXPERIMENT:

PFDS Precision Farming Data Set and **PADS** Precision Farming Data Set;

It is proposed that the farm or crop layout process produces a Precision Farming Data Set (PFDS) which describes the crop layout. Such a set will describe the navigation and spatial accuracy requirements for the crop and provide a basis for other farming machinery sub-systems where spatial accuracy is required. In the case of broad acre farming, the PFDS will take the form of a route map for the tractors. This will aid in the required precision seeding, which in turn will aid in the precision and efficiency of follow-up operations.

A Precision Agriculture Data Set (PADS) will work in conjunction with the PFDS to ensure the agronomy requirements of the crop are satisfied. The PADS is a continually evolving entity developing as the crop growth continues and when crop sensing and other follow-up operations are taking place. It specifies such information as fertilizer type for a specific crop, application rates, herbicide and pesticide formulas and dosages, as well as ongoing monitoring information such as crop growth rates and soil conditions, all with respect to the spatial data.

SUMMARY:

1. Demand of the product

By 2050, there will be 9 billion mouths to feed and its projected that food production will need to increase by some 60% to meet this demand yet the amount of land available to grow it remain virtually unchanged. We cannot simply press more land into cultivation as in the past, the requirement to build more homes in rural communities, and farm land seems to be gripped in an ever-tightening vice. As a result, today's farmers need to farm smarter not simply till more acres.

2. Social benefits of the product

- 'Plantonomous' automatic planting systems have exceptional accuracy, resulting in seed conservation and a substantially improved return on investment for growers.
- The sensors can also collect information on soil conditions, offering improved maintenance of already-planted crops and generating increased data both before and after harvest time.
- It can reduce workload and stress on employees, providing assistance for driving and managing a wide range of task on the farm.

TEAM PHOTO:

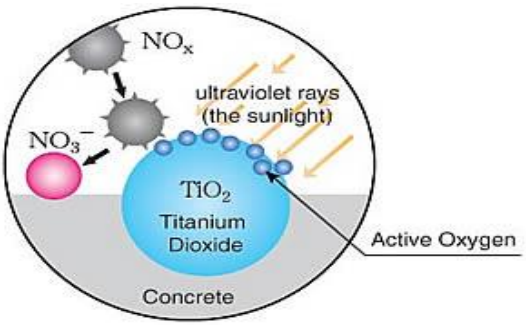
41. ENVIROTARD PAVEMENT BLOCK

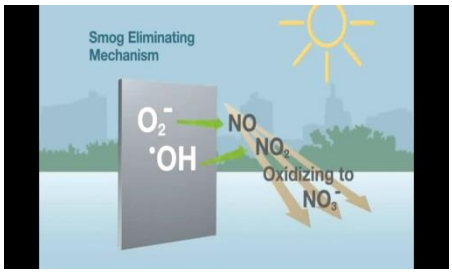
COLLEGE	BLDEA'S Dr.P.G.Halakatti college of Engineering and Technology,Vijayapura
GUIDE	Prof.Anuradha S Tanksali
COLLEGE STUDENTS	Abdul tabrez Badeghar,Akshita jain
SCHOOL STUDENTS	Srujan N Madiwalar,Jagadish N Babaleswar 9th Std V B Darbar High School

ABSTRACT:
Air pollution is an environmental problem that has significant negative health implications for humans as well as other living organisms. Major primary pollutants that are produced by human activity include nitrogen oxides (NOx), sulphur dioxide and volatile organic compounds (VOCs) which are emitted from combustion at high temperatures. When photocatalytic materials absorb ultraviolet radiations from the sun, hydroxyl radicals and superoxide anions are created that have the ability to react with pollutant molecules such as NOx, SOx, thus converting to less harmful substances.

HYPOTHESIS:

When UV RAYS, falls on the surface of titanium dioxide, electrons are released. The released electrons bind with oxygen present in air to become superoxide anions and Hydroxyl Radical. The superoxide anion and hydroxyl radicals by their power of oxidation destruction, decompose Harmful Pollutants like Nox,No2 released from Vehicle exhausts into Harmless compounds like No3- Because automobiles are a major source of air pollution, treating air impurities at the site of traffic makes logical sense. Whenever it rains the harmless compounds are drained off the surface.

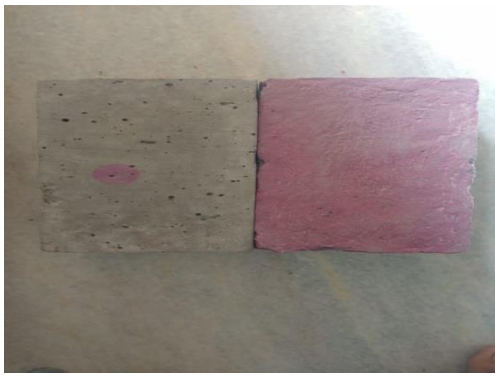




METHOD:
Two Concrete Blocks are prepared using Cement (Fly ash PPC), Aggregate, Sand and Water using Water Cement ratio of 0.45. The Concrete blocks are then Demolded and cured for 7 Days.
Then the Top Surface of one of the concrete Blocks is coated with Water-based Nano Tio2 using Spray-Gun at a distance of 30 cm away from the surface so that the Ti02 is uniformly distributed.
Test For Photo-catalysis.

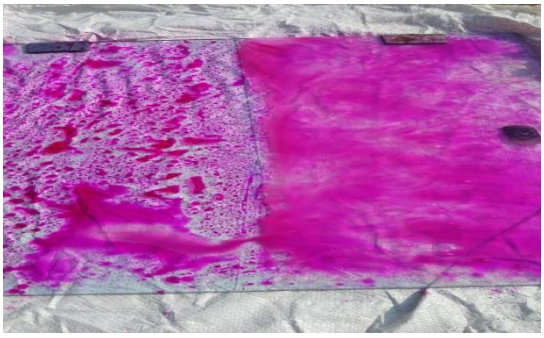
Rhodamine B is an Organic Dye, Pink in color, which can be used to test the photo catalytic activity of Tio2 breaking down the Organic Compounds using UV Rays. In our project we have applied Rhodamine B Over the surface of Pavement Block, and were kept under sunlight for 24-26 hours. As you can see in the Slide, the Pavement Block which was applied with Tio2 has completely broken down the Rhodamine B, Whereas Block with No Tio2 has not shown any Discoloration.

EXPERIMENT: Rhodamine B Experiment



Before

After



Before

After

Self-Cleaning Property of Tio2

SUMMARY: The development of photo-catalytic construction and building materials is feasible from both scientific and application stand-points. The fundamental research in material science has provided the basis of the extension of the use of photo-catalyst in construction and building materials. The capability of using photo-catalyst cementitious materials to reduce urban and indoor pollution level has been confirmed by both laboratory research and field work. The potential for a wider use of photo-catalytic construction and building materials is huge and promising.

Team Photograph:

42. DISEASE CONTROL DEVICE

COLLEGE	Bapuji Institute of Engineering and Technology,
GUIDE	Dr.Sharan
COLLEGE STUDENTS	Vishnu R A,Divakarbabu G N
SCHOOL STUDENTS	Karangowda,Shreyaskumar 9th Std Amrita Vidyalaya

ABSTRACT

Insect-borne diseases remain a major cause of morbidity and mortality across the tropical regions. Despite much progress in the control of malaria, malaria-associated morbidity remains high, whereas arboviruses most notably dengue are responsible for a rising burden of disease, even in middle-income countries that have almost completely eliminated malaria.

Here we discuss how new interventions offer the promise of considerable future reductions in disease burden. However, we invented eco-friendly low-cost infectious disease control and preventive device.

This device used with the best insecticide, it is one of the most effective insect killer devices for use of indoor and outdoor. The device does not use any chemical products to kill the insects like mosquito, houseflies, cockroaches and other insect. And safeguard the society from the deadly diseases like yellow fever, malaria, zika virus, chikungunya, and dengue etc.

The developed device works on electricity to operate a fan and electric heating coil, which generates heat and results in to develop hot air of temperature about

200^0C. The developed hot air can be used for killing insects without the use of any chemical product without harming the environment and it is completely eco-friendly.

The developed device can also be employed for deweeding, which disfunction the roots of the weed by passing hot air on the weed for less than 5 sec.The temperature and velocity of air can be variable for different applications.

SUMMARY

The idea of control and preventing infectious disease with hot air can be a novel one, and has many possible applications in today's world. The effectiveness of an air velocity needs to be in proportion with the coil temperature. With many possible applications, fighting misquotes with hot air is a promising venue

- It will overcome the usage of pesticides in economical way using hot air.

- It will control mosquito borne diseases, Disease caused by flies and Disease caused by cockroaches
- Totally safe to nature and nature friendly insects has honeybees, butterflies etc has attracts only blood sucking insects.
- It will minimize use of chemical products.
- It will minimize operation cost.

43. SASOYAJAS

COLLEGE	Hirasugar Institute of Technology,Nidasoshi
GUIDE	Prof.Jagadeesha A
COLLEGE STUDENTS	Umesh B G Hebbale,Akhilesh Avinash
SCHOOL STUDENTS	Soujanya Badigere,Shamagouda Ninganuri 9th Std SJD High School,Nidasoshi

1. ABSTRACT:

"In present day we are living in the world where fossil fuels are used for generation of electricity and other renewable sources like solar, wind energy are used for generation of electricity but to install these plants for domestic purpose result in high cost so we have come up with the idea that is "Sasyojas" which another method to utilize solar energy and plant waste for generation of electricity and minimize the cost."

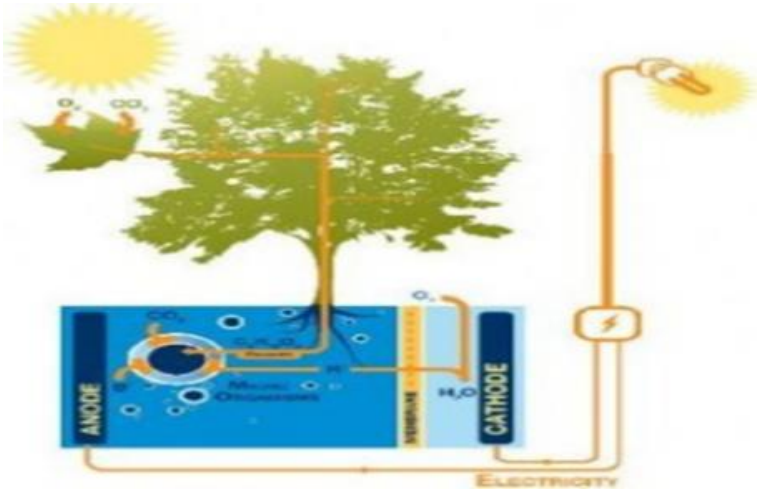
2. HYPOTHESIS:

We all know that the waste of animals and plants can be used for the various purposes like for production of biogas, electricity, etc. So using this basic concept the plant waste that is $C_6H_{12}O_6$ is breakdown by Electro-chemical micro-organism and during this breakdown process electrons are generated and hence the movement of this electrons results in generation of electricity.

3. METHOD:

Plant generates its own food via photosynthesis process and consumes how much it require and rest of waste is littered to the soil through root. In soil there is presence of electro-chemical micro-organism which feed on this plant waste and during breakdown process there is generation of electrons.

These electrons are harvested by the energy harvester having anodic and cathode material which make electrons to move and hence this result in generations of electrons.



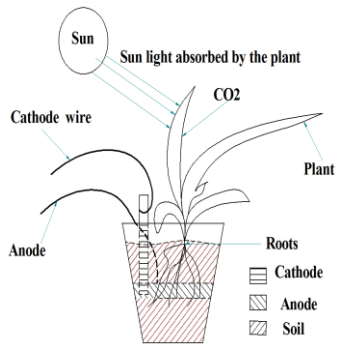
Basic photosynthesis reaction:

1. Anode: $2C_6H_{12}O_6 \rightarrow 2C_6H_{10}O_6 + 4H^+ + 4e^-$
2. Cathode: $O_2 + 4H^+ + 4e^- \rightarrow 2H_2O$

4. EXPERIMENT:

Sasyojas mainly depends on photosynthesis rate of the plant. So for that we have taken aloevra plant because it belongs to the cactus family and also have more photosynthesis rate. Firstly we have taken 4 pots about 17cms in height in which we filled mud up to 30% of the pot then we have filled the pot with the anodic layer that is burnt wood. Then we have placed the plant in such a way that the tip of the roots should and must touch the anodic material and then we have covered rest of the pot with mud. After this we have inserted cathode material that is graphite rod in such a manner that it should touch the anodic material but not the roots of the plant. The procedure is same for the other pots. So the below diagram will give you the brief idea on Sasyojas.

Cut section of Sasyojas



The research is carried out for different plant and the output of different plants is as shown below:

5. SUMMARY

- Plant generates its own food through photosynthesis using CO_2, H_2O and sunlight.
- The plant food is $C_6H_{12}O_6$ and this is consumed by plant. Rest waste is stored in roots.
- In soil there is presence of electro-chemical micro-organism which feed on this plant waste.
- There is generation of electrons during consumption of plant waste by micro-organisms.
- Further energy harvester used to make electron flow. This result in generation of electricity.

TEAM PHOTO:

44. AYUSHMATH CUTLERY

COLLEGE	GM Institute of Technology,Davanagere
GUIDE	Prof.Deepti Palleda
COLLEGE STUDENTS	Meghana,Afifa Arfan
SCHOOL STUDENTS	Sahana G S, Aishwarya H 9th Std Chilukuri Seetamma High School.

ABSTRACT:
Plastic cutlery is one of the most common single use plastic that is actually discarded and usually ends up in landfills or worse even in water bodies. Biodegradable cutlery is slowing to the fore, with individuals and organizations vehemently promoting these products to reduce the damage we have caused to the environment. As the title says 'Ayushmath Cutlery', spoons and forks we are making possess medicinal properties by the ayurvedic herbs and natural ingredients we use in order to enhance the health of a person and boost immunity to fight against the diseases. The cutleries also possess incredible nutritional value and provide essential nutrients required for the body which is helpful in repair, growth and also provides energy. Plastic cutlery when disposed to the environment, takes several years to decompose. Whereas, the cutlery we are making possess the factor of decomposition within 2-3 days in the soil which is even helpful for the effective growth of plants. According to the survey by the Times of India conducted in the year 2018, nearly 5.6 million tonnes of plastic waste is produced in which 2,64,000 tonnes of wastes are plastic cutlery. This project intends to reduce at least 5% plastic waste as per the statistics. The modern food habits and unhealthy lifestyle are the main contributors to many health problems and lead to chronic diseases. Our project mainly focuses on improving the health and boosting the immune system with good resistance power.

1.0 HYPOTHESIS:
The project has been intended to inspire the viewers to think of alternative and sustainable ways for consumption, act responsibly towards the environment and minimize waste and pollution as much as possible. The project is aimed to prove that there are various functional, sustainable and alternative means out there, instead of plastic, which has become one of the biggest threats to the world's ecosystem. Ayushmath cutlery is a brand new dimension and solution to fight against the plastic pollution.

According to the Null hypothesis, we assume that there is no demand and acceptance for edible cutlery in the market, and the demand needs to be created. The Alternative Hypothesis would be testing that, if we introduce an edible Ayushmath cutlery as an alternative to the single-use plastic cutlery, there is a demand and acceptance of at least 70 percent amongst the B2C and B2B market.

Sustainable cutleries, especially edible cutlery, have created a storm of interest in various countries who are looking to adopt smarter, safer and cleaner substitutes of plastic cutlery.

The product has received strong promotion by various media networks such as The Wall Street Journal, Forbes, The National Geographic and The Guardian. It now has a huge market

in many countries where they recently agreed to ban the usage of single use plastic spoons by the year 2020. These highlight a very strong market scope for edible Ayushmath cutlery in many of the developed nations.

Nutritional Information:

Proteins	1.8 mg
Fat	0.14 mg
Minerals	0.12 mg
Fibers	1.2 mg
Iron	0.60 mg
Natural Medicine	1.00 mg
Energy	35 calories

(Table: 1.0)

2.0 METHOD:

2.1 Tools:

Rolling pin, Small knife, Scissors, Lined baking sheet, Steel/wooden molds.

2.2 Dough preparation: 5 different doughs are to be prepared for 5 different diseases with their anti- disease Ayurveda herbs.

Ragi flour, Wheat flour, Millet flour, Rice flour (100gm of all the 4 flours)+ Water(200ml).

2.3 Steps:

2.3a Step1: Preheat the oven to 375 degrees Fahrenheit.

2.3b Step2: Preparation of 5 different doughs .

Pour the water into medium sized 5 bowls and gradually add in all the 3 flours in the ratio 1:1:1 then add its anti-disease herbs accordingly.

Note: The ingredients/herbs which act for the prevention of different diseases differ. Hence the dough is divided into parts and the ingredients are added according to the diseases.

The ingredients which are to be added to the dough according to respective diseases are as follows:

- **For Diabetes:** Fenugreek seeds, Apple cider vinegar, Ashwagandha, Fiber and barley, Aloe Vera, Cinnamon, Chromium present in brewer's yeast, Goldenseal rich in berberine, Zinc rich whole grain.
- **For Cancer:** Vinca rosea, Garlic, Turmeric, Carrot, Olive oil, Amla, Ashwagandha, Holy basil, Ginger.
- **For Allergies like cough, cold and skin ailments:** Haldi, Mint leaves/methanol, Honey, Ginger, Garlic, Clove, Holy basil leaves, Cinnamon, Camphor.
- **For Gastritis:** Ajwain, Jeera, Ginger, Triphala, Spinach, Amla, Mint leaves, Carrot, Beetroot, Olive oil, Oats.

● **For Dengue:** Amritha catva, Papaya leaves, Datura, Fenugreek leaves, Holy basil, Coriander leaves.

Mix them all until a mixture is so thick that you can no longer stir it .

2.3c Step3:

Transfer the dough balls to a flour dusted surface and knead it for 1 minute.

2.3d Step4:

Roll your dough out into thick sheets of 1.5-2.25mm size. Make sure they are thick enough to be placed inside the moulds properly.

2.3e Step5:

Cut the dough into spoon and knife shape using knife or small scissors. Start placing them inside the mould tray. They should be thick enough to be completely fitted inside the mould. Remove the extras.

2.3f Step 6:

With 260degress under high pressure for 12 minutes. Let it bake.

2.3g Step 7:

Let the "Ayushmath cutlery" cool for a few minutes. Then you can use them to eat on!

(Fig 1.0)

(**Store in an airtight container.)**

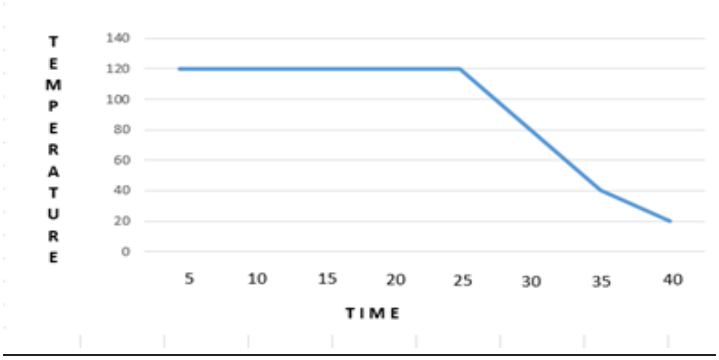
3.0 EXPERIMENT:

We have conducted certain tests to check the durability of the Ayushmath cutlery.

● **Solubility test:**

1. The spoon is stable and does not dissolve until the boiling point of the water reaches 120 °C for around 25min. The spoon loses its strength following the increase in temperature of water.

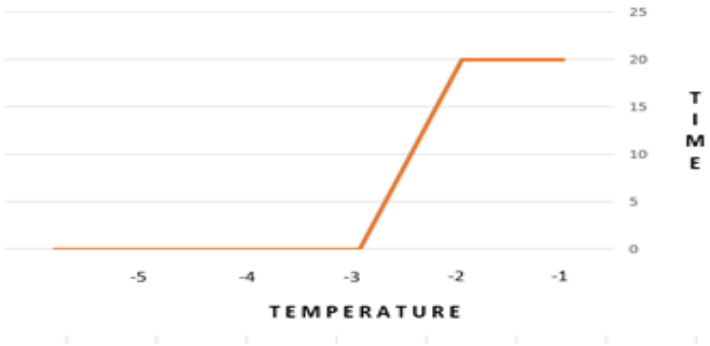
The graph below depicts the loss in strength of the spoon by increasing the temperature of water in which the spoon is placed.



(Fig: 2.1)

2. The spoon is stable and does not dissolve until the temperature of the water reaches -2 °C for around 20mins. The spoon loses its strength following the decrease in temperature of water.

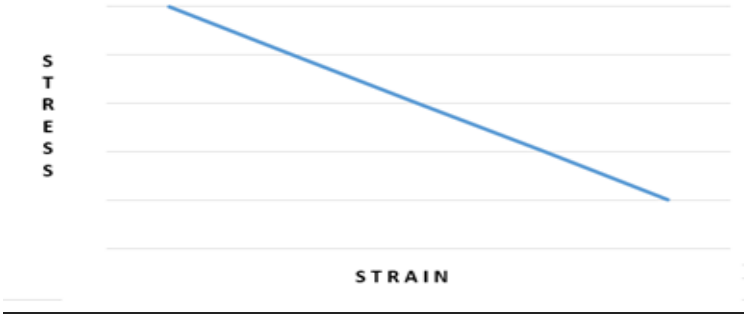
The graph below depicts the loss in strength of the spoon by decreasing the temperature of water in which the spoon is placed.



(Fig: 2.2)

- **Strength test:** We have conducted 4 trials. The spoon breaks at around 350gms of load at each trial recorded. So we have considered an average value **350gms** at which the spoon tend to break.

The graph below depicts the loss in strength of the spoon as more load is given to the spoon.



(Fig: 2.3)

4.0 SUMMARY:

Mahatma Gandhi once said, " It is health that is real wealth and not pieces of gold and silver".

"Ayushmath" personifies improving immune system and long life . Our mission through "Ayushmath cutlery" is to mitigate the pollution caused by plastic products and it acts as a multi purpose edible utensils which also cut down hunger crisis. Our products possess certain medical virtue. It exemplifies of modern Ayurveda with western approach, which is healthy

for both you and the earth. It is also one step forward to healthy earth and you- like it is said “Simple little things that makes a huge difference”, we target to make our cutlery as nutritious as possible which can be taken by all age groups . It is also a blend of Indian tradition with modern approach . We believe in spreading environmental awareness while serving innovative products that people can enjoy . It will not only provide innovative products in the present market but it will also transform the way people live today . These cutlery give the customer a quality product rich in nutrition that will be beneficial not only to the individual consumer using them but also to the environment.

TEAM PHOTO:

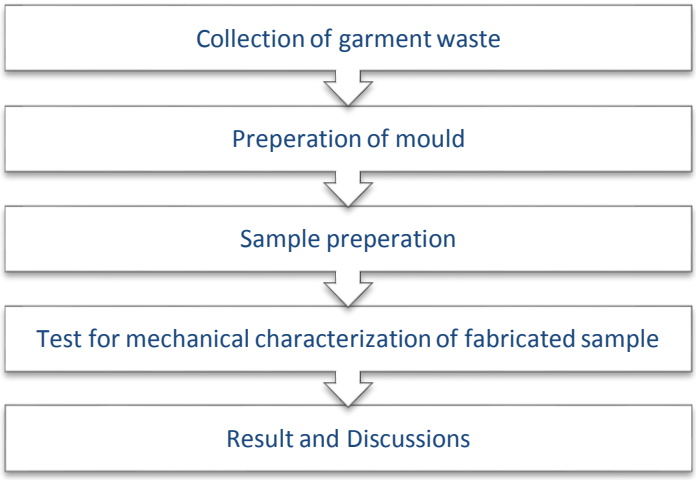
45. COMPOSITE MATERIAL (GARMENTS)

COLLEGE	Hira sugar Institute of Technology,Nidasoshi
GUIDE	Prof.S R Kulkarni
COLLEGE STUDENTS	Mallikarjun Vajjaramatti,Ninganna Karaganwakar
SCHOOL STUDENTS	Mallikarjun Dangi,Nagesh 9th Std SJD HS Nidasoshi

ABSTRACT: A situation of production waste has developed since the industrial revolution. As demand increased, the manufacturing industry evolved and manual labor systems were replaced by mechanized manufacturing. This allowed textile to be produced cheaper, quicker and in vast qualities. This has resulted in an overabundance of mass produced cheap and often poor quality products and large volume of textile fibers waste that has limited end use applications. Each year tons of textile waste is recycled into new raw materials for the automotive, furniture, mattress, coarse yarn, home furnishings, paper and other industries. Used clothes and losses of textile industries end sooner or later in waste collection stations, and usually landfilled or incinerated. The performance of fibre-reinforced environmentally friendly materials depends on the development of coherent interfacial bonding between the fibres and matrix. In order to obtain strong bond between matrix and reinforcement material of composite structures, surface of the reinforcement material is roughed, and mechanical bond is increased. Many researches have been studied on application of chemical methods to increase the adhesion between matrix and reinforcement material. Sodium hydroxide is the most proper chemical of the surface modification of the plant fibre.

HYPOTHESIS: One day we were roaming around the city and we saw the pieces of cotton waste are throwing out in the dust bin. Then we thought that why don't we utilize the waste and convert it into the best. Then we met our guide regarding this and they suggested us to study the past ten years literature survey journals . In that we studied that other authors were used different kind of textile wastes. And we decided to focus mainly on cotton which is biodegradable. Already lots of people tried making composite materials using plastics and polypropylene. So this is the replacement of plastic we made. And we thought it would replace wood also and helps to avoid DEFORESTRATION and reduce UNEMPLOYMENT.

METHOD:



Fabrication of composites

Mould box

Wooden mould of size 250 X 250 X 15 mm was used for casting of polymer matrix composite slabs as shown in figure 3.5. The mould comprises of two plates one top and other bottom and third rectangular mould cavity inside.

Fig.: Wooden mould

Hand lay-up technique

Hand laminating molding is used for fabricate the composite, the base plate is fixed inside the frame, the cover sheet is placed on the base. According to the calculation (Weight ratio) the resin and hardener are mixed thoroughly in the bowl. Then the garment waste and fly ash are mixed thoroughly with resin and hardener. The mixture is poured into entire mould cavity and then it is closed by the top plate of the mold and load is applied. The setup is kept in the dry place for 24 hours the mould is taken away. Finally the composite is fabricated.

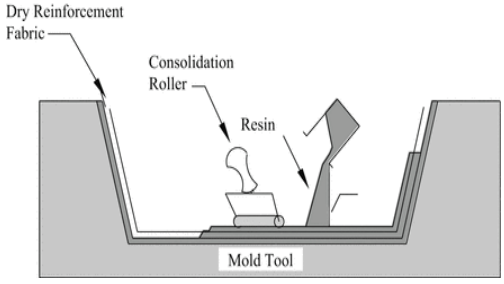


Fig.: Hand layup process

EXPERIMENT:

Specimens	Composition
A1	**Garment waste 40% + Epoxy resin 50% + Fly ash 10%**
A2	**Garment waste 30% + Epoxy resin 60% + Fly ash 10%**
A3	**Garment waste 25% + Epoxy resin 65% + Fly ash 10%**
A4	**Garment waste20 % + Epoxy resin 70% + Fly ash 10%**

Fabrication of ceiling tiles for interiors:

From the testing results we select the suitable composition of A2 (40 : 50 : 10) and fabricated the ceiling tiles for the interior application.by using suitable mould box as shown in the fig

SUMMARY:

From the experimental investigation on chopped textile waste fibre reinforced polymer composites the following conclusions were drawn:

- A textile waste hybrid composite has been fabricated successfully by reinforcing industrial wastes such as textile waste with fly ash, using an epoxy resin matrix by hand-lay-up technique.
- The maximum compressive strength of 56.88MPa was observed for the hybrid composite specimen A4 followed by specimens A2, A3 and A1 having the compressive strength of 39.82MPa, 26.66MPa and 21.15MPa respectively for normal matrix material.
- The maximum flexural strength of 99.86MPa is observed for the hybrid composite specimen A2 followed by the specimens A3, A4 and A1 with the values of 94.31MPa, 72.12MPa and 44.38MPa respectively for normal matrix material.
- The maximum impact strength of 0.42688 J/mm^2 is observed for specimen A2 followed by the specimens A4, A3 and A1 with values of 0.3761 J/mm^2, 0.3565 J/mm^2 and 0.2977 J/mm^2 respectively for normal matrix material.

Project Teammates

46. GRAIN BAGGING MACHINE

COLLEGE	Hirasugar institute of Technology.Nidasoshi
GUIDE	Prof.Mahantesh Tanodi
COLLEGE STUDENTS	Pratik Deepak patil,Sourabh veerabhadrappa sali
SCHOOL STUDENTS	Atarwa Deshpande,Prajwal 9th Std SJD HS Nidasoshi

1. ABSTRACT:

"Agriculture is the backbone of India and most of the Indian population depends on agricultural product. Considering all this things in mind and to make things easy for farmers we have come up with an idea which helps farmers to collect grain easily and make convenient to transport the grain bags from one place to another place by using equipment called "Grain bagging machine". The Grain bagging machine is low cost easy operated equipment."

2. HYPOTHESIS:

Grain collecting process is difficult one for the farmers due to the size of the grain and quantity of the grain. Further we all use funnel for collecting oil and roller for making equipment move from one to another place. Hence using the concept of funnel and some concept of mechanical stream like design and analysis the Grain bagging equipment is made. These basic concepts result in this equipment and help farmers for collecting the grain and transporting it.

3. METHOD:

The methodology of the grain bagging equipment is simple. Initially the grains are collected in the grain collecting tray of the equipment and the tray is designed in shape of funnel such that the area of collecting side is larger than the area from where the grains are made to fall in the bags. Hence when the grains are collected, they are made to transfer through the funnel shape tray so that they should fall inside the bag.

Further the tray is attached with the traveler, the traveler consists of the hooks which helps to hang the bag and grains are transferred from funnel shape tray to bag. And as the bag is on traveler this makes easy to carry grain filled bag from one place to another place. So, this was the basic methodology of grain bagging machine.

4. EXPERIMENT:

To construct any equipment design, analysis and material selection are important so for making this grain bag equipment we used Mild steel for body and sheet metal for making tray. And the design of the equipment is as shown below:

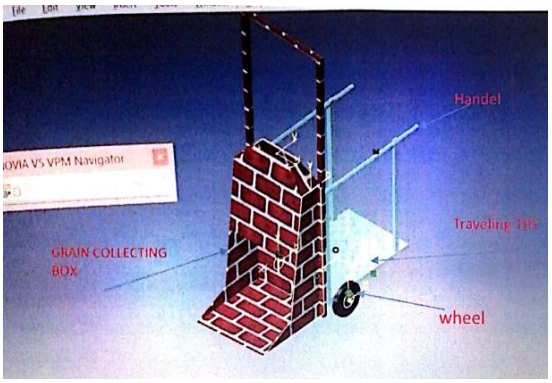


Fig.01: Design of the Grain bagging machine.

So as the above figure shows the design of grain bagging equipment. The grains are collected by tray and these collected grains are transferred to the bag which is hanged on the handle of traveler. Further the filled bag is carried out by the traveler using roller.

Fig.02: Collecting tray.

Fig.03: Traveler

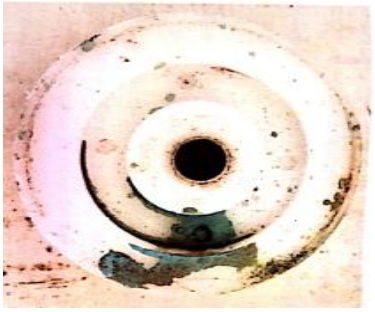
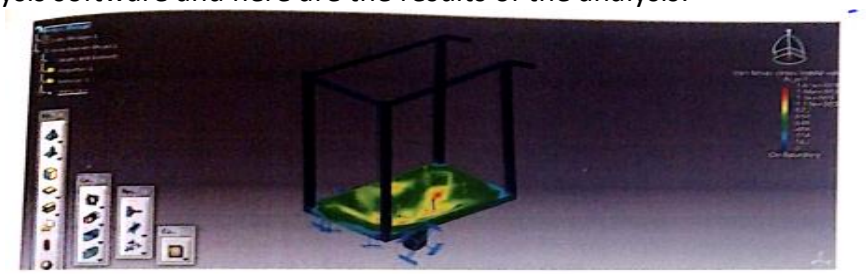


Fig.04: Wheel

Above figure shows different parts of the equipment. The equipment is designed with the following specifications:

- Specification of the tray:
- Length of the Tray=153mm.
- Width of the tray=100mm.
- Specification of the Traveller:
- Length of the Traveller=680mm.
- Width of the Traveller=450mm.
- Height of the Traveller=800mm.
- Specification of the wheel:
- Diameter of the wheel D_1=80mm.
- Diameter of the wheel D_2=30mm.
- Width of the wheel=20mm.

So these were the specification of the different part of the equipment. The Design is tested by using analysis software and here are the results of the analysis:



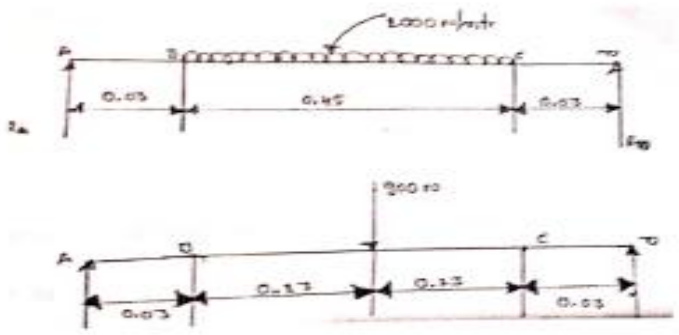


Fig.05: The analytic data of the equipment.

5. SUMMARY

- Agriculture is the stream where the development is to be done. Therefore the technology is to be used for making agricultural things easy.
- The grains are collected by the tray and are transferred to bag by lifting the tray vertically upward direction.
- These Grain filled bag is carried out from one place to required place.
- The loss of grains during filling it in bag is avoided using this equipment result is reducing in time consumption for filling this grains.
- The design is analysed and statics are used to make the equipment.

7. Team Agro-Tech:

47. RECORD AND PLAY ROBOTIC ARM

COLLEGE	GM Institute of Technology,Davanagere
GUIDE	Prof.Ravitaj B
COLLEGE STUDENTS	Bharath kalmani,Abhilasha
SCHOOL STUDENTS	Sharavan Shetty,Shreya Maria High school,Harihar

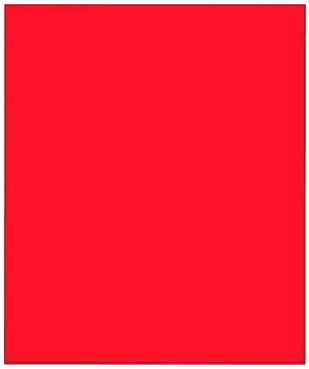
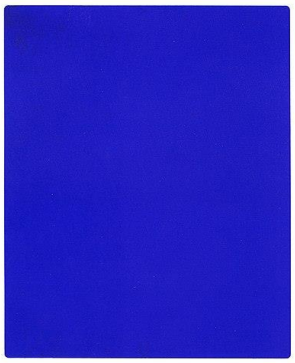
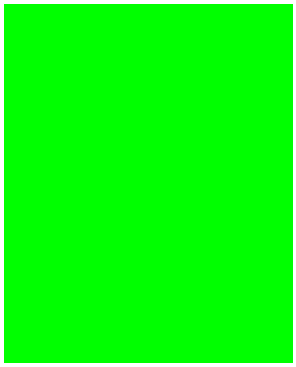
ABSTRACT:

We have designed a micro servo robotic arm which performs the operations based on the colour shown i.e., we have assigned different operations for different colours; we have used three colours red, blue and green. Using image processing technique, the coloured image is processed with the help of the camera and then colour is identified based on f(x, y)(r,g,b).

And so it performs the operations accordingly.

HYPOTHESIS:

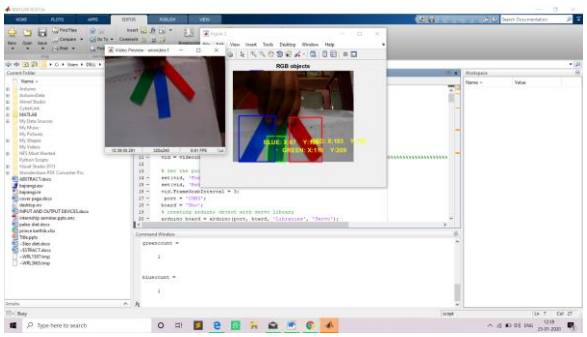
Robotic arms have many applications in this growing world, so normally the arms are controlled using remotes or the written codes, but our aim is to develop an arm that operates based on the colours, it performs operations just when the colour is shown,it can be used for object segregation based on colour.

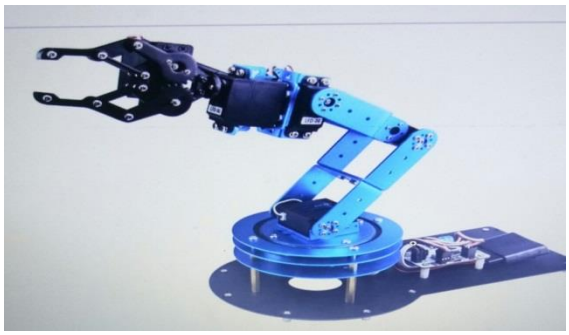




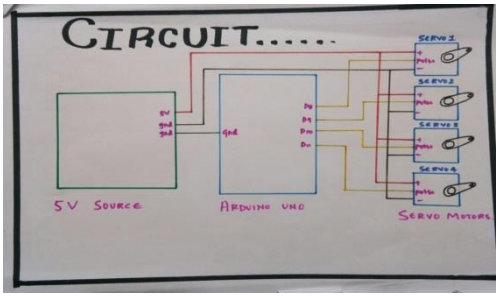
METHOD:

Servo robotic arms are of great need to reduce the human efforts, so we have used 4 servo robotic arms SG90, Arduino for serial communication and a 5 volts external supply for the servo motors. And the Main thing we require is the mat lab 2015, in which we are going to write the image processing code.

We know that every colour is a combination of different proportion of red,blue,and green(R,G,B).so we have used this concept here, when a pure red or a dark red is shown it reads a value(255,0,0) and , when a pure green or a dark green is shown it reads a value(0,255,0) and lly for blue it reads (0,0,255).these signals are used to drive the servo motors. Assigned different operations for different colours.







EXPERIMENT:

Further we are modifying the code so that once we can record the video by showing different colours and then we divide the video into different frames and the arm functions based on the video without any interrupts. Controlling through colours is more familiar and easy rather than controlling through joysticks. such kind of robots have many applications in agricultural sector for plucking weeds as we know that weeds have different colour and specifications from the crop.so once the colour and structure is known then the arm goes on picking the weeds based on the colour and structure of the weed. It's also used in industrial sector as laser cutting bots and welding bots.its also very useful in segregating different colored objects.

Future scope of image processing:

1. Establishing computer vision for blinds.
2. Object segregation.
3. Object tracking.
4. Spy robots
5. Hardware controlling using colours

SUMMARY:

As hands are necessary for humans and so robotic arms are required to reduce the human efforts, intelligent robotic arms can be developed using image processing and thus robotic arms have vast applications in this fast growing world. Robotic arms have applications in building sector, industrial sector, constructions, and agricultural sector. These make impossible possible.

TEAM PHOTO:

48. GROW IT YOUR SELF BOX PLANTER

COLLEGE	VSM Institute of Technology,Nippani
GUIDE	Prof.Mallikarjun Ganachari
COLLEGE STUDENTS	Priyanka Tibile,Gayatri jangam
SCHOOL STUDENTS	Pratamesh pote,Pranav patil,9th Std VSM Boys high school

ABSTRACT:
Arduino is gaining popularity day by day. Right from Industrial Automation to Software to manufacturing, Arduino is making its way. However the agricultural practices used even today are far away from the deployment for the benefit. People still follow the obsolete agricultural practices. The crop plantation requires lot of hard work for a farmer while factors such as soil fertility, water & many such environmental conditions & additional to them the crop diseases will affect the larger percent of agricultural produce for most of the farmers. While some nutrient values may vary this creates a major impact on crops. To find a proper solution to these particular problems this project is created. This project proposes the concept of use of air control systems & fog-maker (atomizer) for agricultural operations including growing crop using an innovative new irrigation called areoponics “fog-ponics”. The proposed project consists of an automated, smart, self-contained growing system that cultivates plants, monitors & controls the environment for plant in completely autonomous fashion from seed to mature crop. Thus proposed project is expected to bring Arduino to agriculture, thereby solving advanced agricultural problems which can be solved easily by human intervention. A simple, inexpensive system for growing plants with their roots bathed in nutrient mist is present. The geoponics system uses a spinner from a home humidifier to propel nutrient solution into a box top of which plants are supported on led light-fixture. Success in growing a number of herbaceous and woody species, including nodublted legumes and no legumes, is reported.
Keywords: Geoponics, Arduino, Atomizer, Human Intervention etc.

HYPOTHESIS:

if I grow plants aeroponically & naturally then the plants grown aeroponically will grow tallest & have most dry biomass because the aeroponic system is more efficient.

METHOD:

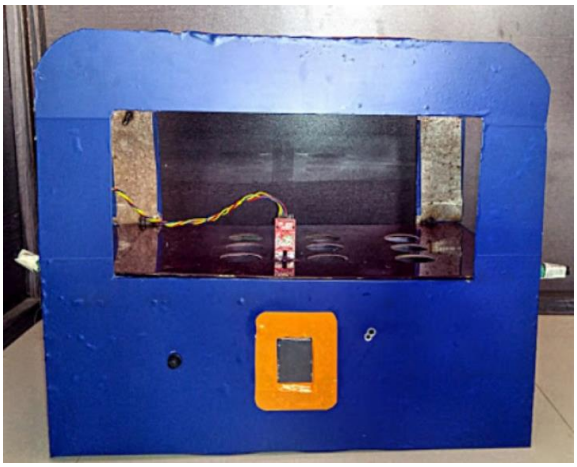
- Problem Definition
- Literature review
- Material Survey and market Study
- Hardware selection & Development
- Fabrication of incubator system
- To create a system or incubator
- Programming
- Assembly
- Testing & Optimization

Grow LED light - the Chlorophyll in plants primarily responds to only two wavelengths, represented by 450nm & 650nm. The LED system which we are using will have a blue LED lights to provide the perfect blend to help in both vegetative and flowering growth.
Ultrasonic Atomizer (fog maker) -To use a new method of irrigation, called aeroponics (FogPonics) that waters the plants through fertilizer-infused mist.
Automatic Nutrient Dosing - This system will automatically dose the nutrients for plants exactly when they need it with ph. monitoring of nutrient solution with ph. meter.
Air Control System - It allows having a precise control over temperature and humidity inside the system, down to a single degree. The technology behind involves the use of a Temperature/Humidity sensor like DHT11 to receive the data accordingly.

EXPERIMENT:

The basic idea is to grow plants without soil and using 95% less water promoting geoponics For indoor farming with minimal usage of land & larger production in smaller areas using vertical farming techniques. An excellent feature of this system for growing plants in the greenhouse is that it is simple to operate and involves no complex machinery. We did a lot of research and analyzed carefully the strengths and weaknesses of the available projects, and considering the market response, came up with a new advanced open source system, which will reduced the disadvantages and will implement only the best features.

PROTOTYPE:-



SUMMARY:

Grow It Yourself - An automated, Smart, Self-contained Growing System That Cultivate Plants From Seed to Maturity. One of the important sectors of Indian Economy is Agriculture. Employment to almost 50% of the countries workforce is provided by Indian agriculture sector. India is known to be the world's largest producer of pulses, rice, wheat, spices and spice products. Farmer's economic growth depends on the quality of the products that they produce, which relies on the plant's growth and the yield they get. Therefore, in field of agriculture, growing plants & cultivating crops without losing its nutrients plays an instrumental role. Hence, it is required to develop computational methods which will make the process of growing crops automatic using aeroponics.

India is the land of villages. This being said the major occupation of majority of villages in India is agriculture. Near about 70% people are dependent upon agriculture. Agriculture has been the backbone of the Indian economy and it will continue to remain so for a long time.

Research in agricultural systems has been growing in the last years, thanks to potential applications and industry efforts in robot development.

Aeroponics in agriculture is a field of wide research and not implemented on practical scale as agriculture still follows obsolete methods. This not only brings down the agricultural produce but also provides a lot of physical as well as mental pressure on farmers. Now-a-days we experience a lot of environmental changes which affect human beings as well as the agriculture fields. The crops turn brown, loss of essential nutrients & hence get damaged. This will drastically bring down the agricultural output as well as farmer needs to spend more and more amount without actually knowing the cure for the problems.

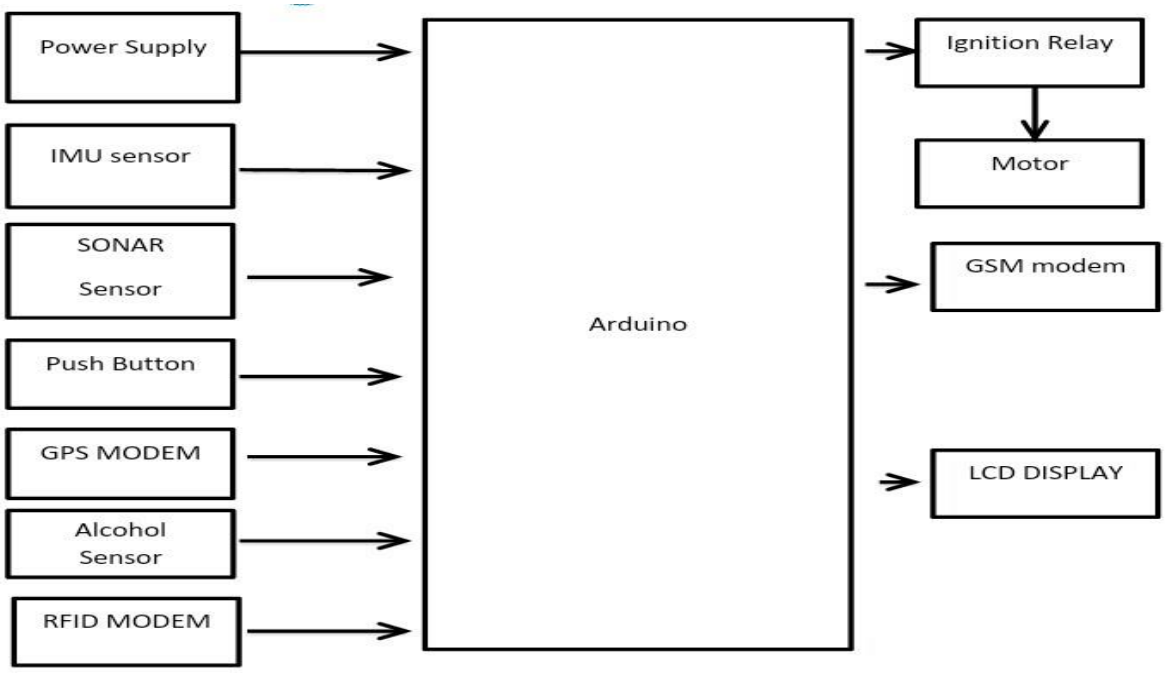
TEAM PHOTO:

49. INTELLIGENT HELMENTS

COLLEGE	VSM Institute of Technology,Nippani
GUIDE	Prof.Govind M R
COLLEGE STUDENTS	Poonam Khot,Rutuja Chouge
SCHOOL STUDENTS	Anurag B BalagaliPranav G Kamate ,9th Std VSM Boys high school

ABSTRACT: The proposed project consists of development of smart helmet which will not ignite the vehicle unless helmet is present. Sensors are incorporated to detect drink and ride case. The helmet also helps keep bikers safe form accidents using haptic intimation when any car approaches too near to the bike from behind. If a person meets with any accident, the helmet automatically informs the family members and police station thereby providing immediate aid to the victim. We have also incorporated rash driving detection system which will analyze the rider for rash driving and if the rider is found will warn the rider of the same. If the rider is found rash driving in spite of warning the GPS location of the same will be informed to the police station. Finally the Helmet can also detect the violation of signals which in case is detected will will aslo be automatically penalized from the bank account of the rider automatically. Thus we plan to propose a full-fledged system which will automatically help enforcement of traffic rules and if the same are violated, penalty will be deducted from the bank account.

INTRODUCTION: With the advent of technology, smarter and faster vehicles are coming into market. People have turned their mindset to speed, and stylish bikes which have high power and speeds. With the more and more vehicles from vehicle manufacturers coming into market, the number of people opting for faster bikes is also increasing. This has led to a major problem of bike accidents. Reports show that every hour around 16 deaths occur in India due to bike accidents which is a major problem of concern. With smart technology coming in bikes, no step is taken towards the safety of riders, which is a major drawback. Though government has set the norms of helmet compulsion for rider's safety, not every Indian bike rider is following it effectively. Also there is no fail proof system to implement this compulsion. This in spite of fines charged due to non-wearing of helmet, only a few percentage of Indian population is actually abiding to the rules.



BLOCK DIAGRAM:

The block diagram above shows the outline of the project. The proposed project consists of development of intelligent helmets of traffic rule enforcement. As shown in the diagram, the microcontroller is interfaced with different sensors. The sensors collectively work according to the algorithm developed to work a complete system for traffic rule enforcement. The MEMS sensor is responsible for regulation of wearing helmet and rash driving. The accident detection alcohol sensors detect the alcohol and automatically penalize the rider. The Sonar sensor works together with haptic feedback system to alert the user in collision. The RFID helps in signal violation determination. GPS and GSM are used to send the location details to police, family or hospitals depending on a particular case.

METHOD: The proposed project is divided into different phases so that individual phase can be completed without any errors and finally assembled to make a completely working project. The different phases in the approach towards the project are:
The literature review of the project is carried out to study the current research work as well as past research work and arrive at the problem definition
The problem definition phase

Hardware selection
Software stack selection
The smart helmet based ignition system development
Interfacing of alcohol sensors for Alcohol detection
Development of proximity based haptic feedback system to alert the user
Interfacing GPS and GSM modem
Interfacing MEMs sensors to develop rash driving Detection system
Interfacing smart signal violation detection system
Development of Accident detection system
Hardware and final schematic
PCB development and Fabrication
Programming
Assembly
Testing
Optimization
Conclusion

OBJECTIVES:

1.To develop intelligent helmets which force the user to wear the helmet by implementing smart systems to prevent bike ignition without the helmet.

2.To implement Haptic safety assist system which will automatically alert the rider using haptic feedback in case the any vehicle comes to close to rider from behind.

3.To implement automatic penalty for riding after consuming alcohol, so that if the rider is detected to ride the vehicle in such state, heavy penalty should be levied on such riders automatically by deducting the same automatically from bank accounts.

4. To implement rash riding detection system, which will automatically warn the rider in first attempt of rash driving and if the same continues, the GPS location of the same will be informed to the police and penalty will be levied.

SUMMARY: we can come to the conclusion that this project has wide scope and majority of the people are carrying out their research on this domain. However most of them do not enforce and do not handle all the problems in traffic rule enforcement. Thus we propose the concept of smart helmets for regulatory enforcement of traffic rules.

50. PUNICA TOOTH PRODUCTS

COLLEGE	Basaveshwara Engineering college,Bagalkot
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SCHOOL STUDENTS	Saniya,Shreeraksha Adarsh vidyalaya Navanagar,Bagalkote

Abstract:
Microorganisms present over the tongue are responsible for the release of Sulphur containing compounds which cause halitosis saliva plays an important role in the maintenance of good oral health.
The realization of maximum benefit from pomegranate (Punica granatum) peels as agricultural wastes by extraction of antioxidants (phenolics) using including water as a natural solvent at different operating conditions of (water/waste) ratio, extraction temperature and time of extraction process. After that natural toothpaste has been prepared from the waste of pomegranate peel residue remaining from antioxidants extraction process by mixing it with some other natural substances.
Nowadays people use mouth wash or other tooth products which contain chlorhexidine for maintaining good oral health but it has some side effects such as tooth staining on long term use, unpleasant taste and also high cost and many more hence there is need for new antimicrobial, anti-inflammatory and antioxidant agents of plant origin which is safe, preventive and economical as well.
So our project focuses pomegranate peel, using pomegranate peel we have done the tooth product considering all the issues related to oral health. Which is cost effective and have preventive strategies and have many components which are required for maintaining good oral health with no side effects?

POMEGRANATE FRUIT

POMEGRANATE PEEL

Hypothesis:
We have focused on the pomegranate peel, so an aqueous form of pomegranate peel extract contains Tannins, Ellagitannis, antioxidants and phenol acids. So the components which are required to maintain good oral health and the components which we can use in our product are same. The components present in the pomegranate peel considered to prevent gingivitis and have direct antioxidant activity, anti-inflammatory effect, antibacterial activity and removal of plaque from the teeth. Aqueous pomegranate peel shows increase in the salivary

ph after 10 to 30 min use when compared with 0.2% chlorohexidine mouth wash. So our product can replace the present tooth products.

POMEGRANATE PEEL POWDER

Methods:

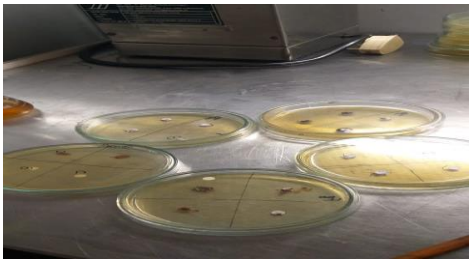
Our product mainly focuses on pomegranate peel powder. So first of all we have to take the pomegranate peel and we should dry it in a spray drier to remove all the moisture content and grind it. Then take the fine powder adds required amount of water and boil it. To this dissolve glucose, glycerin, Tragacanth mucilage in required quantity separately pass precipitated chalk and colloid clay through a fine sieve to remove the gritty particles incorporate these solids slowly to the liquids with continuous stirring until smooth paste is obtained then add methyl Paraben and peppermint oil or mint in required amount and mix thoroughly until uniform paste is obtained and pack it in a suitable container.

POMEGRANATE TOOTH PASTE

Experiment:

We have checked the antibacterial activity of the product we have prepared and we have done the comparative studies taking standard as Colgate. So the Colgate whatever antibacterial activity it is showing same the product what we have prepared is also showing. And yet we have not tested it on patients.

AGAR PLATES



COMPARITIVE STUDIES OF ANTIBACTERIAL TESTS:

COLGATE TOOTH PASTE **POMEGRANATE TOOTH PASTE**

Summary:

The main aim of our project is to replace the present chemical tooth products and here we are using the waste pomogranate peel as the source because of its beneficial effects which are protective towards a wide variety of diseases including inflammatory diseases. Many investigators have reported that pomogranate waste extract made from waste product of industrial processing show free radical scavenger and potent antioxidants capacities.

And the pomegranate peel contains all the required components which are necessary for maintaining the good oral health. And we have focused on using the industrial pomogranate peel waste. And the product we have prepared is having least chemical contents and much oral health benefits .

Pomegranate peels can help deal with a host of dental problems like preventing bad breath, gingivitis, carries and mouth ulcers.

Group photo: