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

The Institution of Engineers (India), Hyderabad

On

24th, 25th & 26st February 2020

Organised by

Agastya International Foundation

In support with

Synopsys

CONTENTS

FOREWORD

Science and Technology are the engines that drive the development and progress of a country. Science is culture of a society and mostly curiosity driven. Technology, especially science driven technology, is the one which produces wealth for a country. In the present interconnected world and globalized economy, country which can educate its younger population to invent and innovate has a greater chance of success in capturing the market by providing services and products that others are willing to pay to acquire the same.

Dr. Michael Mumford, a distinguished professor of Psychology at the University of Oklahoma, says "Over the course of last couple of decades we seem to have reached a general agreement that creativity involves the production of novel, useful products". The question, therefore, is how to create creativity. Clearly education is an essential ingredient. Arousing curiosity and building self-confidence to think unconventionally are other necessary attributes.

Over the last couple decades Agastya International Foundation has experimented successfully in science education, kindling curiosity, and in building self-confidence among primary and secondary school children. Among the many innovative ideas implemented by Agastya, Anveshana is a novel one in which the school children are coupled with science and engineering undergraduates to design and demonstrate simple S&T projects. This innovative experiment has led to bidirectional learning of the children and the undergraduates. The themes selected – ecology, environment, energy, water resources, robotics etc. – besides being topical have generated many creative ideas some of which are even implement table as products.

Over the last few years the initial success of Anveshana held in Bangalore has led to its implementation in a few other cities across India. I feel that the spread of this idea is going to challenge the spread of wild forest fire.

I wish Anveshana 2015-16 all the success. I would soon like to see it all the cities in India.

Dr. V.K. Aatre
Scientist and Former Head of DRDO

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."

ABOUT AGASTYA INTERNATIONAL FOUNDATION

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

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.

ABOUT AGASTYA INTERNATIONAL FOUNDATION

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

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

ABOUT AGASTYA INTERNATIONAL FOUNDATION

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

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).

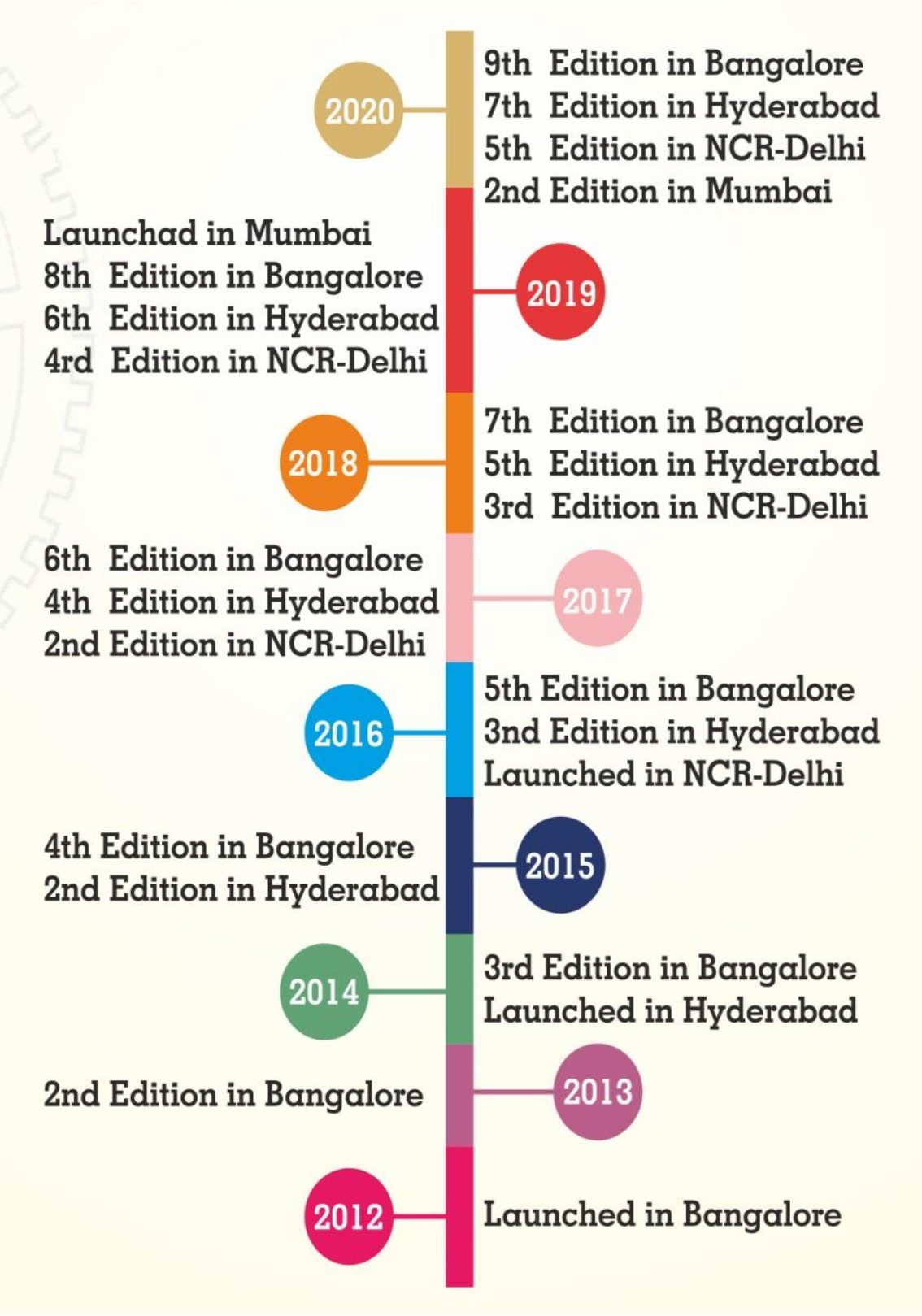
Engineering colleges will participate as teams with 2 members. The teams will select 2 students from nearby underprivileged schools (Govt. and Govt. aided schools) to **mentor** them to design and build models or projects around an identified social problem. In the process school children would directly 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



PROJECT SCREENING COMMITTEE

MG Subramanian

MG Subramanian is an Advisor to Agastya International Foundation. He enjoys going around project sites-namely colleges where Anveshana's 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's success is inevitable!

Dr. H. G. Nagendra

Dr. H. G. Nagendra is Professor and Head at the Department of Biotechnology, Sir MVIT, 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

PROGRAM CHART

24th 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	will be served in the venue
25th February 2020		
8 am to 8.45 am	Breakfast for participants	will be served in the venue
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	will be served in the venue
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	will be served in the venue
26th February 2020		
8 am to 8.45 am	Breakfast	will be served in the venue
10 am to 1 pm	Anveshana Fair	Open to School Students & Visitors
1 pm to 1.30 pm	Lunch for participants	will be served in the venue
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

PROJECTS EXHIBITED DURING EVENT			
S.N	***PROJECT TITLE***	**COLLEGE**	**PAGE N0.**
1	***ARDUINO RADAR (RADAR BASED BLIND GLASSES)***	AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY	01
2	***ALTERNATIVE AUGMENTED COMMUNICATION APPLICATION AND GESTURE CONTROL MOUSE***	B.V. RAJU INSTITUTE OF TECHNOLOGY	04
3	***FIND IT***	B.V. RAJU INSTITUTE OF TECHNOLOGY	07
4	***FOLLOW ME TROLLEY***	B.V. RAJU INSTITUTE OF TECHNOLOGY	09
5	***FALL DETECTION USING ACCELEROMETER SENSOR***	G NARAYANAMMA INSTITUTE OF TECHNOLOGY AND SCIENCES	12
6	***IOT BASED SMART WASTE MANAGEMENT SYSTEM USING AURDINO***	G NARAYANAMMA INSTITUTE OF TECHNOLOGY AND SCIENCES	14
7	***HOME AUTOMATION WITH GOOGLE ASSISTANT***	KSHATRIYA COLLEGE OF ENGINEERING	21
8	***GROUND WATER RECHARGE***	KUPPAM ENGINEERING COLLEGE	22
9	***SOLAR PANEL ISOLATION USING VAJRAPAAT APP***	KUPPAM ENGINEERING COLLEGE	25

10	***SOLAR POWERED PEST REPPELER***	KUPPAM ENGINEERING COLLEGE	29
11	***KHOA MAKING MACHINE***	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY	31
12	***RAILWAY REFUGE SYSTEM***	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY	33
13	***MIRROR PI***	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY	34
14	***NOISE HARVESTING HUB (NHH)***	MUFFAKHAM JAH COLLEGE OF ENGINEERING AND TECHNOLOGY	35
15	***SMART HELMET(SHELMET)***	MUFFAKHAM JAH COLLEGE OF ENGINEERING AND TECHNOLOGY	37
16	***CORN USED AS A BIO-FUEL***	RAGHU INSTITUTE OF TECHNOLOGY	40
17	***AEROPHONICS- A NEW WAY OF AGRICULTURE***	RAGHU INSTITUTE OF TECHNOLOGY	41
18	***JAL RAKSHAN-A TRADITIONAL WAY TO CONSERVE WATER***	RAGHU INSTITUTE OF TECHNOLOGY	43
19	***PERVIOUS CONCRETE PAVEMENT***	RAGHU INSTITUTE OF TECHNOLOGY	45
20	***PLASTIC BRICKS & PAVING BLOCKS MADE BY WASTE PLASTIC***	RAGHU INSTITUTE OF TECHNOLOGY	47

21	***PLASTIC WASTAGE REUSE IN AGRICULTURE AND GARDEN***	SRI CHAITHANYA INSTITUTE OF ENGINEERING COLLEGE	52
22	***TRAFFIC CONTROLLED BY ELEVATED BEAMS (ROLLERS)***	SIDDARTHA INSTITUTE OF TECHNOLOGY AND SCIENCE	53
23	***ECO FRIENDLY HYDROPONICS BUILDING BY USING FREE WATER SUPPLY***	SRI INDHU COLLEGE OF ENGINEERING	57
24	***ADVANCED SUB SURFACE DRIP IRRIGATION BY MOISTURE SENSOR***	TUDI RAM REDDY INSTITUTE OF TECH AND SCIENCES	60
25	***SERVICE AT YOUR DOOR STEP***	VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY	63
26	***STREET LIGHT PROJECT***	VEL TECH MULTI TECH DR.RANGARAJAN DR.SAKUNTHALA ENGINEERING COLLEGE	65
27	***FULLY AUTOMATED FISH FEEDING DEVICE***	B.V. RAJU INSTITUTE OF TECHNOLOGY	68
28	***V-NRGY***	JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY	72
29	***SOIL HEALTH MONITORING USING IOT***	MATRUSRI ENGINEERING COLLEGE	82
30	***WATER WASTE MANAGEMENT***	B.V. RAJU INSTITUTE OF TECHNOLOGY	85
31	***EFFECTIVE IRRIGATION SYSTEM***	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY	87

32	***SMART CRADDLE***	B.V. RAJU INSTITUTE OF TECHNOLOGY	90
33	***GARLAND MAKING MACHINE***	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY	95
34	***ADVANCED AGRICULTURE BY USING SENSOR AND ANIMAL PREVENTION***	TUDI RAM REDDY INSTITUTE OF TECH AND SCIENCES	97
35	***GESTURE TO VOICE TRANSLATOR***	MUFFAKHAM JAH COLLEGE OF ENGINEERING AND TECHNOLOGY	100

1. ARDUINO RADAR (RADAR BASED BLIND GLASSES)

COLLEGE	AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY
GUIDE	S.MAHESH REDDY
COLLEGE STUDENTS	V.RAGHAVENDRA SHETTY, D GOUTHAM SHETTY
SCHOOL STUDENTS	P.RAJESH CHARY, CH.SHYAMSON VENKAT DAS, ZPHS HAYATHNAGAR

ABSTRACT:

Every day in our life we observe many blind people walking on the roads, uses the blind stick as a vision. Which cannot provide complete vision to them, to avoid those problem Blind glass and accessories which helps them to provide a maximum range of vision with max of 25msec of response time?

The main focus of this project is to provide a maximum vision, cost effect and light weight and make every blind person to feel safe.

HYPOTHESIS:

The main vision (or) Motto of the project is to provide following parameters

- To provide a low cost model that can be afforded by every common man.
- To provide a small size and light weight model.
- To provide an accurate vision to the person in object detection.

The major intention of this project is to provide a partial vision to very blind person in the world with the help of present technology.

METHOD:

Blind glass works with the help with a Microcontroller and few input output devices like ultrasonic sensor and actuator.

Where Microcontroller acts a brain where it calculates the distance of the object with the help of 3 ultrasonic sensors which are mounted on to the blind glass facing three different directions. With the help of this data microcontroller give information to the person by the help of 2 actuators placed either sides on the blind glass near the ears.

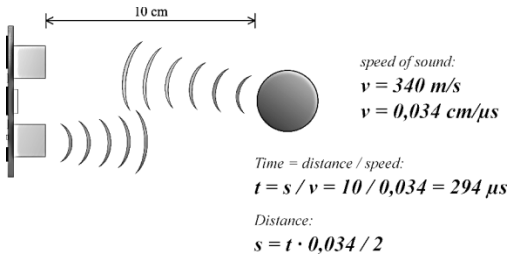


Fig 1. Basic working of an ultrasonic sensor

Experiment:
Circuit:

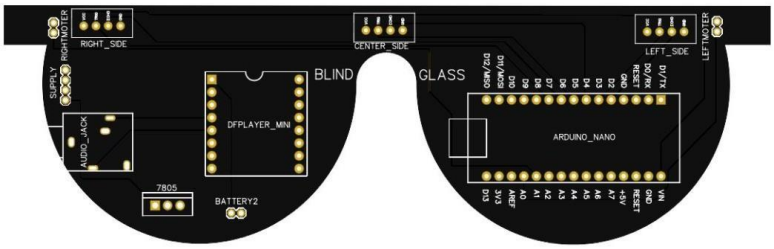
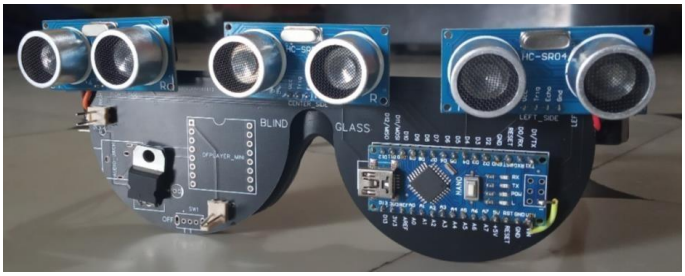
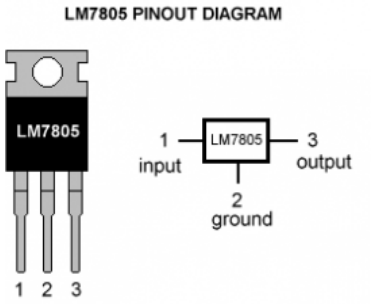


Fig 2 PCB board

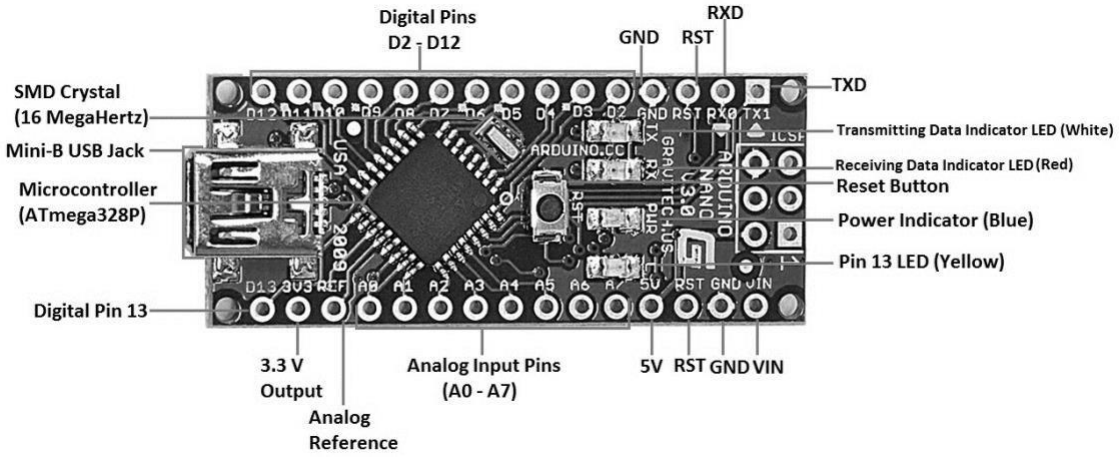


The major components used in the above circuit are as follows:

7805 REGULATOR:



ARDUINO NANO:



ULTRASONIC SENSOR:

1. Voltage sources in a circuit may have fluctuations resulting in not giving fixed voltage outputs. Voltage regulator IC maintains the output voltage at a constant value.
2. Arduino acts as a brain for the whole process it is been programed in such a way that when an object is closer to the person it alerts the person by the help of actuator.
3. Ultrasonic sensors transmit the ultrasonic sound (of 40 kHz frez.) and it get bounced back when it hits any object and the receiver those sound waves. Then it calculates the time taken by the received the signal.

Blind Glass and Accessories is just a prototype which is used to make an easy approach to provide a vision to Blind people for object detection and locating the object location. In this the total cost factor is very low so that any common man can afford it and utilize it. As it is still a prototype version which can be upgraded in later on fully assembled model.

Estimated cost: Rs.700/- Only

Team Photo:

2. ALTERNATE AUGMENTED COMMUNICATION (AAC) MOUSE OPERATED BY GYROSCOPE

COLLEGE	B.V. RAJU INSTITUTE OF TECHNOLOGY
GUIDE	SYED IRSHATH ALI
COLLEGE STUDENTS	KONDAMEEDI MANASA, P.S. SHRUTI
SCHOOL STUDENTS	V.SRIVARDHAN, NISHAR SULTANA, TELANGANA MODEL SCHOOL, JAKKAPALLI

ABSTRACT:

To communicate with different graphical user interfaces (GUI) and using the internet is a must in today's fast-growing world. Due to the inability of moving hands, many people with motor disabilities lose the opportunity to learn online using the internet; also, they can't even do basic daily functions such as operating a mobile phone or a computer. In this paper, we have discussed an overview of our device which is a gyroscope-controlled mouse. It can be worn by a person with a motor disability only by wearing this device on one's head or a movable limb and it is operated by tilting their head or the respective arm, leg on which the device is worn.

HYPOTHESIS:

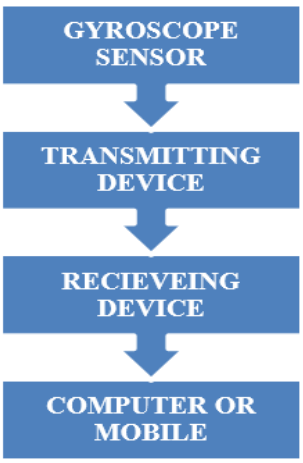
This project aims in designing a wearable mouse which allows the person to interact with the world. The objective of the project includes,

1. Wireless controlling of mouse using Bluetooth modules.
2. Live Audio and video can be seen on mobile phones & PC's.
3. Implementation of basic speech facilities are provided to the user.
4. Use of gyro sensor is done to control the device's movements.

METHOD:

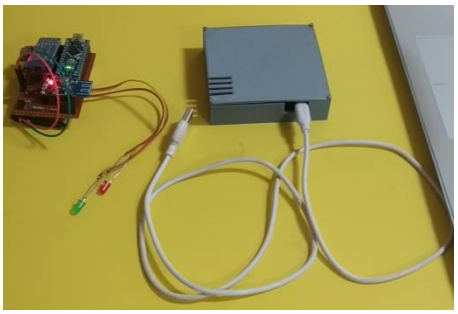
The device consists of two boards that is Arduino Leonardo and Arduino Nano. The Arduino Nano is attached with gyro sensor which senses the movements and transfers the values to Arduino Leonardo. Arduino Leonardo receives the values with through another Bluetooth and executes the mouse function.

BLOCK DIAGRAM:



EXPERIMENT:

CIRCUIT:



The major components used in the above circuit are as follows:

ARDUINO LEONARDO

ARDUINO NANO

BLUETOOTH HC-05

BATTERY CHARGING MODULE

BOOST CONVERTER

1. Arduino Leonardo is being used since only it has the mouse function and is comparatively less expensive than Arduino micro.
2. Arduino Nano is used for its size which enables the device to be placed anywhere.
3. Through Bluetooth modules the device is made wireless and easy to use.
4. The battery charging module maintains a constant voltage of 5V which enables the Arduino to work.
5. Boost converter provides micro USB pin to charge the battery and keep the device running whenever required.

SUMMARY:

An individual suffering from any limb disorders might require some assistive device that helps them to communicate with the Graphical User Interface (GUI) of a computer or a mobile. It brings the need for our device. The device discussed in this paper is a wearable mouse that must be worn on the head or leg of an individual, and the computer cursor moves concerning the movement of the worn device. This mouse device helps an individual to communicate to the world using the internet, broadening the learning of the person.

Estimated cost:

Rs.1000/-

3. FINDIT (Object Locator)

COLLEGE	B.V. RAJU INSTITUTE OF TECHNOLOGY
GUIDE	PAANDURANG MIRAJKAR
COLLEGE STUDENTS	SAI ESHWAR, SHANMUKH, ANAND, DEVENDAR, PRASANNA LAKSHMI
SCHOOL STUDENTS	NAVEED KHAN, ARSHIYA, TELANGANA MODEL SCHOOL, JAKKAPALLI

ABSTRACT:

Piles of waste are stationed around the city without proper waste management. The piled-up waste and the new generating waste can be treated and segregated as the waste is combined without any module separation. In an effective plant, the waste with all the combined products can be separated into plastics, biomass and metals involving 3 steps. These products are further considered to produce energy. Plastics through incineration produce high amounts of energy whereas the biomass is sent to the digestor which produces cooking gas and edible gas within the span of 15 days.

HYPOTHESIS:

General house hold waste is produced and is packed in covers which is carried by trash collectors to different places finally to the dumping yard. How many days would that take to decompose(or years) or how much trash can be stored in that manner?

METHOD:

A total of 5 steps are involved in the method we have chosen

Step 1: A truck that gets the trash is unloaded on to a stable site. Then the waste is slowly moved onto the conveyer belt at constant small speed

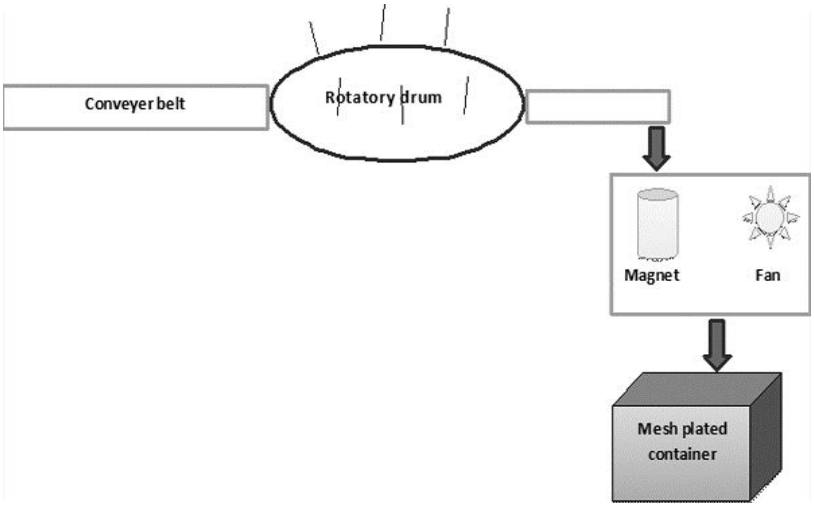
Step 2: The trash from the conveyer belt is taken into the large rotating drum with sharp spikes which rotate at high speed and the closed packets in the waste are opened up totally.

Step 3: The separated and clear wastes from the drum are collected and sent into a container containing heavy wind fan and permanent magnet. This helps in segregating smaller and larger objects with metals aside.

Step 4: The waste without metal is now collected and is introduced into water, the light covers and plastic materials are floated on the surface and heavy biomass like vegetables etc are restrained.

Step 5: The waste along with water is taken into a mesh container where water is drained and covers are left separately on sheet.

The segregated waste of plastics is taken for the incineration and the biomass is taken for the digestor.



EXPERIMENT:

The following are the important components used in here:

- 10 rpm and 50 rpm motors
- Permanent magnet
- Fan, supporters
- Steel supporters with conveyer belt
- Conveyer drum

Once the above mentioned connections are established and power is supplied, the process starts with the trash collection and continuous segregation.

OBJECTIVE:

- Main objective was to segregate the tons of waste around the city.
- Production of Renewable energy from the segregated waste.

ESTIMATED COST:

Rs.7000/- Only

4. FOLLOW ME TROLLEY

COLLEGE	B.V. RAJU INSTITUTE OF TECHNOLOGY
GUIDE	PAANDURANG MIRAJKAR
COLLEGE STUDENTS	GAAYATHRI.P.V, KAVYA GOGINENI, B.RAJESH CHANDRA SUJITH KUMAR
SCHOOL STUDENTS	D.AKHIL, AFIFA, TELANGANA MODEL SCHOOL, JAKKAPALLI

ABSTRACT:

In supermarkets, malls, airports, etc., there are several instances where we ourselves face difficulty in pushing a trolley when there is a lot of load in it. When this is the case with us then, for the elderly people or the physically challenged this could be a hideous task. Not just that in a generation where everyone is leaving their parents behind and going abroad, this could be a very common problem faced by them which forces them to depend on someone else.

We are in an era where everything is turning "smart" and the technology is developing at a rapid rate. When the whole point of technology is to make life easier and smoother for people, we decided to implement a smart technology into the trolleys as well.
Our proposed solution is a device or bot which will be attached to the trolley. This has a Bluetooth technology using which it scans and follows the person accordingly. Through this without anyone manually pushing the trolley, it'll follow the person it scans automatically.

HYPOTHESIS:

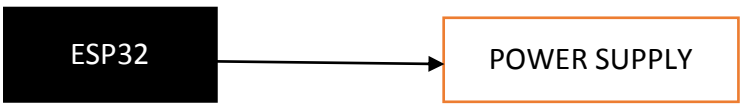
This project aims in designing a bot which follows the human. The objective of the project includes,

1. Bot that follows only the human it is supposed to.
2. Automatically corrects itself irrespective of the terrane it is put in when needed to move straight.
3. Identifies obstacles in its way.

METHOD:

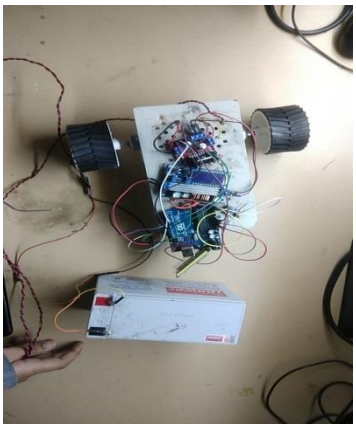
The proposed solution has a bot which has a Bluetooth enabled in it. The user has a small device which he needs to carry. The Bluetooth in the bot scans for the Bluetooth in the user's hand and gives the signal strength in between the two. Using this signal strength the approximate distance at which the person is from the bot can be calculated. In order to estimate the direction, there would be servo motor mounted on the bot to which this Bluetooth is setup. As the servo motor rotates, the angle at which maximum signal strength is received will be marked as the direction in which the person is present. Then the bot is turned to that angle and continues to follow the person it is supposed to.

USER END:-



EXPERIMENT:

Circuit:

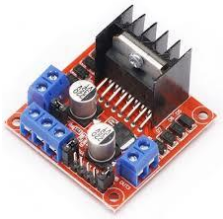


The major components used in the above circuit are as follows:

DC Motor

HMC5883L

L298N MOTOR DRIVER



SERVO MOTOR

ESP32

ARDUINO

1. The L298N is a dual H-Bridge motor driver which allows speed and direction control of two DC motors at the same time.
2. The Honeywell HMC5883L is a surface-mount, multi-chip module designed for low-field magnetic sensing with a digital interface for applications such as low cost compassing and magnetometry

3. A servo motor is an electrical device which can push or rotate an object with great precision.
4. A DC motor is any of a class of rotary electrical machines that converts direct current electrical energy into mechanical energy.
5. ESP32 is a series of low-cost, low-power system on a chip microcontrollers with integrated Wi-Fi and dual-mode Bluetooth.

SUMMARY:

This project aims in designing a bot which follows a particular person using Bluetooth. Bluetooth in the bot scans for the Bluetooth in the person's hand. With the help of the signal strength the distance is approximately measured. In order to find the direction servo motor is rotated and the angle at which the signal strength is maximum is estimated to be the direction of the person. The bot is then rotated in this direction and then continues to follow that particular human.

Estimated cost:

Rs.3500/- Only

5. FALL DETECTION USING ACCELEROMETER SENSOR

COLLEGE	G. NARAYANAMMA INSTITUTE OF TECHNOLOGY AND SCIENCE
GUIDE	MR V VIKAS
COLLEGE STUDENTS	N. HARIKA, A. SRI RATHNA MAHI
SCHOOL STUDENTS	ROHINI SHARANYA PONNANA, SAYEDA MAHER JABEEN, OASIS SCHOOL

ABSTRACT:

Fall injuries are common in the elderly population. Most of them are not provided with any nursing facility and have to stay alone for more than 8 long hours at home. As people become older bones get weak and more chances will be there to fall down suddenly. This situation demands extra care as there are chances for them to fall either due to health issues or any obstacles present. The frequency of falls increases with age and infirmity level.

It focuses to serve as a reference for both older people and their families by intimating them the condition. Fall detection systems using an accelerometer as the detector are often depicted based on a factual acceleration threshold to separate falls from normal activities.

HYPOTHESIS :

A fall detection system can be defined as an aiding device whose motive is to alert the occurrence of a fall. In a real-time scenario, they have the potential to lessen some of the adverse consequences of a fall. Sometimes, it is not possible to hire a nurse to check on or look after the elderly people. Also, it is not possible for us to be with them all the time.

METHOD:

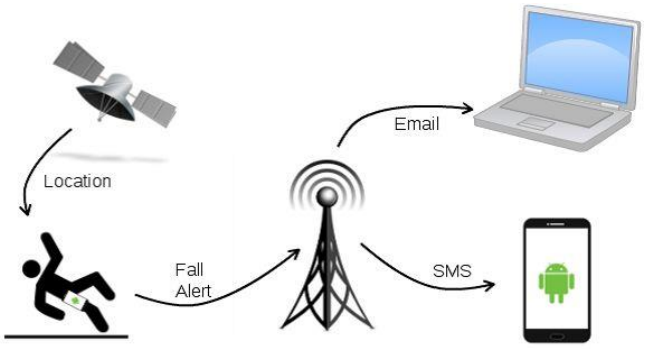
Step 1: An interrupt vector is initialised to detect all accelerometer interrupt.

Step 2: Check for the accelerometer interrupt.

(Interrupt will happen when there is a sudden change in accelerometer values)

Step 3: Once the interrupt happens, configure a 4G module to send SMS to a pre-registered mobile number.

The message contains GPS coordinates and the information of someone falling.



EXPERIMENT:

The following are the important components used in here:

- Microcontroller Board
- Batteries
- Accelerometer
- 4G Module
- 4G Sim Card
- GPS Module

Once the above-mentioned components are connected and power is supplied, the process starts with the fall detection and alerting people.

OBJECTIVES:

- Fall detectors can have a direct impact on the reduction in the fear of falling.
- To provide a proper timed medication which in return avoids further medical complications.

COST: Rs. 2000/- Only

6. IOT BASED SMART WASTE MANAGEMENT SYSTEM FOR SMART CITIES USING ARDUINO

COLLEGE	G. NARAYANAMMA INSTITUTE OF TECHNOLOGY AND SCIENCE
GUIDE	ANUSHA
COLLEGE STUDENTS	G. TEJASWINI, B. KIRANMAI
SCHOOL STUDENTS	RITHWIK SAI, HIMA BINDU, OASIS SCHOOL

ABSTRACT:
Rapid increase in volume and types of solid and hazardous waste due to continuous economic growth, urbanization and industrialization, is becoming a burgeoning problem for national and local governments to ensure effective and sustainable management of waste. It is estimated that in 2006 the total amount of municipal solid waste generated globally reached 2.02 billion tones, representing a 7% annual increase since 2003 (Global Waste Management Market Report 2007). The segregation, handling, transport, and disposal of waste needs to be properly managed to minimize the risk to the health and safety of patients, the public, and the environment. The economic value of waste is best realized when it is segregated. Currently, there is no such system of segregation of dry, wet and metallic wastes at the household level. This project proposes an Automated Waste Segregator (AWS) which is a cheap, easy to use solution for a segregation system for household use, so that it can be sent directly for processing. It is designed to sort the refuse into metallic waste, wet waste and dry waste. Various sensors and motors are interfaced with Arduino board in this system. Experimental results show that the segregation of waste into metallic, wet and dry waste has been successfully implemented using the AWS.

INTRODUCTION:

In recent times, garbage disposal has become a huge cause for concern in the world. A voluminous amount of waste that is generated is disposed by means which have an adverse effect on the environment. The common method of disposal of the waste is by unplanned and uncontrolled open dumping at the landfill sites. This method is injurious to human health, plant and animal life. This harmful method of waste disposal can generate liquid leachate which can contaminate the surface and ground waters; can harbour disease vectors which spread harmful diseases; can degrade aesthetic value of the natural environment and is an unavailing use of land resources. In India, rag pickers play an important role in the recycling of urban solid waste. Rag pickers and conservancy staff have higher morbidity due to skin infections, respiratory, gastrointestinal tract and multisystem allergic disorders, in addition to a high prevalence of rodent, dog and other vermin bites. Dependency on the rag pickers can be diminished if segregation takes place at the source of municipal waste generation. The economic value of the waste generated is not realised unless it is recycled completely. Several advancements in technology have also allowed the refuse to be processed into useful entities such as Waste-to-Energy, where the waste can be used to generate synthetic gas (syngas) made up of carbon monoxide and hydrogen. The gas is then burnt to produce electricity and steam Waste-to-Fuel,

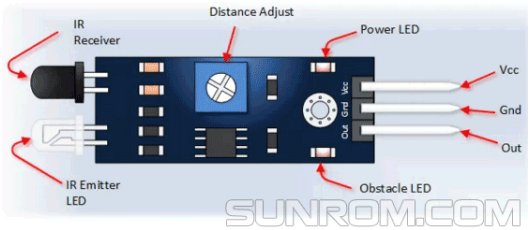
where the waste can be utilized to generate bio fuels. When the waste is segregated into basic streams such as wet, dry and metallic, the waste has a higher potential of recovery, and consequently, recycled and reused. The wet waste fraction is often converted into either compost or methane gas, or both. Compost can replace the demand for chemical fertilisers, and biogas can be used as a source of energy. The metallic waste could be reused or recycled. Even though there are large scale industrial waste segregators present, it is always much better to segregate the waste at the source itself. The benefits of doing so
are that a higher quality of the material is retained for recycling which means that more value could be recovered from the waste. The occupational hazard for waste workers is also reduced. Additionally, the segregated waste could be directly sent to the recycling and processing plant instead of sending it to the segregation plant and then to the recycling plant. Currently there is no such system for segregation of dry, wet and metallic wastes at a household level. The purpose of this project is the realization of a compact, low cost and user friendly segregation system for urban households to streamline the waste management process.

The Smart bin is divided into three compartments. Each compartment has their own function, the first compartment consists of an IR sensor and a metal detector and the second compartment consists of another IR sensor and a moisture sensor for detecting dry and wet waste, the last compartment is subdivided into three bins for collection of the segregated waste respectively. The whole system is controlled by ARDUINO UNO Board. Each and every component is interfaced to the Arduino board.
The necessary code for controlling the sensors and the motors is coded using embedded-C language, in which the inputs and the output ports can be defined easily. In this project we have used IDE compiler to compile the code and upload it to the board.

HARDWARE COMPONENTS

1. IR Proximity Sensor
2. Arduino Uno
3. Inductive proximity sensor
4. Moisture sensor
5. Stepper motor

IR Proximity Sensor
Proximity Sensor are used to detect objects and obstacles in front of sensor. Sensor keeps transmitting infrared light and when any object comes near, it is detected by the sensor by monitoring the reflected light from the object.
An infrared sensor is an electronic device, that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion. These types of sensors measures only infrared radiation, rather than emitting it that is called as a passive IR sensor. Usually in the infrared spectrum, all the objects radiate some form of thermal radiations. These types of radiations are invisible to our eyes, that can be detected by an infrared sensor.The emitter is simply an IR LED (Light Emitting Diode) and the detector is simply an IR photodiode which is sensitive to IR light of the same wavelength as that emitted by the IR LED. When IR light falls on the photodiode, The resistances and these output voltages, change in proportion to the magnitude of the IR light received.



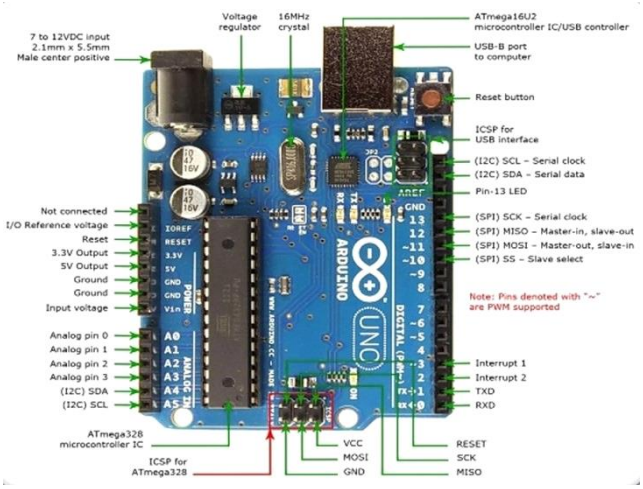
Pin, Control Indicator	Description
Vcc	3.3 to 5 Vdc Supply Input
Gnd	Ground Input
Out	Output that goes low when obstacle is in range
Power LED	Illuminates when power is applied
Obstacle LED	Illuminates when obstacle is detected
Distance Adjust	Adjust detection distance. CCW decreases distance. CW increases distance.
IR Emitter	Infrared emitter LED
IR Receiver	Infrared receiver that receives signal transmitted by Infrared emitter.

Arduino Uno:

A microcontroller is a small computer on a single integrated circuit. A microcontroller contains one or more CPUs along with memory and programmable input/output peripherals. Microcontrollers are designed for embedded applications and are used in automatically controlled products and devices. In our case we use prominently available Arduino Uno board.

Arduino Uno is a microcontroller board based on ATmega328P. For our purpose the microcontroller detects the input from the sensor and takes a logical decision based on the IDE code written an uploaded into the memory of the board and sends the required output signal to the LEDs.

Along with Atmega328P, it consists other components such as 16MHz crystal oscillator, serial communication, voltage regulator, etc .Arduino uno has 14 digital input/output pins of which 6 can be used as PWM outputs, 6 analog inputs, a USB connection, a power jack, an ICSP header and a reset button.



Inductive proximity sensor

Inductive sensors use currents induced by magnetic fields to detect nearby metal objects. The inductive sensor uses a coil (an inductor) to generate a high frequency magnetic field as shown in Figure 1 below. If there is a metal object near the changing magnetic field, current will flow in the object.

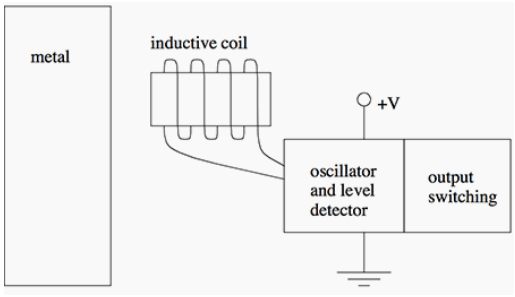
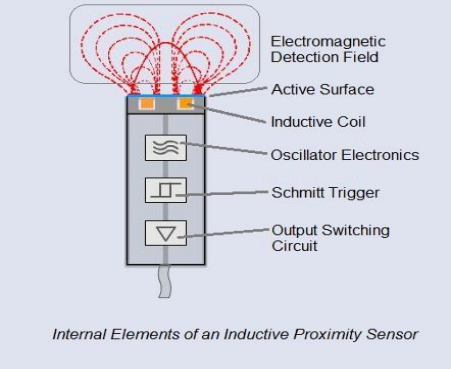


Figure 1

This resulting current flow sets up a new magnetic field that opposes the original magnetic field. The net effect is that it changes the inductance of the coil in the inductive sensor.

By **measuring the inductance** the sensor can determine when a metal have been brought nearby.

These sensors will detect any metals, when detecting multiple types of metal multiple sensors are often used.



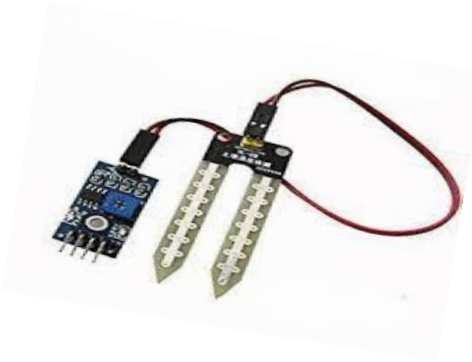
Internal Elements of an Inductive Proximity Sensor

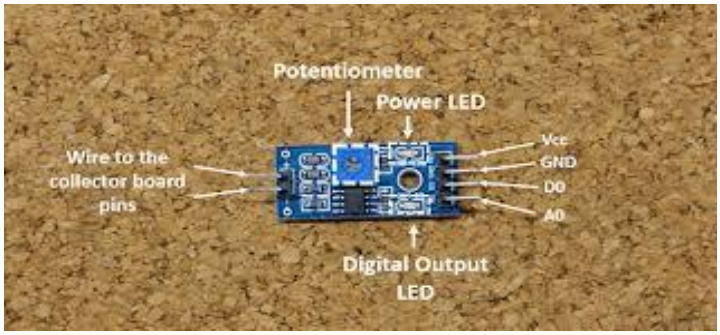
Moisture Sensor

The electrical component known as a capacitor consists of three pieces. A positive plate, a negative plate and the space in-between the plates, known as the dielectric. The physical form and construction of practical capacitors vary widely and many capacitor types are in common use. Most capacitors contain at least two electrical conductors often in the form of metallic plates or surfaces separated by a dieletric medium.

A capacitive moisture sensor works by measuring the changes in capacitance caused by the changes in the dielectric. It does not measure moisture directly (pure water does not conduct electricity well), instead it measures the ions that are dissolved in the moisture These ions and their concentration can be affected by a number of factors

The capacitance of the sensor is measured by means of a 555 based circuit that produces a voltage proportional to the capacitor inserted in the soil. We then measure this voltage by use of an Analog to Digital Converter which produces a number that we can then interpret as moisture.





Stepper Motor

A stepper motor is an electromechanical device it converts electrical power into mechanical power. Also it is a brushless, synchronous electric motor that can divide a full rotation into an expansive number of steps. The motor's position can be controlled accurately without any feedback mechanism, as long as the motor is carefully sized to the application. Stepper motors are similar to switched reluctance motors.

The stepper motor uses the theory of operation for magnets to make the motor shaft turn a precise distance when a pulse of electricity is provided. The stator has eight poles, and the rotor has six poles. The rotor will require 24 pulses of electricity to move the 24 steps to make one complete revolution. Another way to say this is that the rotor will move precisely 15° for each pulse of electricity that the motor receives.

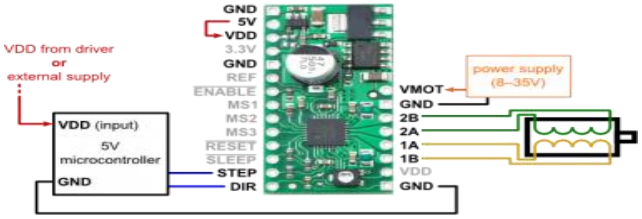
A **stepper motor drive** is a circuit which is used to drive or run a stepper motor. It is often called a stepper motor driver. A **stepper motor drive** usually consists of a controller, a driver and the connections to the motor.

A lot of drive circuits are available in the market today. Many circuits are so easy to interface to a motor that you can almost instantly connect the stepper motor to it and you are ready to run the motor. These circuits come in a variety of ratings for current and voltage and one should select them according to the needs of the motor which will be used.

Essential Components of Stepper Motor Drive

1. Controller (Essentially a micontroller or a microprocessor)
2. A driver IC to handle the motor current
3. A power supply unit (Miscellaneous Components)

1. Switches, Potentiometers
2. Heat sink
3. Connecting wires



SOFTWARE COMPONENTS

Arduino IDE

IDE stands for "Integrated Development Environment" :it is an official software introduced by Arduino.cc, that is mainly used for editing, compiling and uploading the code in the Arduino Device. Almost all Arduino modules are compatible with this software that is an open source and is readily available to install and start compiling the code on the go. In this article, we will introduce the Software, how we can install it, and make it ready for developing applications using Arduino modules.

Arduino is a microcontroller development board series – Uno, Mega, Nano, Mini etc. Any microcontroller that needs to be programmed is basically fed with a hex code version of the code written in high level (English) language. So, arduino development boards are fed with the code via their ArduinoIDE. A program for arduino hardware may be written any programming language with compilers that produce binary machine code for the target processor.

The Arduino integrated development environment (IDE) is a cross platform application that is written in the programming language java. It is used to write and upload programs to the arduino board. It helps in editing, compiling, debugging and then buring the code on to the arduino board.

The development cycle is divided into 4 phases:

1. Edit
2. Compile
3. Upload
4. Run

Compile: Compile means to translate the sketch into machine language, also known as object code.

Run: Arduino sketch is executed as soon as terminates the step of uploading on the board.

MODEL DEMONSTRATION

The Smart bin is divided into three compartments. Each compartment has their own function, the first compartment consists of an IR sensor and a metal detector and the second compartment consists of another IR sensor and a moisture sensor for detecting dry and wet waste, the last compartment is subdivided into three bins for collection of the segregated waste respectively. The whole system is controlled by ARDUINO Uno Board. Each and every component is interfaced to the arduino board. The necessary code for controlling the sensors and the motors is coded using embedded-C language, in which the inputs and the output ports can be defined easily. In this project we have used IDE compiler to compile the code and upload it to the board using a wire.

The automated process of segregation starts with the detection of garbage in the first compartment, where an IR sensor and a metal detector are placed. The IR sensor is used for the detecting the presence of garbage in the compartment and the process of separation begins.

Once garbage is detected by the IR sensor the metal detector becomes active and verifies if the garbage is of metal wastes.
When any metal object is present near the metal sensor the magnetic field around it induces current in the metal object, hence creating a loss and change in the electric field. Once metal is detected the contents in the first compartment are sent directly to the storage compartment, where three separate bins are used for metal, dry and wet waste.
When the contents of the first compartment are deemed to be non-metallic, they are sent to the second compartment where an IR sensor is used to verify the presence of the garbage. Depending on the output given by the IR sensor the moisture sensor gets activated or stays inactive. When the garbage is detected in the second compartment, the moisture sensor becomes active and is used to decide if the contents to be dry or wet waste. The decision is made using the change in the dielectric constant (solid bulk permittivity). Higher permittivity suggests that the garbage contains water content and hence is deemed to be wet waste. Depending on the decision made by the moisture sensor the contents are sent to their respective bin.

7. HOME AUTOMATION USING GOOGLE ASSISTANT

COLLEGE	KSHATRIYA COLLEGE OF ENGINEERING
GUIDE	S. RAVINDER
COLLEGE STUDENTS	KUDER GAZALA SOOFI, R. SWAPNA, MD.SAMREEN
SCHOOL STUDENTS	K.SHAJIA IRFAT, SAIMA KHAN, SRI BHASHITA SCHOOL

ABSTRACT:
Home automation system increases the comfort and quality of life. Nowadays most home automation systems consist of a smart phone application and microcontroller. In this project wireless communication system techniques are used such as Node MCU it's a wifi module, 4-channel relay module, and an application known as Blynk along with IFTTT (if this than that) are studied and their features are compared with each other. Nowadays most home automation systems are used to provide ease to elderly and disabled people and it reduce the human labour in the production of services and goods. Home automation system can be designed and developed by using a NodeMCU and a relay module which has the ability to control and monitor different inter connected appliances such as plugs, lights, fans, motor and so on.

8. GROUND WATER RECHARGE

COLLEGE	KUPPAM ENGINEERING COLLEGE
GUIDE	DR. K RAMESH, M. VENKOB RAO
COLLEGE STUDENTS	C.MANIKANTA, V. BALAKRISHNA
SCHOOL STUDENTS	K NITHISH KUMAR, H Y ROSHIK, KUPPAM PUBLIC SCHOOL

ABSTRACT:
Groundwater is one of the major sources of drinking water. But direct use of water for drinking is not suitable. Because drinking water parameters are not in standard range, developing countries facing problems in potable water because of inadequacy of economic support and technology. They are in need to adopted water treatment. The RO waste water contains hardness in greater levels. Hardness is caused by the excess mineral soluble substances, which are generally calcium and magnesium. Hardness removal is one of the important steps in water treatment process chemical based coagulants. But the effectiveness of chemical coagulants is high cost, detrimental effect on human health, large sludge production. So there is need to replace the chemical coagulants with cost effective natural coagulants. In the present study application of natural coagulants in removal of hardness in RO waste water has been attempted in the laboratory. This study deals with low cost water treatment i.e. water purification by using natural coagulants like MoringaOleifera, Okra seeds. The effectiveness of MoringaOleifera, Okra and water melon seeds powder for different ranges of hardness was determined. Moringaoleifera has the ability to remove the maximum hardness as the dosage is increased. After treatment of water sample with MoringaOleifera, the samples were analyses for different parameters like pH, turbidity, Hardness, Chlorides, Alkalinity. All parameters show promising results and where in the range of drinking water standards after treatment.

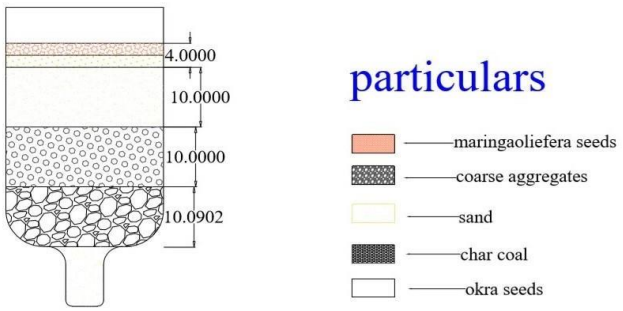
Hypothesis:
This project aims in designing a natural filtering model for reducing the hardness of R.O waste water. The objective of the project includes,

1. Filtering R.O waste water through a natural filtering process using naturally available material like sand, charcoal, coarse aggregates.
2. Using MoringaOleifera, Okra and water melon seeds, for hardness removal.

Filtration model:

- In the filtration model we have taken a 30-liter capacity water jar, which we have divided into 4 layers asfollows:
- Moringaoleifera seeds and okra seeds of 4 cm thickness as a top layer in the model. (main purpose of making it as top layer is to reduce the hardness and to pass water slowly)
- The 2nd layer as fine aggregates/sand of 10 cm thickness.
- The 3rd layer as charcoal of 10 cm thickness.
- Final layer as coarse aggregates of 10 cm thickness.

At throat part of the jar is filled with river sand of 8cmthickness.



Summary:

- It is observed that from this natural filtration technique model of 4 layers. The results show that it is reduced 37% hardness of R.O waste water and for Kitchen wastewater Hardness reduced is 47.73%•
- We can effectively use this R.O waste water after applying in this natural filtration techniques for the uses follows as:

❖ For washing clothes due less level hardness, in view of recycling the waste water to solve the water crisis in cities and metro cities , water drought area and for future water demand problem

❖ Washing for utensils, it is suggested for this purpose because the results obtained from the pH, it is observed that it can be used for washing utensils to prevent the future life from the heavy water demand by recycling this waste water by using this technique effectively

❖ Cleaning for floors, from the above results we suggest this for cleaning floors also.

Results:

Parameters		Before testing	After testing	Acceptable limit	Permissible limit
Hardness mg/l	For kitchen	1227	641.288	200	600
	R.O waste water	821.925	511.875		
Turbidity mg/l	For kitchen	400	400	1	5
	R.O waste water	20	180		
dissolved oxygen	For kitchen	13.7	15	7	14.5
	R.O waste water	6.32	10.9		

ph	For kitchen	15	10.2	6.5	8.5
	R.O waste water	8.86	8.6		

TEAM PHOTO:

Estimated cost: Rs.6500/- only

9. SOLAR PANEL ISOLATION USING VAJRAPAAT APP

COLLEGE	KUPPAM ENGINEERING COLLEGE
GUIDE	DR. K RAMESH
COLLEGE STUDENTS	RAFI RIYAZ, RAFI SIRAZ
SCHOOL STUDENTS	S MD ATIF, NIHARIKA

ABSTRACT:

Users demand on power supply is increasing day-by-day based on the population and the rise in their usage of electrical components. In current scenario, meeting out the power demand with conventional energy sources alone is not possible. One of the promising and continuously available sources is solar energy. In solar power plants, some maintenance issues are happening in the power production process such as panel cleaning, hot spot, components failure due to heavy lightning etc. In this project work, the problems due to heavy lightning condition have been focused. Even the lightning arresters are provided in the power plants, components failure are happening at some part of the power plant. This project focuses on the alternate solution to avoid the components failure during heavy lightning time. Vajrapaat app based solar panels and associated electric components isolation has been suggested and detailed in this work. Vajrapaat App based isolation unit helps to avoid the cable burnouts during heavy lightning condition. Normally, during heavy lightning time (rainy time) the power production through solar panels is almost zero and hence isolating the solar panels and concerned electrical components may not disturb the power production process. Once the heavy lightning condition is over, then all the devices get back to the work automatically based on the continuous checking of heavy lightning condition.

The usage of this proposed project doesn't affect the power production as at the time of lightning the sky is almost cloudy and there is no chance of power production or it may be power production is minimum. The isolation/reconnection of solar panels and associated components can be done effectively through the proposed work.

HYPOTHESIS:

The prototype of the proposed work has been developed for isolating the solar PV modules and associated electrical components. The main objectives of this proposed project are

1. To Isolate the Solar Panels and to reduce affects of Solar Energy from Heavy Lightning
2. To protect the Solar Cables getting burnout due to heavy Thunderstorm
3. To Safeguard the Components Failure Conditions

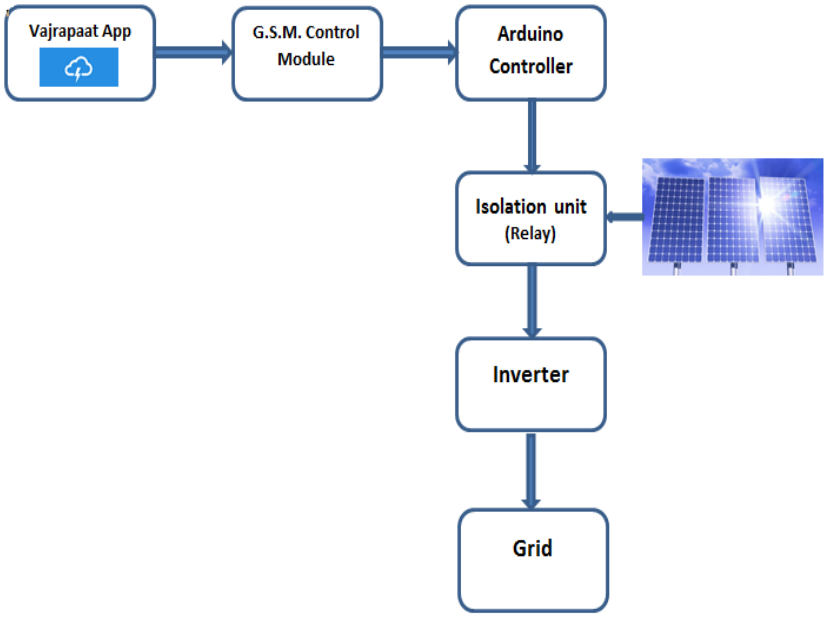
METHOD:

This proposed work is to isolate the battery units and concerned loads during the lightning based on the Vajrapaat App (available in play store and is developed by Kuppam Engineering College in association with ISRO) controlled control circuit. This will help us to avoid cable burnout issues and components failure or malfunction due to lightning. The block diagram of proposed system. The proposed system consists of Vajrapaat App connected GSM control unit and Arduino controller based isolation unit. Once the heavy lightning condition is detected, Arduino controller receives the control signal from Vajrapaat App enabled GSM control unit. Immediately, it will open the main relay between the power line and solar panels with its associated electrical components. After the preset value of 1 hour time delay, controller will

verify the control input from GSM unit. If the heavy lightning possibility is dropped, then Arduino controller unit will reconnect the solar associated power components on power delivery line.

Whenever the lightning happens near a solar plant which consists of the proposed isolation unit, the Vajrapaat app senses the lightning strike before 40 minutes and sends a signal to GSM module and then the GSM module senses it and it sends a signal to the arduino controller to isolate the circuit which is connected to the solar panels. Then the relays will break the circuit and after the specific delay time if there no sense of lightning, the circuit will be automatically reconnected.

BLOCK DIAGRAM:



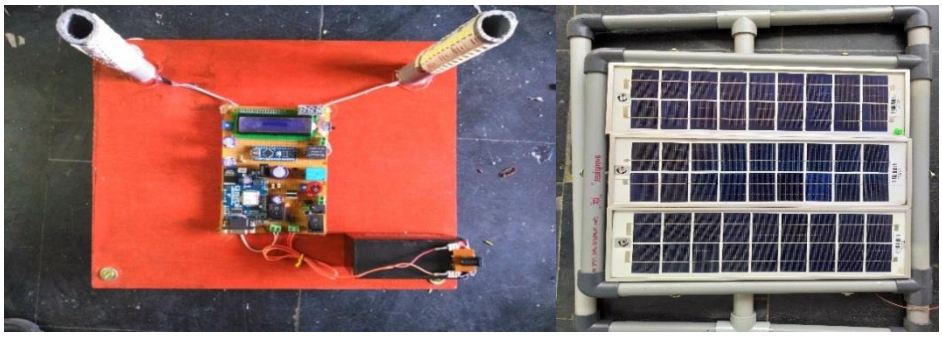
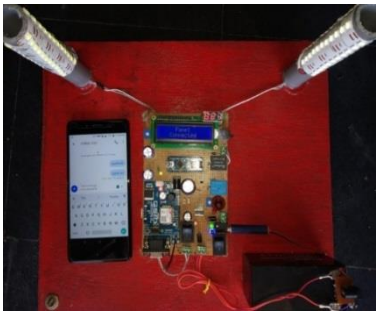


Fig.9: Proposed system prototype model

System status during heavy lightning alert condition



System status during Reconnection

Arduino NANO:

GSM Module:

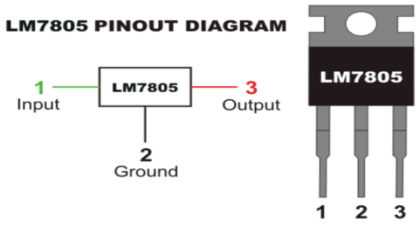
Solar Panel:

Liquid Crystal Display:

Relay:

Voltage Regulator

The voltage regulator [11] IC 7805 is actually a member of 78xx series of voltage regulator ICs. It is a fixed linear voltage regulator. The xx present in 78xx represents the value of the fixed output voltage that the particular IC provides. For 7805 IC, it is +5V DC regulated power supply. This regulator IC also adds a provision for a heat sink. The input voltage to this voltage regulator can be up to 35V, and this IC can give a constant 5V for any value of input less than or equal to 35v which is threshold limit.



PIN Description:

PIN 1-INPUT

The function of this pin is to give the input voltage. It should be in the range of 7V to 35V. We apply an unregulated voltage to this pin for regulation. For 7.2V input, the PIN achieves a maximum efficiency.

PIN 2-GROUND

We connect the ground to this pin. For output and input, this pin is equally neutral (0V).

PIN 3-OUTPUT

This pin is used to take the regulated output. It will be (5v).

CONCLUSION:

The proposed work addressed the solution to the electrical components failure in solar power plants due to heavy lightning even the lightning arresters were employed at some part of the plant. The Vajrapaat app used in this project is a proven one and it gives almost accurate prediction regarding heavy lightning. During heavy lightning time, the power production from the solar PV modules is minimum. Based on the Vajrapaat app output, the information will be passed to the customers who are all registered their mobile number with this app. The GSM module placed in the proposed system will receive the signal and accordingly solar panels and associated components will be isolated from the operation in advance of heavy lightning striking condition. In solar power plants, it will help to reduce the maintenance cost. The proposed method can be extended to the places where the electrical protection (isolation) against heavy lightning condition.

TEAM PHOTO:

ESTIMATED COST: Rs.4000/- Only

10. SOLAR POWERED SMART PEST REPELLER

COLLEGE	KUPPAM ENGINEERING COLLEGE
GUIDE	DR. K RAMESH
COLLEGE STUDENTS	M KOMALKUMAR, CHRISTO VG
SCHOOL STUDENTS	C R KEERTHI, K NITHISH KUMAR, KUPPAM PUBLIC SCHOOL

ABSTRACT:

We Indians mostly depending upon agriculture to meet the livelihood and ¾ of population is depended up on agriculture. India has approximately Of 110 million farmer and 145 million hectares of cultivating land, Producing 275 million tons annually. About 30-35% of the production is affected or reduced due to pest attack. Most farmers have experienced the disappointment of carefully raising a crop and have damaged bit invasion of pests such as aphids or other bugs. Here we are interested to reduce that 30-35% loss due to pests by introducing this gadget to an extend the prior aim of this is to minimize the usage of pesticides in farmlands. To avoid the health effect due to the pesticides it effect that farmers gets bitten by snakes .This gadget is designed so that the pest approaching this gadget get killed by the high voltage mesh circuit.

We are inspired to design a gadget that has the ability to eliminate and repels pest of certain concern through some methods adopted, a high voltage mesh trap will help in killing out the pest which approaches the gadget. A circuit which can generate voltage out of solar power is rectified and step up for killing the approaching pests during night times. The way the pests are attracted is by automatically lighting up an (UV) LED strip using LDR sensor.

METHOD:

The proposed device consist of solar panel of 5w capacity, battery, High Voltage circuit with mesh arrangement, LDR with relay circuit, UV light, oil container & adjustable liver.

When proposed device is placed in agriculture land during day time, High Voltage circuit getting input power through solar panel & it may help to killing pests which are crossing the proposed device. Some of the pests may falls into the castor oil containers placed in the top & bottom portion of the proposed device. During night times UV light arrangement turned ON automatically with the help of LDR circuit & it will attract the pests towards the device, so that the pests will be be killed by High Voltage mesh circuit & castor oil container. A filter is used in oil container helps to remove the pests felt on the oil container.

EXPERIMENT:

SETUP:

SUMMARY:

- By using the proposed device the usage of chemical pesticides is completely removed & it ensures the health safety & production of chemical free agro products.
- The proposed pest repeller will kill the kind of insects which are crossing this device, but some of the insects which will helps for agricultural process are getting killed to avoid this we are in further research process.

TEAM PHOTO:

ESTIMATED COST: Rs.600/-

11. KHOA MAKING MACHINE

COLLEGE	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY
GUIDE	DR. L. BHANU PRAKASH
COLLEGE STUDENTS	VENKATA KARTHIK G , VENKAT RAVULA
SCHOOL STUDENTS	AKHILA , SOUNDARYA, ZPHS DUNDIGAL

ABSTRACT:

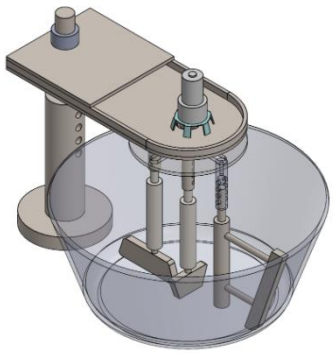
Khoa making is a simple process but requires continuous stirring of milk in its preparation time of 3 – 4 hours in hot conditions. At most attention needed during the boiling of milk – little carelessness burns the milk at the bottom of the vessel. In a big vessel called kadai placed over a chulla (chulla is feed with agricultural residue used for burning purpose) around 50 lit of milk is poured which produces nearly 20kg khoa by stirring continuously for 3 hrs.

STEPS INVOLVED IN EXISTNG MANUFACTURING PAPER PLATE:

- Limited capacity due to batch operation resulting in non-uniform product quality and thus not suitable for large volume production
- Inefficient use of energy and low heat transfer of bulky equipment

PROBLEMS TO BE CONSIDERED IN MANUFACTURING PROCESS:

- Cost: there are several machines – highly expensive for small scale producers to afford
- Quantity: as each cycle deals with 60-100 lit equipment must be big enough to fit in such large volumes
- Power supply: consider that most of the villages do not have proper power supply
- Type: less manual work will be appreciated at least in the stirring part
- Time: Instruments consuming less time than manual work will be encouraged



CONCEPT OF THE PROPOSED WORK:

To overcome the limitations that are associated with the machines currently existing in the market, we, team “Food Tech Builders” has proposed a solution i.e. **A** Customizable Khoa Making Machine for Everyone.

WORKING PRINCIPLE OF PROPOSED MACHINE:

The machine is designed to operate with milk capacities in the range of 10 - 150 liters. Accordingly, vessels that can hold10, 25, 50, 75, 100, 125 and 150 liters are made available. It provides the required degree of freedom to the maker in selecting the desired vessel according to the small/large scale production. According to the chosen vessel, provisions are made in the machine to adjust the height of the stand, length of the cantilever beam/plate and length of the stirring rods. Bottom and side scrapers can be made available in appropriate lengths that suits according to the vessel. It fetches greater advantage to the entrepreneurs in marketing the machine and its spare parts. By replacing flat scrapers with multiple hemispherical scrapers, the machine can be made comfortably work with curved vessels as well**.** As the vessel is not an integrated part of the machine, it makes the machine more suitable for existing manual Khoa entrepreneurs and marks the solution more suitable to entrepreneur's existing setup**.** The machine is suitable for heating milk using firewood, this can temporarily counter the LPG requirement. The machine designed to operate on 0.5 HP motor and the power supply to this motor can be obtained from domestic household power source or through an inverter i.e. charged via solar panels. Spillage losses can significantly be arrested by considering the vessel with an inward bent (top).

WORKING PICTURES IN PRODUCTION LAB:

BUDGET: ₹ 8,000/-

12. RAILWAY REFUGEE SYSTEM

COLLEGE	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY
GUIDE	AMARESHVAR
COLLEGE STUDENTS	J PAVAN, MALLIKARJUN
SCHOOL STUDENTS	HARISH GOUD, RENUKA, ZPHS GOWDAVALLY

ABSTRACT:
The Indian government has focused on the Railway section such as introducing new express trains and renovating old stations and different mode of Rail transport such as Metro , because of overpopulation

Railways are also the cheapest mode of transportation this factor mainly affected the railway department. Has it is cheap overcrowding in the railway station has lead loss of many peoples life by railway accidents and many people due to their carelessness they don't use foot over bridge and cross the railway track, not only this many people in hurry they try to caught the train while it is running which very dangerous and it is illegal to attempt such activities in railway station. Recently there was an incident occurred at the metro railway station, a teenager had committed suicide by jumping onto the railway track while the train was approaching. So keeping all these factors into consideration we came up with an idea called "RAILWAY REFUGE SYSTEM".

13. MIRROR PI

COLLEGE	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY
GUIDE	B.DURGA SREE
COLLEGE STUDENTS	YASHASWINI SARABU, PALLAVI PALADUGU, THARANGINI
SCHOOL STUDENTS	VAMSI, CHANDRA MAHESH, ZPHS GOWDAVALLY

ABSTRACT:

Mirror pi is a project which creates a virtual interaction between a mirror and user which displays Time, Date, Day, Speech recognition and News Feed. This is entirely developed on python platform. Raspberry Pi is used to make project simple and viable. Mobile phones have become smart phones only when the concept has erupted and morphed into the Internet of Things. Mirrors provide a large ideal surface for displaying information and interacting. So, the concept of a mirror pi is to interact with it.

What possibilities are there and how smart could a mirror be? These are some of the questions that inspired our choice to make this project, a project which aimed to develop a smart mirror and a small operating system to power it. The device was to go beyond an ordinary mirror, to have a screen inside that we would be able to interact with, by displaying, date, day, time, speech recognition and news feed by using a raspberry pi.

However what we wanted to achieve was something we could interact with. Our goal was to learn how a Raspberry Pi worked and to understand how to combine the software and the hardware components to create a multimedia project.

14. NOISE HARVESTING HUB (NHH)

COLLEGE	MUFFAKHAM JAH COLLEGE OF ENGINEERING AND TECHNOLOGY
GUIDE	B. SUCHARITHA
COLLEGE STUDENTS	ASAD ULLAH KHAJA, SYED AZHAR HUSSAIN QUADRI
SCHOOL STUDENTS	ABDUL HANNAN, SYEDA FARIYA MOHI, SUCCESS THE SCHOOL AND SRI CHAITANYA SCHOOL

ABSTRACT:

One of the major problems faced is pollution, pollution not only has a bad impact on humans but it also affects each and every living and nonliving organism in some way or the other reduction and controlling pollution are very difficult and costly and is never a complete 100 percent successful. One of the most disturbing pollution faced in well-developed cities is noise pollution and the reduction of noise from factories, industries, and traffic are very difficult and a hectic. So, we thought instead to use this noise to make clean and green energy that can be used in various digital applications. Our project aims in converting noise to clean energy.

HYPOTHESIS:

This project aims in designing a device that converts noise to usable energy. The objective of the project includes,

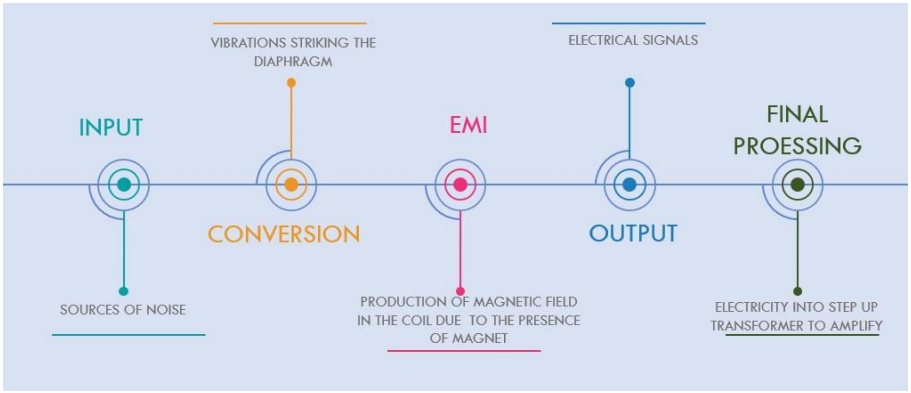
1. Free and clean energy

Effective use of existing problem i.e. pollution

METHOD:

The current prototype model has two magnets(not so powerful) which are placed in such a way that they repel each other the other important component is a coil (which has 70-80 turns) that passed through them, whenever the coil passes through it due to the movement of the diaphragm, a small voltage is measured across the multimeter, If we take into consideration a more powerful magnet and coil with many numbers of turns the voltage obtained will be more. As voltage induced is directly proportional to the strength of the magnet and number of turns in the coil.

BLOCK DIAGRAM:



SUMMARY:

This is just a prototype for our project and a vision to create clean and green energy that can be stored or directly used in day to day appliances. If such models are employed in large numbers in busy places a lot of free energy can be generated. If we use this at runways and in launch pads of rockets approximately 220V can be generated by using 1000 such models and if we are using more sensitive microphones and more powerful magnets then the number of models required is less.

ESTIMATED COST:

Rs.500/- to 800/- Only

COLLEGE STUDENTS:

Asad ullah khaja

Syed Azhar Hussain Quadri

15. SMART HELMET (SHELMET)

COLLEGE	MUFFAKHAMJAH COLLEGE OF ENGINEERING
GUIDE	MALIHA NAAZ
COLLEGE STUDENTS	MOHD AMEER, MOHD SAFWAN HUSSAIN
SCHOOL STUDENTS	MOHAMMED ABDUL MUQEET, MOHAMMED ABRAR KHAN, SULTAN-UL-ULOOM PUBLIC SCHOOL

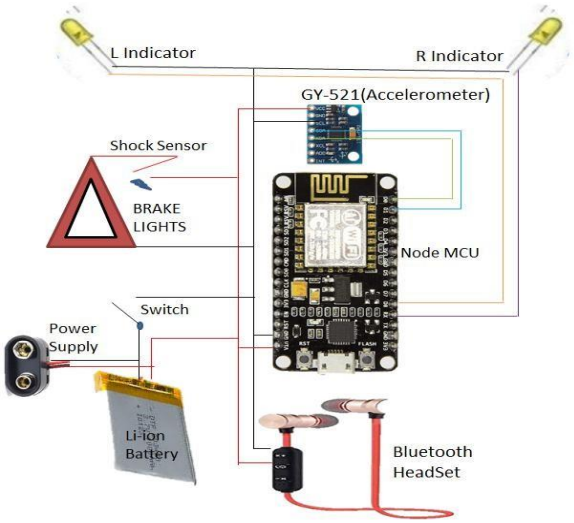
ABSTRACT:
Majority of accidents in two wheeler are caused by negligence of safety rules of drivers who avoid wearing helmets. The worrying part is that maximum health and financial damage is caused to the two wheeler driver with the heavy vehicles left with only a few scratches. On investigations it is confirmed that two wheeler riders are not comfortable wearing helmets due to various reasons. The Bulky mass Referred to as Helmets by the riders makes them feel claustrophobic and limits their ability to take calls and listen to music while they enjoy their ride. If it all they happen to encounter a mishap or greviance, They have to access their phone to report which consumes time.

HYPOTHESIS:

This project aims at designing a helmet That is safe as well as interactive which improves user's riding experience and their by making it mandatory to wear Helmet . The objective of the project includes,

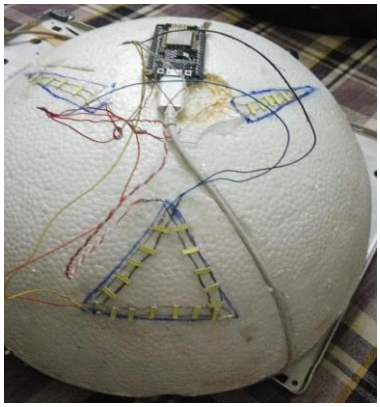
1. Wifi Based controller For Tilt sensitive indicators, braking (Deceleration).
2. Bluetooth Headset Stereo Music.
3. Emergency Help Seeker & Hazard indicator.
4. Important Notification Alerts Announcer.
5. Integrated Google Assistant and Google Maps

BLOCK DIAGRAM:



EXPERIMENT:

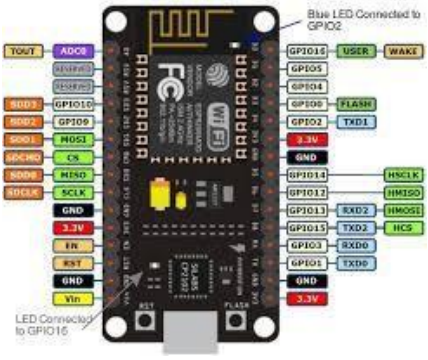
Circuit:



The major components used in the above circuit are as follows:

Bluetooth Head set

GY-521



Node MCU Pin Diagram

Li-ion Battery

L.E.D

1. The ESP8266 NodeMCU features two buttons. One marked as **RST** located on the top left corner is the Reset button, used of course to reset the ESP8266 chip. The other **FLASH** button on the bottom left corner is the download button used while upgrading firmware.

2. The GY-521 module is a breakout board for the MPU-6050 MEMS (Microelectromechanical systems) that features a 3-axis gyroscope, a 3-axis accelerometer, a digital motion processor (DMP), and a temperature sensor

3. A **headset** combines a headphone with a microphone. Headsets are made with handsfree operation and bluetooth connectivity .

4. A **light-emitting diode** (**LED**) is a semiconductor light source that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons.

5. A **lithium-ion battery** or **Li-ion battery** (abbreviated as **LIB**) is a type of rechargeable battery. Lithium-ion batteries are commonly used for portable electronics

TEAM PHOTO:

Estimated cost:

Rs.1500/- Only.

16. CORN AS BIO-FUEL

COLLEGE	RAGHU INSTITUTE OF TECHNOLOGY, VISHAKAPATNAM
GUIDE	S RAMA LAKSHMI MALLADI
COLLEGE STUDENTS	B.PRUDHVI RAJU, R.SRINU
SCHOOL STUDENTS	SAVASIDDI KUMARI, V YASHODA, KASTHURBHA GANDHI BALIKA VIDHYALAYA

Aim: Converting corn waste into Bio Fuel

Motive : It is suggests that to meet the cooking fuel demand. Corn fuel some how takes the place of fuel and also full fill the concept of **" Swach Bharath".**

Procedure : The main Composition in corn cob is cellulose, hemi cellulose and lignin. Which is a cell builder and also binds cellulose
The following steps were adapted to get free cellulose & hemi Cellulose.

Laborite Experiment:-
Pre Treatment:- It involves (a) cooking corn cob powder b) treating with 1% H^2So_4 followed by water wash c) The sample is treated with citric acid or acetic acid solutions.

Fermentation:- Yeast was added to the above sample and kept for 2-3 days in a dark room them fermentation takes place.

Comparative Study :- Colorific value of the above product was calculated as 0.2 K. cal /gm. by using calori meter It was compared with standard calorific value of ethyle alkaline, that is 0.3 K. C/gm.

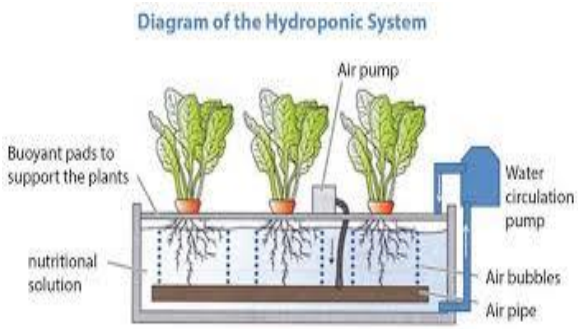
My Task:-
1. To maximum yield of bio fuel from Corn Cab.
2. To give a substitution to petrol by bio fuel in low cost.
3. To clear cellulose waste and to achieve Swatch Bharath Concept.

17. AEROPHONICS

COLLEGE	RAGHU INSTITUTE OF TECHNOLOGY, VISHAKAPATNAM
GUIDE	S RAMA LAKSHMI MALLADI
COLLEGE STUDENTS	P SARATH CHANDRA, SAI KUMAR BISOI
SCHOOL STUDENTS	Y VIJAYA DURGA, A DEVISRI, ZPHS CHEEDIGUMMALA

Aeroponics is defined as a plant growing system in which plants are suspended in air inside a chamber where nutrient solution is intermittently applied onto the roots in the form of fine mists. Mist is a phenomenon caused by small droplets of water suspended in air. Physically, it is an example of a dispersion. It is most commonly seen where warm, moist air meets sudden cooling, such as in exhaled air in the winter, or when throwing water onto the hot stove of a sauna. Mist is a phenomenon caused by small droplets of water suspended in air.

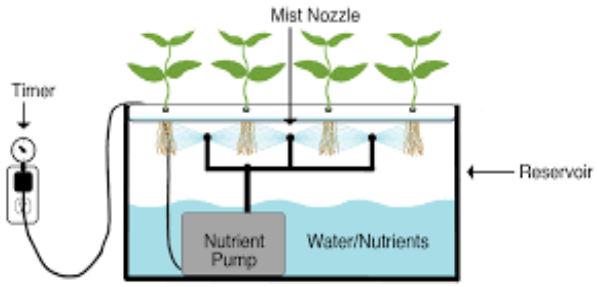
Hydroponics is a subset of hydroculture, which is a method of growing plants without soil by instead using mineral nutrient solutions in a water solvent.



ABSTRACT:

The technology Hydroponics and Aeroponics plays very crucial role in 21 st century in soilless culture in commercial food production. In this technology natural media is helpful to grow the plants. The main principle involving the use of sprayers, nebulizers, foggers to create a fine mist of solution of deliver nutrients to plants roots. Plant roots are suspended above a reservoir of nutrient solution or inside a channel connected to a reservoir. Plants will grow under optimal conditions like nutrient, temperature, aeration, and pH. In this technique oxygen is influenced into the nutrient solution, allowing the roots to absorb nutrients quicker and more easily. This facilitates stimulating the rapid growth, preventing algae formation and resulting high yields. And the main benefits based on aeroponics is-

1. It uses considerably less energy and water than traditional agriculture.
2. Since, air acts as a medium to grow plants, considerably less maintenance is needed.
3. In this system, the plant roots are exposed to sufficient oxygen and they can easily absorb it. This promotes quick and disease-free plants growth. Moreover, the mist used on roots can be sterilized to prevent plant disease.
4. Aeroponics systems are 100% safe and help the environment by conserving water and reducing the amount of human labor involved.
5. Aeroponics methods grow plants faster than any other conventional means.
6. In Aeroponics you can easily clean your system and replace old plants with new ones.



Aeroponics is still a good way to learn how to master plant growth and learn about their needs, within a controlled environment. For urban dwellers who live in apartments, sometimes Aeroponics is the only practical way to garden. For budding farm ventures in high value crops, the cost of setting up an Aeroponics nursery may turn out to be cheaper than acquiring a large plot of land to farm on. And on arid lands, Aeroponics circumvents this problem, and provides the best means of growing plants effectively.

18. JAL RAKSHAN - A TRADITIONAL WAY TO CONSERVE WATER

COLLEGE	RAGHU INSTITUTE OF TECHNOLOGY, VISHAKAPATNAM
GUIDE	S RAMA LAKSHMI MALLADI
COLLEGE STUDENTS	ADIREDDI V S G PRADEEP KUMAR, EROTHI CHANDRA MOULI
SCHOOL STUDENTS	K.MANI KANTA, B.NAGA MANIKANTA

ABSTRACT:

The worldwide usage of the water in the daily life is increased, which results in the scarcity of water. Water plays a major role in the every sector. Continuous usage of water leads in the shortage of water in the underground. This may lead to the shortage of availability of the water. In order to reduce this problem we must conserve the water. In this project we can conserve water to some extent. The main aim of this project is to conserve the water by modifying the drainage system and by using the traditional ways of water conservation. Few of the water conservation methods are spiral wells, kunds and kundies, storage tanks etc. It is necessary to adopt few methods to conserve water. Every individual should feel responsible to conserve water. Additional analyses showed that the effect was particularly strong for high-consuming households, and that the discrepancy between household consumption and similar homes influenced the amount of water savings.

INTRODUCTION

As the world's population grows, the demand for natural resources will continue to increase. Among the many finite resources, fresh water stands out as one of the most critical. While 70% of the earth's surface is water, less than 1% is available for human consumption—the vast majority is either frozen in ice sheets or salty in the ocean**.** Fresh water is essential for life, and the World Health Organization estimates that each person needs 15 liters per day for basic necessities such as drinking, cooking, and sanitation. Beyond basic necessities, the United Nations estimates that 50–100 liters per person per day is sufficient for personal and domestic uses, including washing clothes, personal, and household hygiene, and other activities. While most of the world's population now has access to improved sources of drinking water (91% according to the United Nations), managing the availability of water is an ongoing local and global challenge (United Nations, 2017).

Water demand management involves both more efficient uses of water, along with conservation. Efficiency in this context means producing the same outcome with fewer resources. So for example, using less water for bathing, or agricultural practices that maximize harvest while minimizing water use. Conservation refers to reduced consumption, and while efficiency can oftentimes lead to reductions in consumption, conservation also includes curtailing activities.

Importantly, while traditional approaches to demand management have focused on the costs associated with water consumption and the corresponding potential for saving money, recent developments in behavioral science have uncovered potentially more effective strategies for encouraging efficiency and conservation.

ABOUT:

In the present project are going to discuss about the water problems that are faced by the human beings are other creatures. Every year a large number of creatures die due to the scarcity of water.

In this project we combine the modern technology along with the traditional ways to conserve water. We have a large drainage system through which waste water from the residential and the waste from the industries are mixed the oceans and nearby river and other water bodies.

By modifiers the drainage and utility the unused lands by constructing spiral wells we can conserve used water from the residential and the rain water.

MATERIALS

- Acrylic sheets
- Pvc pipes
- Metallic or plastic mesh
- Glue
- Water
- Plastic tray

CONSTRUCTION

The construction of the model involves the plastic trays in which the acrylic sheets are sticked with the help of glue. At a height of 8cm another plastic tray is placed on the acrylic sheets. Another set of acrylic sheets are sticked to the walls of the another tray and the metallic or the plastic mesh is placed on the second tray which prevents the flow of sand particles along with the water. In the upper tray sand is placed in layer by layer along with the gravel upto a height of 16cm from the base tray. PVC pipes or the rubber pipes with holes along the pipe are placed in the sand which helps in the distribution of water in the sand layers. At the end of the sand layer spiral shaped plastic pipe is attached which represents the spiral well.

WORKING

When the water flows through the drainage it flows across the pipes covered by mesh, the waste gets accumulated on the surface of the mesh and the water sinks into the ground through the pipes. When the water flows into the pipes it gets distributed through the holes. This water gets filtered by the different layers of the sand and the temperature inside the earth crest also helps in the purification of the water. At the end of the drainage system spiral wells are digged which helps in the conservation of the water and the excess water is allowed to pass into the nearby water bodies. The mesh used to cover the holes in the drainage systems are to be maintained regularly.

ADVANTAGES

- The underground water levels can be increased to a certain extent.
- It reduces the scarcity of the water.
- It helps in the growth of grasslands.
- The unused lands can be utilized in an effective way.

CONCLUSION

With the help of this project the underground water levels are increased to an extent and reduce the water scarcity in the different parts of the world.

19. PERIOUS CONCRETE PAVEMENT

COLLEGE	RAGHU INSTITUTE OF TECHNOLOGY, VISHAKAPATNAM
GUIDE	P. SUMANJALI
COLLEGE STUDENTS	S.KALYAN, S. ASHWIN KUMAR
SCHOOL STUDENTS	K.HEMA LATHA K.DIVAYA

ABSTRACT:
An urbanization increase in India and many parts of the world has led to increase in impervious surface like cement concrete and bitumen area which blocks percolation of precipitation from rainfall. This leads to excess surface runoff and downstream flooding. Pervious concrete is an effective way to minimize the drainage problems, flash flooding and increase the ground water table. Pervious concrete is a mixture of coarse aggregate, cement, water, little or no sand along with or without admixtures containing network of voids in the range of 15 to 35% by volume to allow water through it. The pervious concrete pavements are used in low traffic areas, parking slots, etc.
Every year there is a huge quantity of waste tyre rubber is generated. Therefore, recycling of waste tyre is become mandatory. So , waste tyre can be recycle by using it in pavement construction as a partial replacement of coarse aggregate. Similarly, in pervious concrete the partial replacement of cement by fly ash helps to develop the strength.

OBJECTIVE:

The main objective of this work is to examine the compressive strength of pervious concrete by partial replacement of cement by 20%, 25%, 30% fly ash and partial replacement of coarse aggregate by 3% waste rubber tyre material.

MATERIALS USED :

Cement: Cement used for this work is 53 grade

Coarse aggregate: Coarse aggregate used for this work is 20mm and 12.5mm

Fly Ash: Fly ash used for this work is class F

Mix proportion

C : F.A : C.A = 1 : 0 : 4

Water-cement ratio = 0.35

C= cement

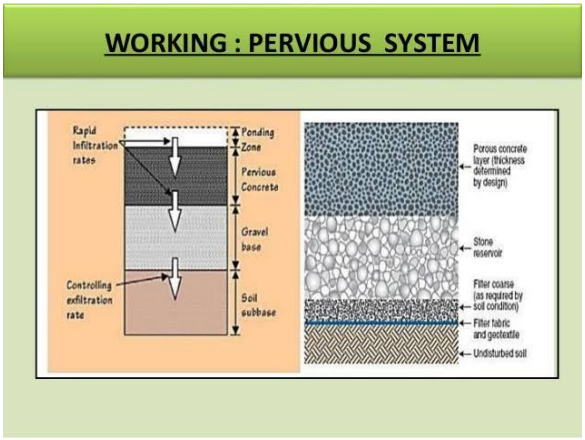
F. A= Fine aggregate

C.A= Coarse aggregate

EXPERIMENTAL METHOD:

- Take the weights of the materials according to selected mix design(**1:0:4**)
- mix the materials after weights taken.
- Add water to the mix, according to the selected water-cement ratio(**0.36**)
- Take a rectangular mould of dimension 150mmX150mmX150mm to prepare pervious concrete cube for testing compressive strength.
- pour the mixed concrete in a mould in 3 layers.
- Apply moderate tamping to each layer.
- If the mould is filled completely, then strike off the excess concrete.

- After 24 hours, the concrete cube should be removed from mould and kept in water for 7 days and 28 days curing.
- After 7 days and 28 days the concrete cube should be taken out from water and check the compressive strength by using Compression Testing Machine.
- Similarly, prepare 6 cubes (i.e., 2 cubes of 20% fly ash replacement + 3% tyre rubber replacement , 2 cubes of 25% fly ash replacement+ 3% tyre rubber replacement, 2 cubes of 30% flyash replacement+3% tyre rubber replacement) to check the compressive strength.
- For testing the tensile strength, prepare a cylinder with concrete using a mould of 150mm diameter and 300mm length with the same design mix.
- Finally, select the best percentage replacement which gives high strength for 7days and 28 days from the obtained results.



MODEL PREPARATION :

- The pavement consists of 3 layers. They are surface course, base course, sub base/ sub grade course.
- Surface course is laid with pervious concrete.
- Base course is laid with coarse aggregates.
- Sub grade or Sub base course is laid with soil.
- Filler material is used in between base and sub base course, to give more strength to the soil in the sub grade.
- In case of slope pavements, the trenches are provided at low lying side in between base and sub base course to increase the water percolation.

SUMMARY :

This project aims for waste management by using the flyash and waste tyre rubber in pervious concrete pavements.

By using pervious concrete pavements, the ground water will be recharged and flash flooding will be controlled. Generally, this type of pavements are laid in low traffic areas, Residential areas, parks (for walking tracks) etc.,

ESTIMATED COST: Rs.1500/-

20. PLASTIC BRICKS AND PAVING BLOCKS BY WASTE PLASTIC

COLLEGE	RAGHU INSTITUTE OF TECHNOLOGY, VISHAKAPATNAM
GUIDE	S RAMA LAKSHMI MALLADI
COLLEGE STUDENTS	A BHASKARA SUBBA RAO , R SANDEEP
SCHOOL STUDENTS	P MANOHAR , P GANESH, GOVERNMENT HIGH SCHOOL, CHAPARA

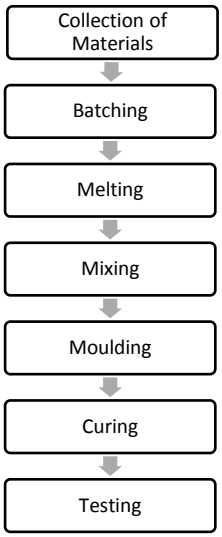
ABSTRACT:
Plastic is used in day today life at present nearly 56 lakhs ton of plastic waste produced in India per year. Plastic are generally non-degradable hence, they may be take centuries to decay. This is due to the intermolecular bonds that constitutes plastic, whose structure insure that the plastic neither corrode nor decompose. Plastic dispose of indecently get washed away to water reservoirs. They clog waterways and float on reservoir, polluting and making them unsightly. The use of waste plastics in concrete pavement block is a partial solution to the environmental and ecological challenges associated with the use of plastics. The aim of this project is to reduce environmental pollution by using waste plastic to produce pavement blocks. The plastic material is first shredded and melted in an container at a temperature range of 250 ºC - 260 ºC and the fly-ash were added in their respective ratios (1:1,1:2,1:3) From the above findings, plastic pavement blocks have a good strength and can therefore be used for specific requirement namely footpaths, parking areas etc. Hence the project is helpful in reducing plastic waste in a useful way. The best ratio of fly-ash and plastic which leads to higher strength to pavement block. The paver block were prepared and tested and results were compared with cement concrete paver block.

HYPOTHESIS:

The amount of plastic waste is ever increasing due to increase in human population, developmental activities, and changes in lifestyle and socio-economic conditions. Plastic waste is a significant portion of the total municipal solid waste .Therefore there should be the need for proper waste management system. The main objective of this review is to determine the suitability of waste voltaic bottles and polyethylene bags in the development of pavement blocks for construction.

- To reduce the plastic waste.
- To use plastic waste material in construction methodology.
- To reduce the environmental and ecological challenge associated with plastic.
- To find alternatives of basic materials which are used in construction of pavement blocks.

BLOCK DIAGRAM :



.

METHOD :

COLLECTION OF PLASTIC MATERIALS

The plastic material should be collected from the factories waste and hospital waste and industries waste and also food packages and plastic bottles this will come under the LDPE plastic type.

Batching of plastic

Measurement of materials for making brick is called batching. After collection of materials we separate the types of plastic and remove any other waste presented in the collected material and check that any water content in in sample collected ten proceed for burning.

Burning of waste plastic

After completion batching the plastic waste was taken for burning in which the plastic bags are drop one by one into the container and allowed to melt. These would be done in closed vessel because to prevent the toxic gases released into atmosphere. These will be at the temperature of 90-110 degrees centigrade.

Mixing

Mixing of materials is essential for the production of uniform and strength for brick. The mixing has to be ensure that the mass becomes homogeneous, uniform in color and consistency. Generally, there are two types of mixing, Hand mixing and mechanical mixing. In this project, we adopted hand mixing. until the entire plastic content required for making plastic brick of one mix proportion is added into it. then these plastic liquids thoroughly mixed by using trowel before it hardens. The mixture has very short setting bags are turned to molten state; the river sand is added to it. The sand added is mixed time. Hence mixing process should not consume more time.

Moulding

After completion of proper mixing we place mix into required mould. In these projects we use the normal brick sizes (19x9x9 cm). After 2 days remove the brick from the mould and then done curing.

Curing

The test specimens after moulding were allowed to dry for a period of 24 hours. The specimens were kept in curing tank and allowed to cure for a period of 28 days .

MATERIALS

1. Plastic.
2. Cement.
3. Sand.
4. Water.
5. Fly ash.

FLY ASH :

Fly ash is a residue resulting from combustion of pulverized coal or lignite in thermal power plants. About 80% of the total fly ash is in finely divided form which is carried away with flue gases and is collected by electrostatic precipitator or other suitable technology. The balance 20% of ash gets collected at the bottom of the boiler and is referred to as bottom ash. Fly ash got into a fine powder in the comparable to cement, however some particles have size less than 1 micron in equivalent diameter.

Sl. No	COMPONENTS	PERCENTAGE (%
1	Sio2	35 to 39
2	Fe2O3	0.5 to 2
3	Al2O3	20 to 33
4	CaO	5 to 16
5	MgO	1 to 5.5
6	So3	0.5 to 1.5

FLYASH CLASS -C

The fly ash was the product from the burning of younger lignite in addition of younger lignite as in addition too pozzolanic properties. It is also have self-made cement properties. Generally, it contains more than 20% lime (CaO).

Sl. No	TESTS	STANDARDS
1	Specific gravity	2.62
2	Fineness	83%

EXPERIMENT:

1. First, we need to collect the plastic waste and separate it from other wastes.
2. we should dry the plastic waste if it is wet and has a content of moisture. We have to use dry plastic waste. At the same time we have to dry sand to eliminate the moisture content to get the properties of good brick.
3. Then, we crush the plastic waste in small particles by crushing machine.
4. Then, the small particles crush into fine size particles.

5. The ratio of plastic and stone dust which we use is 1:3.
6. The sand/stone dust which we use in manufacturing of bricks/tiles is sieved for a size less than 4.75mm using sieve analysis.
7. The fine particles of plastic waste also heated on a furnace till it is in a liquid form.
8. Then, we add the stone dust into melt plastic. we also add fly-ash to improve the strength.
9. Then, we can mix it properly and make a mix.
10. Then, we poured the mix into moulds.
11. Then keep it the mould for dry and de-mould it after 2days.
12. The weight of the brick is nearly 1-2.5Kg.

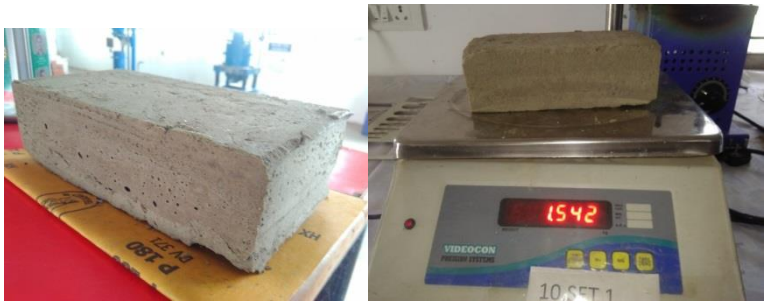
TESTS CONDUCTED ON PLASTIC BRICKS

1. Compressive strength
2. Water absorption
3. Efflorescence test
4. Soundness test
5. Crushing test.

TEST RESULTS :

COMPRESSIVE STRENGTH TEST

Sample No.	**Plastic Percentage**	**Compressive strength** [Mpa]
1	0	18
2	5	18.65
3	10	19.2
4	15	20
5	20	18.4





SUMMARY

1. Waste plastic, which is available everywhere, may be put to an effective use in brick.
2. Plastic bricks can help reduce the environmental pollution, thereby making the environment clean and healthy.
3. Plastic sand bricks reduce the usage of clay in making of bricks.
4. Plastic sand bricks give an alternative option of bricks to the customers on affordable rates.
5. Water absorption of plastic sand brick is zero percent.
6. Compressive strength of plastic sand brick is 5.6 N/mm2 at the compressive load of 96KN.
7. We conclude that the plastic sand bricks are useful for the construction industry when
8. we compare with Fly Ash bricks and 3rd class clay bricks.

ESTIMATED COST : Rs.100/-only for 20 bricks.

21. PLASTIC WASTAGE REUSE IN AGRICULTURE AND GARDEN

COLLEGE	SRI CHAITHANYA INSTITUTE OF ENGINEERING COLLEGE
GUIDE	G SHEKHAR
COLLEGE STUDENTS	B.SAINEELA, KOMMU BHAVANI
SCHOOL STUDENTS	THEJASWINI, HARIKA, SHLOKA A BIRLA SCHOOL

ABSTRACT:

Today's major problem on earth soil is polluted by plastic wastage. Plastic wastage is mostly polluted soil, its causes many dangerous cancers to human and also animals, it's effected on water bodies. plastic covers and water bottles carry bag manufactured made harmful chemicals ,so single time use plastic water bottles is regularly used for drinking purpose. it's may causes very dangerous different types of cancers ,so these single time waste water bottle are used for small home garden to growing curry leafs by self-watering system .we can make water fountain without power .plastic carry bags banned by Indian government but single time usage plastic drinking water bottle ,cool drinks bottle and chemical bottle are not banned ,we can't reduce that , but we can utilized that plastic bottles different ways in garden. this project makes every home make plastic garden ,we can reduce soil pollution ,it should be use full for growing vegetable very home .it will be reduce cost of food products .

HYPOTHESIS:

This project aims to reduce plastic wastage and every home need plastic garden to reduce soil pollution. The objective of the project includes,

1. Reduce plastic wastage Soil pollution.
2. Every home need plastic garden.
3. Single time plastic bottles are used for growing curry leafs.
4. Save animals from plastic wastage to water pollution by plastic.

METHOD:

The project mainly plastic bottle reuse different ways ,medical wastage plastic saline bottles used for water supply drip system, growing small vegetable trees and curry leafs .plastic bottle are design self-watering to plants .reduce percolation losses of water from tree roots .

SUMMARY:

This project aims in plastic reuse to reduce soil pollution. This mainly to grow small garden at home ,to design plastic parks require where public parks designed .plastic wastage we can utilized different ways we are show how we can reuse plastic wastage .

Estimated cost:

Rs.0/-Only

22. TRAFFIC CONTROLED BY ELEVATED BEAMS (ROLLERS)

COLLEGE	SIDDHARTHA INSTITUTE OF TECHNOLOGY & SCIENCES
GUIDE	J.MAHIPAL
COLLEGE STUDENTS	NAMALA SAI YASHWANTH, BONALA SRAVANI
SCHOOL STUDENTS	J. ROHITH, T. GOVERDHAN, ZPHS UPPAL KALAN

ABSTRACT:
Apart from offering other advantages features hydraulic actuators are first choice if heavy loads have to be moved , lifted or controlled. This system design hydraulic actuators operated by PLC programming for controlling traffic according to change the signal will decided by calculating no. of vehicles passes through. That phase of engineering which deals with planning geometric design and traffic operation of roads and streets highways, their networks, terminals ,abutting lands Relationship with other modes of transportation for the achievement of safe, Efficient and convenient movement of person and goods. As vehicular traffic began to increase the congestion on the streets began to hamper the safe and efficient movement of traffic. More and more accident were caused and serious problems of parking and Environmental pollution began to be felt. It was therefore, necessary to give increasing attention to the operational Characteristic of highway transportation and study the need for better geometric design Capacity, intersection, traffic regulation, signals, traffic signs, and roadway markings Parking facilities, design of bus stands and truck terminals and street lighting.

HYPOTHESIS:
This project aims in designing a Traffic controlling system to reduse the traffic at intersections & accidents etc. The objective of the project includes,

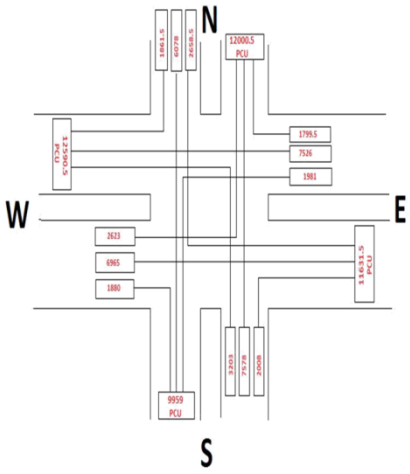
- New Signal Design for 4 phase.
- Computer programming for automatic control signal cycle.
- Hydraulic Actuator installation.
- Working of hydraulic jack as per signal cycle at intersection.

METHOD:

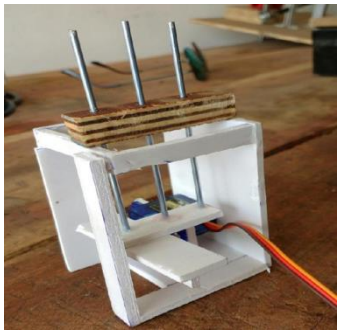
The proposed Traffic controlled system is equipped with a Hydraulic Actuators, as used in industrial process control, employ hydraulic pressure to drive an output member. These are used where high speed and large forces are required. The fluid used in hydraulic actuator is highly incompressible so that pressure applied can be transmitted instantaneously to the member attached to it. Principle Used in Hydraulic Actuator System Pascal‟s Law Pressure applied to a confined fluid at any point is transmitted undiminished and equally throughout the fluid in all directions and acts upon every par to of the confining vessel at right angles disinter or surfaces.

- Input data of traffic volume.
- Signal Cycle Design.
- Computerized program of signal design.
- Connectivity of hydraulic Actuators with algorithm.
- Hydraulic Actuator working and installation.

BLOCK DIAGRAM:



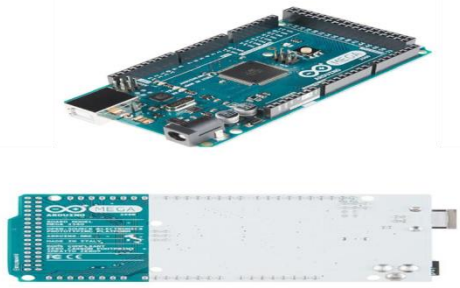
EXPERIMENT:



The major components used in the above circuit are as follows:

• **Servo Motor:** A servomotor is a closed-loop servomechanism that uses position feedback to control its motion and final position. The input to its control is some signal, either analogue or digital, representing the position commanded for the output shaft.

Motor works to lift the hydraulic actuators on different lanes as timing set in the program . for green and red timing on different lanes a program is written on arduino software.



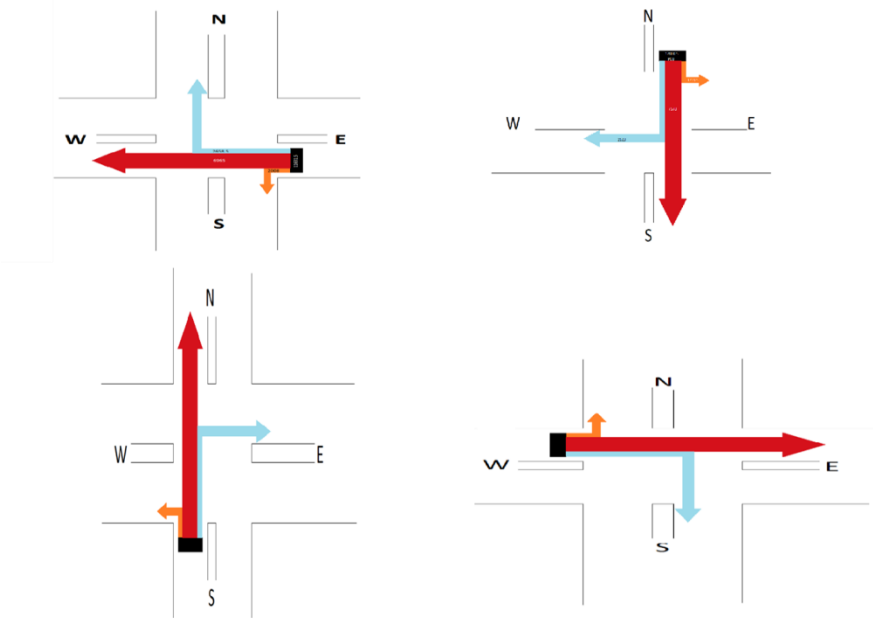
Micro Controller : We are using such type of controller that is Adriano controller in our model work.

Features:

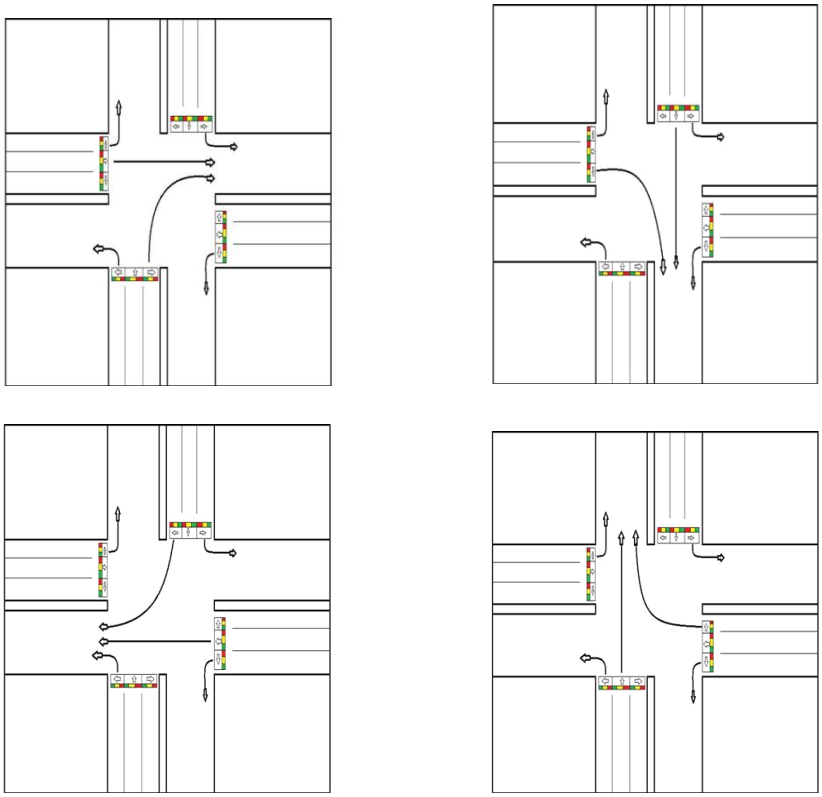
- ATmega2560 microcontroller
- Input voltage - 7-12V

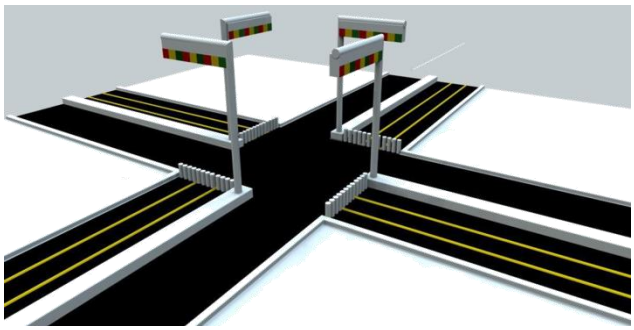
- 54 Digital I/O Pins (14 PWM outputs)
- 16 Analog Inputs
- 256k Flash Memory
- 16Mhz Clock Speed

Analysis of traffic volume at Intersection



LAYOUT OF INTERSECTION:





SUMMARY:

This project aims in designing a traffic controlling system to reduce traffic at intersections & accidents etc. In this study traffic volume flow diagram is prepared by survey to know the peak hour and non-peak hours of a day. Webster method is used to design the four phase traffic signal design. After computation of Green, Red, Yellow amber time for different approaches .A algorithm is written for the working of hydraulic actuators as per signal time design. A working model is designed to reflect the real life situation for traffic flow on different approaches. Hydraulic actuators can be useful for strictly control of the traffic rules. Therefore the designed project will be helpful at the intersections where frequent accidents occur.

Estimated cost:

Rs.3000/- Only

23. HYDROPHONIC BUILDING FREE ENERGY WATER SUPPLY SYSTEM

COLLEGE	SRI INDHU INSTITUTE OF ENGINEERING AND TECHNOLOGY
GUIDE	G SHEKHAR
COLLEGE STUDENTS	T. ANUSHA, OORMILA DEVI
SCHOOL STUDENTS	HARSHINI, NEHA, SHLOKA A BIRLA SCHOOL

ABSTRACT:

Now a days Hi-Tech city s likely Hyderabad, Bangalore, Mumbai, New Delhi area s mostly faced lot of problems facing cost of land ,in that areas we cannot do purchase form land. So in India few places constructed form houses .we are doing new technology for forming design hydroponic building , we are growing vegetables and curry leafs top and open space roofs. If you're doing hydroponic farming at home, here are some common problems you probably face with hydroponics in areas like Hyderabad, Chennai, Delhi and the rest of India. We will also cover some quick fix solutions for these problems

In this project we are utilizing rain water recycling system to continuous water supply.

HYPOTHESIS:

This project aims in designing hydroponic building hi-tech cities

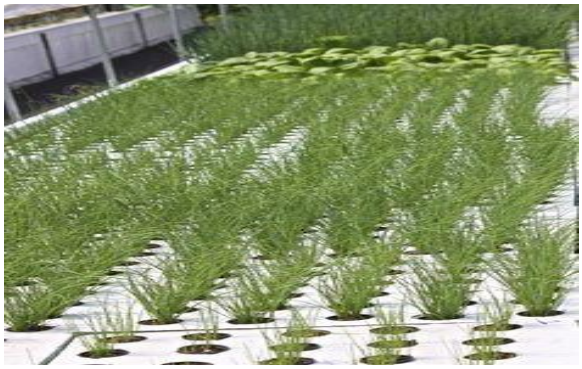
1. New technology for gardening Hi-tech cities.
2. Free water supply system for hydroponic.
3. Utilized top free open space of building.
4. Water is supplied by vacuum pressure.

METHOD:

Hydroponic P.V.C pipe line design fittings, Recycling rain water for hydroponic first need a careful examination of existing resources. Top of the list being open flat land, water, and electricity. Next would be to specify the type of hydroponics, climate control, and poly house that one will use to achieve this kind of farming on a large scale.

Aquaponics :

Roof forming:



Tree roots

Thermacoal for floating

SUMMARY:

This project aims in designing hydroponic building in Hi-tech city area. The designed hydroponic building for top of building and open space area we are using for vegetable garden and curry leafs growing without soil .the nutrients supplied by water .water will be supplied by negative vacuum pressure.

TEAM PHOTO:

Estimated cost:
Rs.2000/- Only

24. ADVANCED AGRICULTURE BY USING MOISTURE SENSOR

COLLEGE	TUDI RAM REDDY INSTITUTE OF TECHNOLOGY AND SCIENCES
GUIDE	G SHEKHAR
COLLEGE STUDENTS	D. KARTHIK, N.PAVAN KUMAR
SCHOOL STUDENTS	GANANADH, NISHANTH, SHLOKA A BIRLA SCHOOL

ABSTRACT:

Today's formers major problem faced by water to agriculture crops in sufficiency of water .Drought areas likely desert areas Rajasthan they are facing a lot problems water resources available less water .water is major part to grow crops ,developing agriculture land .We developing new innovation technology to supply water where evaporation losses is more .We are reducing evaporation losses by using rise husk .we are supplied water by automated running mortar through sensor system. sensor detecting 50% of water moisture content then mortar automatically off .This project mainly used for where water availability is less .

HYPOTHESIS:

This project aims in designing to reduce water losses, usage proper way to tree roots.

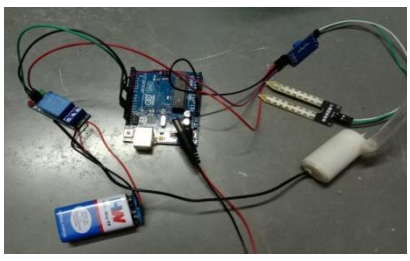
1. Automatic mortar off when water supplied horticulture system.
2. Reduced water evaporation by wind temperature.
3. Detecting water percentage by sensor.
4. Increase percolation losses through using rice husk.

METHOD:

This moisture sensor is programmed by arduino software .this sensor working through arduino by connected with the relay an electronic device .we are increase percolation losses by using gross sheet placing below ground top of tree roots in subsurface drip irrigation system . Sub surface drip irrigation system we provided below ground gross sheet to increase percolation losses to touch immediately to the moisture sensor. we are used D.C mortar .connected with the automated off by moisture sensor . When moisture sensor absorbed 50% of water from soil .then automatically D.C mortar off

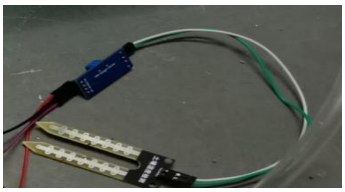
EXPERIMENT:

MOISTURE SENSOR MORTAR CONNECTION:



The major components used in the above MOISTURE SENSOR are as follows:

MOISTURE SENSOR:-



RELAY

D.C MORTAR

ARDUNIO CONNECTION

1. moisture sensor programmed by using arduino software at percentage level of crop depths 50% to 80%
2. moisture sensor connected with arduno and relay of sensor
3. D.C mortar connected with an arduno to pumping of water to crops.
4. Sub surface drip irrigation system we provided below ground gross sheet to increase percolation losses to touch immediately to the moisture sensor.

SUMMARY:

This project aims in designing reduce water wastage by using moisture sensor how much percentage of water required to crop depth that quantity of supplied to tree roots by using solar D.C mortar .power generated by solar energy .

TEAM PHOTO:

ESIMATED COST: 2500/-

25. SERVICE AT DOORSTEP

COLLEGE	VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY
GUIDE	DR. K. V. L. SOMASEKHAR
COLLEGE STUDENTS	R.SURYA TEJA, LAKSHMI SINDHURA SURYADEVARA
SCHOOL STUDENTS	VENKATA SRI CHAITANYA DIVI, SHAMANTHAK SUBBUGARI, VIVA THE SCHOOL BY VVIT

INTRODUCTION:

Nowadays Our lives are having a great deal to do with and many of us are missing the time to get the work (especially the repairs) done in our own home . We have been customized to manage our day with a tool which became a part of our daily life and that's the SMARTPHONE. When everything is getting smart, why can't our problems be dealt smartly especially the smart appliances, ELECTRICAL APPLIANCES .we all have faced a situation where we end up getting late service after calling a technician in a traditional way. So then we HAKUNA MATATA came up with an idea to provide quick, efficient and trustworthy electrical appliances service to people living in urban and semi urban areas. Our team name HAKUNA MATATA means No worries, so we are working on to provide a worry free life to manage their appliances at home just like getting the desired food to home with a single click.

Problem statement:

How might we help people living in urban and semi-urban areas to fix their problems regarding electrical home appliances.

Our vision:

To provide quick, efficient, trustworthy and user-friendly service to the people living in Urban and semi urban areas. Other successful services are mainly confined to cities, but we want to spread our services to every place hoping for great digitalization everywhere.

Our Mission:

Initially we have selected the domain of electrical appliances since our region is in a lack of this service and we still have to end up doing it the traditional way.

Our interface:

- Our interface for the service is designed in a user friendly manner where busy employees, students, old aged people, home Makers and can make use of it to get the repair done in time with just a few clicks.
- This service helps customers to get access to the top most and skilled technicians with in no time.
- The categories of appliances are further subdivided ,where customers will be given a clear idea in interface to choose the category of service like ex: WET and DRY servicing for AC.
- A customer can always rely on the customer care we provide for any queries.
- A customer can check the prices of the service and compare it with the market price through rate cards.

- A customer can track his technician availability and the distance in his/her surroundings through the red and green buttons in the interface.

Technologies used:

- Android studio, Apache tomcat server, windows and Linux os.
- MySQL database, JavaScript, HTML, xml.
- SMS send outs.
- Payment gateways.

26. STREET LIGHT PROJECT BY USING IR SENSOR

COLLEGE	VEL TECH MULTI TECH DR.RANGARAJAN DR.SAKUNTHALA ENGINEERING COLLEGE
GUIDE	DR. P K MANI
COLLEGE STUDENTS	A.HARSHINI, M.MUKILARASI
SCHOOL STUDENTS	A.NEHA SHARMA, SYED SAMSUDEEN, SHRI VEL'S ESTATE MATRICULATION HIGHER SECONDARY SCHOOL

ABSTRACT:
Street lights are the major requirement in day to day life of transportation for safety purpose and avoiding accidents during night. Street lighting systems are becoming more complex with rapid growth of cities, in which the street lights are automatically turned ON or OFF based on the movement of the vehicles.

INTRODUCTION:
This project is about Smart street lights which will turn on while vehicle is passing through it. The **IR sensors** placed in the street the position of the vehicle, each IR sensor controls 3 LED's. When vehicle passes by a particular IR sensor it senses the position of vehicle and gives its signal to the arduino board and it will turn on the LED's. This project helps in saving electricity in the roads. The important considerations in the development of street light control systems are Automation, Power consumption and Cost Effectiveness.

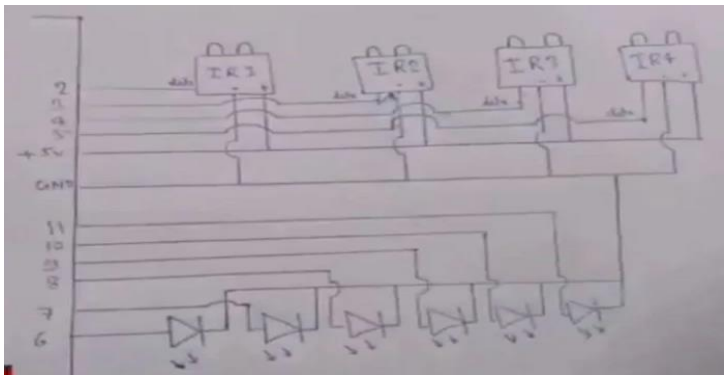
HYPOTHESIS:

- By using Smart Street light, one can save surplus amount of energy which is done by replacing sodium vapour lamps by LED and adding an additional feature for security purposes.
- It prevents unnecessary wastage of electricity, caused due to manual switching of streetlights when it’s not required.
- It provides an efficient and smart automatic streetlight control system with the help of IR sensors.
- It can reduce the energy consumption and maintains the cost.
- The system is versatile, extendable and totally adjustable to user needs.
- The system is now used only for one way traffic in highways.
- Continuous use of LDR and IR sensors even in day time.
- Not switched on before the sunset.

METHODS:

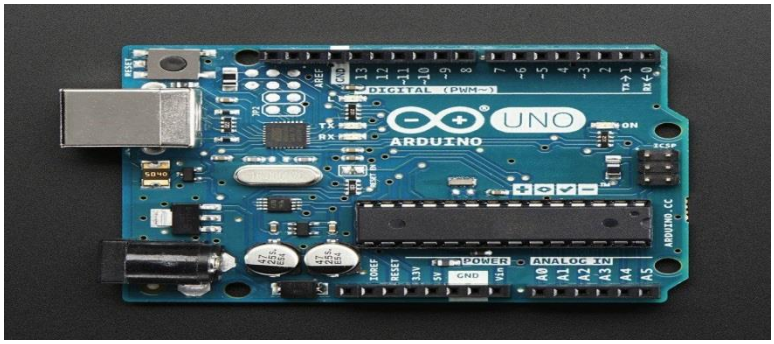
The Smart street light control system adopts a dynamic control methodology. According to the proposed plan, initially when it becomes dark, all the street lights automatically glow for a few seconds and switches off. But throughout the night, only one street lights remains switched on for security concerns. When a vehicle passes by, a block of street lights glows and as the vehicle moves forward, the next block of lights starts glowing where the previous block switches off.

CIRCUIT DIAGRAM:

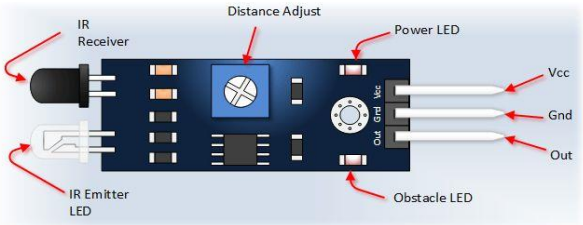


COMPONENTS REQUIREMENT:

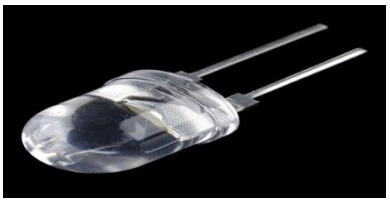
ARDUINO:



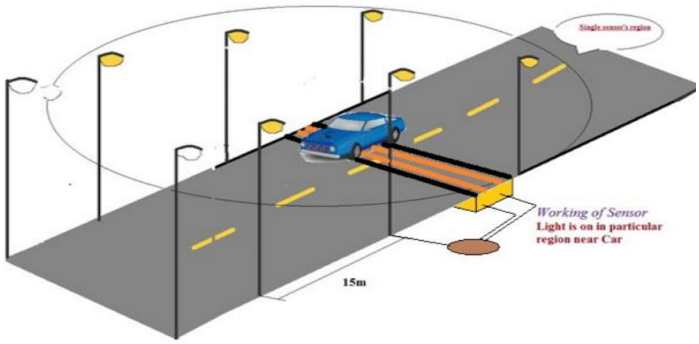
IR SENSOR (4):



10MM LEDs(6):



PROPOSED DIAGRAM:



WORKING PROCEDURE:

Working procedure of the Smart street light using IR sensors is explained below. The following are the different steps The included in building a Smart street light.

1. LDR pin 1 is connected to A0 (analog) port of Arduino Uno board.
2. Connect all the IR sensors to port numbers 2, 3, 4, 5 and 6 respectively (digital) which is the input signal to the Arduino board.
3. Connect the ground of all the sensors to GND port.
4. The LED's which are the output signals, are connected to port number 8, 9, 10, 11 and 12 respectively.
5. Again connect the ground of all the sensors to GND port.
6. Power is passed to the Arduino (7-12V)

SUMMARY:

The principle behind the working of the project lies in the functioning of IR Sensor. We are going to use a Transmissive type IR Sensor in this project. In Transmissive IR Sensor, the IR transmitter and receiver are placed facing each other so that IR receiver always detects IR Rays emitted by the IR Transmitter. If there is an obstacle between the IR Transmitter and Receiver, the IR Rays are blocked by the obstacle and the IR Receiver stops detecting the IR Rays. This can be configured to turn ON or OFF the LEDs (or street lights) with the help of microcontroller.

ESTIMATED COST:

Rs.3000/- Only

27. FULLY AUTOMATED FISH FEEDING DEVICE

COLLEGE	B V RAJU INSTITUE OF TECHNOLOGY
GUIDE	DEEPESH KUMAR. B
COLLEGE STUDENTS	B.V.SAI SRIYA
SCHOOL STUDENTS	K.RAMESH , BHAVYA, TELANGANA MODEL SCHOOL, JAKKAPALLI

ABSTRACT:

Introduction

According to various cultures around the world, it is believed that a fish tank in the house symbolizes wealth and luck, because of which fish keeping culture has been in practice for several centuries. It has also been scientifically proven that an aquarium reduces stress and relaxes the mind.

Today, The present generation is also continuing this practice. Aquariums are being put as interior elements in homes and hotels not just for the beauty it adds to the ambiance but also for the health benefits it provides.

Problem statement

In Today's fast-paced metropolitan lifestyle, manual feeding of fish can be a tedious task. A lot of care has to be taken in order the keep the fish healthy which is a lot time consuming.

Fishes are extremely sensitive to both overfeeding and underfeeding. Underfeeding causes improper growth and sometimes causes death in fishes. Overfeeding has even worse effects. It causes various diseases like Fatty liver disease, Fin Rot disease, planaria etc. in the fish. It also spoils the aquarium environment as the leftover food results in algae growth, cloudy water and sometimes it also clogs filters. Another issue is that the feeding has to be done at a particular time.

Proposed solution

To avoid harming fish, there is need to incorporate a fish feeding device that will eliminate/ reduce all the above mentioned problems. So, we have designed and developed a Fully Automatic Fish feeding device that will drop required amount of food at preset intervals of time. Fish Bee is an electronic device which can be used to dispense food at preset intervals of time. It uses a simple mechanism to drop required amount of food into the aquarium. The amount of food dispensed can be varied depending on your requirement using multiple buttons.

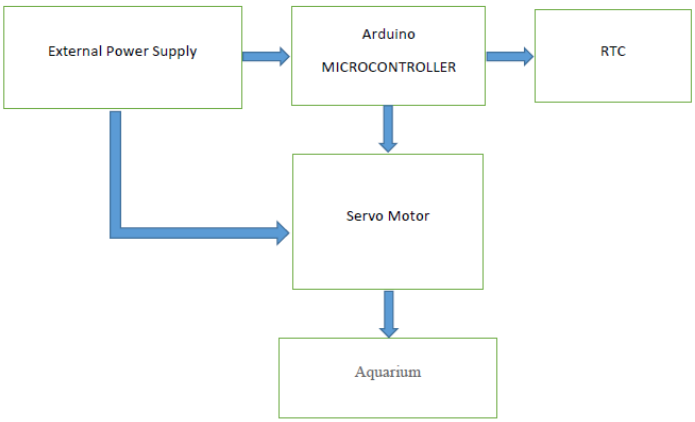
In a view to ease this process of fish feeding we fabricated a device " FIZ BEE" that will eliminate

Technology and components

S.No	**Materials used**	Quantity
1	Arduino Nano	1
2	Real time clock	1
3	Mini servo motor	1
5	Cable	1
6	Adapter	1
7	Led	3

8	Push Buttons	3

The Design



Design Procedure

Design procedure include several steps to be carried out,

1. Rough Sketch

Worked with a team of four and proposed various Fish Feeder designs. Depending on factors such as it's simplicity, lower power consumption, less cost, durability, storage, easy to install, Compact etc we have finalized a design.

2. Material Selection

Selection of material has been done based on parameters such as low cost, durable, light weight etc.

3. Cost Analysis

Cost analysis has been done on every single material used in the device.

4. Fabrication

In the early research stage we used low cost acrylic materials for prototyping and after several weeks of field trails we have made a 3d design and got it printed.

5. Testing

Several tests has been conducted to test the ability of the device. This includes amount of food storage, food dropping time, amount of food outlet.

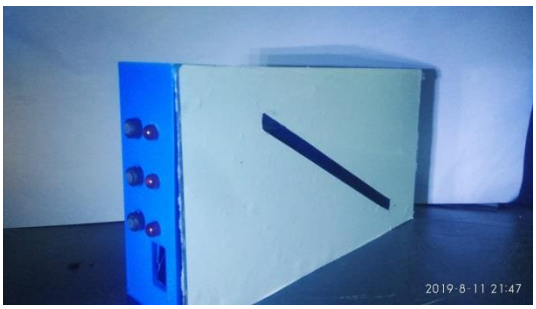
6. Results

From the test's done it has been concluded that, amount of food outlet has a tolerance of +/_ 8%, Which is negligible. The device when fully filled can store 72 grams on fish food, which would be sufficient for about 2-3 weeks for an average tank. food exactly drops at preset intervals of time.

7. Modifications
Modifications for motor and hinges placement were made in order to increase its efficiency.

8. Conclusion
By using this Fully Automated Fish Feeder device, fishes in the aquarium, can be feeded in the requisite quantity pre-determined by the user. It is Fully automated, reliable and feed the fish 2 times a day.

Evolution



Future Scope

We have successfully developed a final prototype as well as recommendations for future versions. This has been tested at various places and its result is satisfying (mentioned above). We have also included customer responses and their feedback.

we've been working on this prototype for about 6 months and our final product is here. There are three versions of it, namely

1. Manual
2. Semi-Automatic
3. Fully Automatic.

Based on the research work and its outcome, we're planning to release it into the market.

28. V-NRGY

COLLEGE	JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
GUIDE	N. SAGAR TEJA YADAV
COLLEGE STUDENTS	PIRADI NIKHITA SATYA PRIYA, PACHIKURA DURGA MURALI AKANKSHA
SCHOOL STUDENTS	P. BALA BUBBLISH KUMAR, CH. YAMUNA, V. CHARISHMA

ABSTRACT

Energy is an important aspect in our every day's life. The resources we use are limited, whereas the population and its consuming is increasing day by day. Therefore, there is a need of finding a way to establish a relationship between a natural resources and growing population.

This projects aims of utilizing wind energy in most effective manner to get the maximum electric output, therefore we selected dividers as our installation site where we can take the advantage of the moving vehicles on both the sides of the road, with the help vertical axis wind turbine. When the vehicle passes on the road it produces a considerable amount of air due to its speed. This air tangentially strikes on the blades of the vertical axis wind turbine and its makes a rotation of the turbine. A generator with the help of gear mechanism is connected to the shaft of the turbine to generate electricity. This electrical output of generator is stored in a battery. This stored energy can be further used for- street lighting , signals, toll gates etc. And we also introduce air purifiers which collects the harmful gases emitted out by vehicles to control the pollution levels in urban areas.

Introduction

Wind is caused due to uneven heating of earth surface, atmosphere, irregularities of earth surface and rotation of the earth about its own axis. Energy produced by this blowing wind is called as wind energy. Energy is an important aspect in our every day's life. The resources we use are limited whereas the population and its consuming is increasing day by day. Therefore there is a need of finding a way to establish a relationship between a natural resources and growing population .Electricity plays and vital role for development of the country, so generation of electricity is one of the main aims of the country. About 68% of the production of electric energy is based on thermal power plant, where fossil fuels, coal, diesel are used for power generation and which is very rarely available and this fuels also creates pollution, greenhouse effect and global warming.

Therefore, power generation with the help of non-conventional resources such as wind, solar are increasing day by day and this type of power generation is very clean and safe and is used to meet the Energy crisis and also reduces the cost of energy saving to government. Wind turbines are used to convert wind energy into electrical energy. Wind flows due to temperature change in atmosphere. Wind turbines turn wind energy into kinetic energy. The rotating kinetic energy rotates the induction generator, and that generator converts kinetic energy into electrical energy.

The wind turbines are basically of two types :

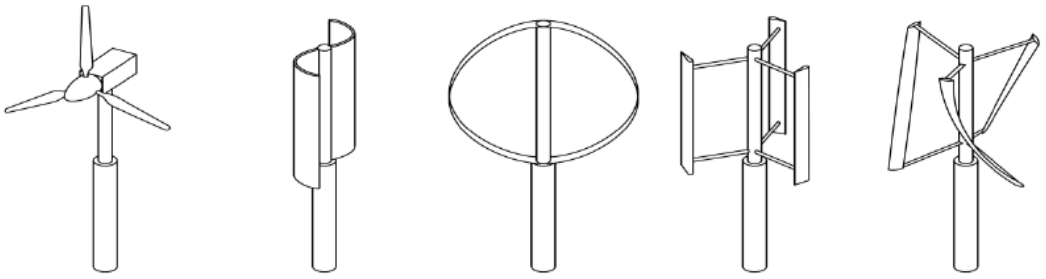
- Horizontal axis wind turbine (HAWT).
- Vertical axis wind turbine (VAWT).

HAWT has successfully evolved in making of electricity from wind. However, recently working on VAWT has also been
started due to its additional advantage over HAWT such as it does not require yaw mechanism because it can produce power independent of wind direction. VAWT can be produced at low cost then HAWT and also affordable maintenance cost.

VAWT are further classified as:-

- Savonious vertical axis wind turbine
- Darrieus vertical axis wind turbine
- Gorlov vertical axis wind turbine

The wind turbine will be placed on the divider so that the tangential acting airflow from both sides of the road due to moving vehicle will help the turbine blades to rotate. The main reason behind developing modified **Savovius Vertical Axis Wind turbines** is that they work regardless of the wind direction and can be extendable to a certain height. The air can spread on blades evenly and some amount of air is passed to the blade at back end through the openings of the turbine and hence, the maximum air is utilized. VAWTs do not require a yaw mechanism and are very fixed in the sense that no change to their direction or that of the blade is made once installed. This makes them ideal for small-scale applications such as remote areas with very small electric load. Their blades do not require a mechanism to change their angle as they work with any wind direction. VAWTs are considerably less noisy , which makes them more socially accepted. In addition to this, the small size means they can be integrated easily within an urban setting, and no danger to the wildlife in rural areas.



WORKING PRINCIPLE:-

The moving vehicle on road may be of all types such as small or heavy vehicles. Whenever vehicle moves on both side of the divider then some pressurized air is produced due to the speed of vehicle. This pressurized air strikes on the blade of vertical axis wind turbine and turbine makes a rotation. The shaft of the vertical axis wind turbine is connected to generator with the help of gear mechanism. The output of the generator is stored in a battery through a voltage regulator so that battery is charged by means of constant voltage method . Besides of this equipment we are introducing air purifiers to control the pollution levels.

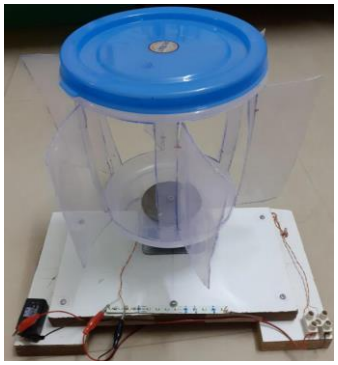
ADVANTAGES:

- Wind energy is a unlimited source, which produces free and clean source of energy.
- Cost of energy is being saved to government.
- Continuous power supply to load, stand by capacity.
- Operating and initial cost is very less.
- This system can generate power for both urban and remote areas .
- This model is Cheaper to produce than horizontal axis turbines.
- Transportable from one location to another.
- Equipped with low-speed blades, lessening the risk to people and birds

DISADVANTAGES:

- Continuous power generation is not possible, as it depends on vehicle movement.
- Battery discharging time is unknown
- Function in extreme weather like rains, is quite difficult.

Proposed model:



Turbine:

Savonius wind turbines are a type of vertical-axis wind turbine (VAWT), used for converting the force of the wind into torque on a rotating shaft. The turbine consists of **6 blades of aerofoil** in shape such that more air can spread on blades evenly and some amount of air is passed to the blade at back end through the openings of the turbine and hence , the maximum air is utilized. And also this turbine is having the capacity to extend its height to a certain level such that in case of less vehicles movement the natural air can rotate the blades—vertically mounted on a rotating shaft or framework, either ground stationed or tethered in airborne systems.

This type of turbine is unusual and its application for obtaining useful energy from air stream is an alternative to the use of conventional wind turbines. **Simple construction, high start up and full operation moment, wind acceptance from any direction, low noise and angular velocity in operation, reducing wear on moving parts, are some advantages of using this type of machine**. Over the years, numerous adaptations for this device were proposed. The variety of possible configurations of the rotor is another advantage in using such machine. Savonius rotor performance is affected by operational conditions, geometric and air flow parameters. **The range of reported values for maximum averaged power coefficient includes values around 0.05–0.30 for most** settings. Performance gains of up to 50% for tip speed ratio of maximum averaged power coefficient are also reported with the use of stators.

Design of Components

Design calculation of the VAWT is done by considering the speed of the air impacting blades of the turbine it starts rotating, blades connected to generator that generates the power.

Design of Blade

The blade is designed in aero foil shape and a variable pitch, so as one blade passes another blade comes in the position of first, 6 blades are used with a height and width and the distance between two blades is also maintained with 60^0 apart, so as to use of maximum utilization of wind from air and moving vehicle. And these blades are made up of PVC.

A= L*B

B= width of the blade (m)

L= height of the blades (m)

So area= (0.155*0.08)

= 0.0124 sq. m.

For each blade so for 6 blades it is =0.744 sq. m.

This height and diameter is chosen due to restriction of use of more rotor diameter due to available of less space to install on dividers.

GEAR MECHANISM:

Gears are mechanisms that mesh together via teeth and are used to transmit rotary motion from one shaft to another. Gears are defined by two important items: radius and number of teeth. They are typically mounted, or connected to other parts, via a shaft or base.

A gear is a wheel with teeth around its circumference. Gears are usually found in sets of two or more, used to transmit rotation from the axis of one gear to the axis of another. The teeth of a gear one one axis mesh with the teeth of a gear on another, thus creating a relationship between the rotation of the two axes. When one axis is spun, the other will too. Two gears of different sizes will make their two axes spin at different speeds.There are a few different terms that you'll need to know if you're just getting started with gears, as listed below. In order for gears to mesh, the diametral pitch and the pressure angle need to be the same.

Axis: The axis of revolution of the gear, where the shaft passes through

Teeth: The jagged faces projecting outward from the circumference of the gear, used to transmit rotation to other gears. The number of teeth on a gear must be an integer. Gears will only transmit rotation if their teeth mesh and have the same profile.

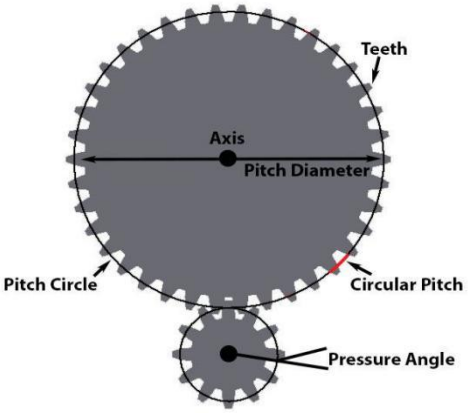
Pitch Circle: The circle that defines the "size" of the gear. The pitch circles of two meshing gears need to be tangent for them to mesh. If the two gears were instead two discs that drove by friction, the perimeter of those discs would be the pitch circle.

Pitch Diameter: The pitch diameter refers to the working diameter of the gear, the diameter of the pitch circle. we can use the pitch diameter to calculate how far two gears should be: the sum of the two pitch diameters divided by 2 is equal to the distance between the two axes.

Diametral Pitch: The ratio of the number of teeth to the pitch diameter. Two gears must have the same diametral pitch to mesh.

Circular Pitch: The distance from a point on one tooth to the same point on the adjacent tooth, measured along the pitch circle. (so that the length is the length of the arc rather than a line).

Pressure Angle: The pressure angle of a gear is the angle between the line defining the radius of the pitch circle to the point where the pitch circle intersects a tooth, and the tangent line to that tooth at that point. Standard pressure angles are 14.5, 20, and 25 degrees. The pressure angle affects how the gears contact each other, and thus how the force is distributed along the tooth. Two gears must have the same pressure angle to mesh.



Generator:

A **shunt generator** is a type of direct current electric generator in which field winding and armature winding are connected in parallel, and in which the armature supplies both the load current and the field current. A direct current (DC) generator, not using a permanent magnet, requires a DC field current for excitation. The field may be separately excited by a source of DC, such as a battery, or self excited by being connected to the armature of the generator so that the generator also provides the energy required for the field current.

In shunt wound DC generators the field windings are connected supply voltage. Though there are separate branches for the flow of armature current and field current in parallel with armature conductors. In these type of generators the armature current Ia divides in two parts. One part is the shunt field current Ish flows through shunt field winding and the other part is the load current Il goes through the external load.

$$So,\ I_a = I_{sh} + I_L$$

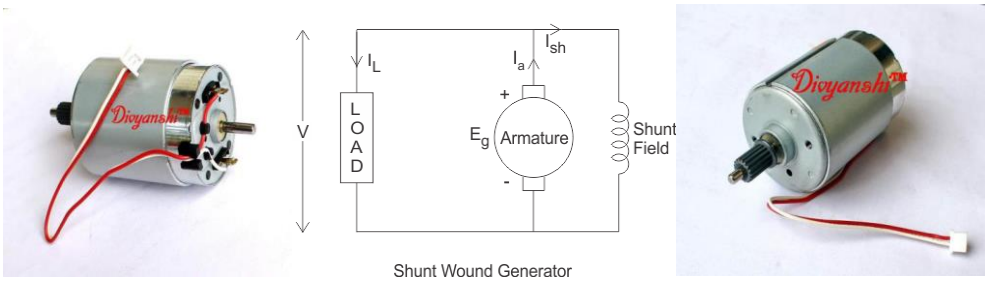
CHARACTERISTICS OF DC GENERATOR:-

- DC generators are capable of producing a large output range.
- They are simple in design and easy to construct.
- DC generators are very reliable with efficiency ratings of 85-95%.
- They are compact and light in weight.
- They provide consistent and constant output.
- They can be used to provide variable output power.
- They have a high terminal load.

Magnetic or Open Circuit Characteristic of Shunt Wound DC Generator

This curve is drawn between shunt field current (Ish) and the no **load voltage** (E_0). For a given excitation current or field current, the emf generated at no load E_0 varies in proportionally with the rotational speed of the armature. Here in the diagram the magnetic characteristic curve for various speeds are drawn. Due to residual magnetism the curves start

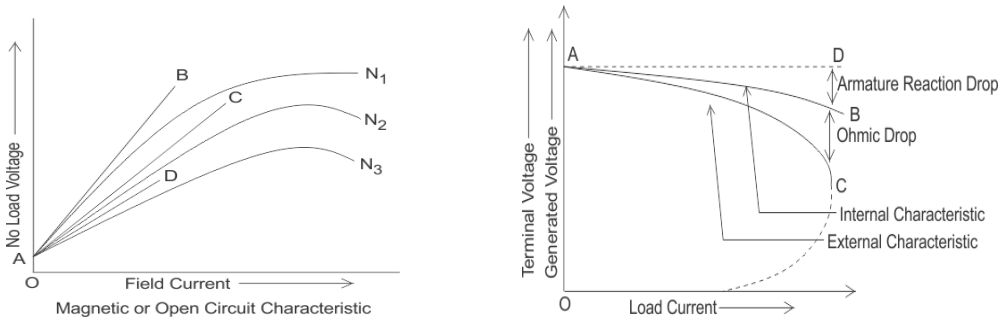
from a point A slightly up from the origin O. The upper portions of the curves are bend due to saturation. The external **load resistance** of the machine needs to be maintained greater than its critical value otherwise the machine will not excite or will stop running if it is already in motion. AB, AC and AD are the slops which give critical resistances at speeds N1, N2 and N3. Here, N1> N2> N3.



Shunt Wound Generator

Internal Characteristic of Shunt Wound DC Generator

The internal characteristic curve represents the relation between the generated voltage Eg and the load current I_l. When the generator is loaded then the generated voltage is decreased due to armature reaction. So, generated voltage will be lower than the emf generated at no load. Here in the figure below AD curve is showing the no load voltage curve and AB is the internal characteristic curve.



Magnetic or Open Circuit Characteristic

External Characteristic of Shunt Wound DC Generator

AC curve is showing the external characteristic of the **shunt wound DC generators.** It is showing the variation of terminal voltage with the load current. Ohmic drop due to armature resistance gives lesser terminal voltage the generated voltage. That is why the curve lies below the internal characteristic curve.

$$Terminal\ voltage\ V = (E_g - I_a R_a) = E_g - (I_{sh} + I_L)R_a$$

The terminal voltage can always be maintained constant by adjusting the of the load terminal. When the load **resistance of a shunt wound DC generator**is decreased, then load current of the generator increased . But the load current can be increased to a certain limit with (upto point C) the decrease of load resistance. Beyond this point, it shows a reversal in the characteristic. Any decrease of load resistance, results in current reduction and consequently, the external characteristic curve turns back as shown in the dotted line and ultimately the terminal voltage becomes zero. Though there is some voltage due to residual magnetism.

$$V = E_g - (I_{sh} + I_L)R_a$$

Now, when I_l increased, then terminal voltage decreased. After a certain limit, due to heavy load current and increased ohmic drop, the terminal voltage is reduced drastically. This drastic

reduction of terminal voltage across the load, results the drop in the load current although at that time load is high or load resistance is low.

BATTERY:

A **battery** is a device consisting of one or more electrochemical cells with external connections provided to power electrical devices such as flashlights, mobile phones, and electric cars. When a battery is supplying electric power, its positive terminal is the cathode and its negative terminal is the anode. The terminal marked negative is the source of electrons that will flow through an external electric circuit to the positive terminal. When a battery is connected to an external electric load, a redox reaction converts high-energy reactants to lower-energy products, and the free-energy difference is delivered to the external circuit as electrical energy. Historically the term "battery" specifically referred to a device composed of multiple cells, however the usage has evolved to include devices composed of a single cell.

Lead acid battery:-

A **lead–acid battery** was invented in 1859 by French physicist Gaston Plant and is the earliest type of **rechargeable battery**. Despite having a very low energy-to-weight ratio and a low energy-to-volume ratio, its ability to supply high surge currents means that the cells have a relatively large power-to-weight ratio. These features, along with their low cost, make them attractive for use in motor vehicles to provide the high current required by automobile starter motors.

As they are expensive compared to newer technologies, lead–acid batteries are widely used even when surge current is not important and other designs could provide higher energy densities. Large-format lead–acid designs are widely used for storage in backup power supplies in cell phone towers, high-availability settings like hospitals, and stand-alone power systems. For these roles, modified versions of the standard cell may be used to improve storage times and reduce maintenance requirements. Gelcells and absorbed glass-mat batteries are common in these roles, collectively known as VRLA (valve-regulated lead–acid) batteries.

In the charged state, the chemical energy of the battery is stored in the potential difference between the pure lead at the negative side and the PbO_2 on the positive side, plus the aqueous sulphuric acid. The electrical energy produced by a discharging lead–acid battery can be attributed to the energy released when the strong chemical bonds of water (H_2O) molecules are formed from H^+ ions of the acid and O^{2-} ions of PbO_2. Conversely, during charging the battery acts as a electrolyte device.

4V / 0.4 AH lead acid rechargeable battery:-

Sealed Lead acid Maintenance Free Battery is an advanced and economic rechargeable battery. It has several properties different from other types of batteries Maintenance Free - As it is valve-regulated, sealed and glass-mat is utilized, acid is trapped inside. So, refilling is not needed and is leak proof. Discharge voltage remains stable even in conditions of high-rate discharge current [For equipment needing a high-rate discharge current, it's far more stable than other battery types].No Memory Effect - Some batteries, say nickel-cadmium batteries, will become conditioned to provide small power after repetitious short usage/discharge .Low Self Discharge - The self-discharge rate for SMF battery is about 2-3% per month at room

temperature compared with 20-30% for other common battery systems Long Service Life - Utilizing thick and massive calcium grids, SMF battery has a long service life High Discharge Rate - Since the internal resistance is low, the battery can provide high rate of discharge. Wide Operating Temperature Range - SMF battery is rated at 200C and will operate from - 600C to +600C when it is fully charged.

Model no:	RB404
Battery type:	Lead acid rechargeable batte
Voltage:	4V
Battery capacity:	0.4 AH
Colour :	black
Brand:	SANCA
Material:	Hard plastic

Charging

Fully recharged: Lead dioxide positive plate, Lead negative plate, and concentrated, aqueous sulfuric acid solution .In the fully charged state, the negative plate consists of lead, and the positive plate is lead dioxide. The electrolyte solution has a higher concentration of aqueous sulfuric acid, which stores most of the chemical energy. Overcharging with high charging voltages generates oxygen and hydrogen gas by electrolysis of water, which bubbles out and is lost. The design of some types of lead-acid battery allows the electrolyte level to be inspected and topped up with pure water to replace any that has been lost this way.

Constant Voltage, Constant Current Battery Charging

There are three common methods of charging a battery; constant voltage, constant current and a combination of constant voltage/constant current with or without a smart charging circuit.

Constant voltage

It allows the full current of the charger to flow into the battery until the power supply reaches its pre-set voltage. The current will then taper down to a minimum value once that voltage level is reached. The battery can be left connected to the charger until ready for use and will remain at that “float voltage”, trickle charging to compensate for normal battery self-discharge. A typical example would a low cost auto battery charger for home use or basic back up power systems. This method enables fast charging rates and is suitable for lead acid types, but not for Nickel Metal Hydride (Ni-MH) or Lithium-Ion (Li-ion) types.

Constant current

It is a simple form of charging batteries, with the current level set at approximately 10% of the maximum battery rating. Charge times are relatively long with the disadvantage that the battery may overheat if it is over-charged, leading to premature battery replacement. This method is suitable for Ni-MH type of batteries. The battery must be disconnected or a timer function used once charged.

Constant voltage / constant current (CVCC): Itis a combination of the above two methods. The charger limits the amount of current to a pre-set level until the battery reaches a pre-set voltage level. The current then reduces as the battery becomes fully charged. This system

allows fast charging without the risk of over-charging and is suitable for Li-ion and other battery types.

Smart charging : It involves the use of a micro-controller to compensate for temperature rise and adjust the charge current and charge time accordingly to the battery specifications. This extends battery life and is used with Li-ion battery types. This battery management circuit or unit can be fitted externally to the charger. A number of the power semiconductor manufacturers offer control circuits to perform this function.

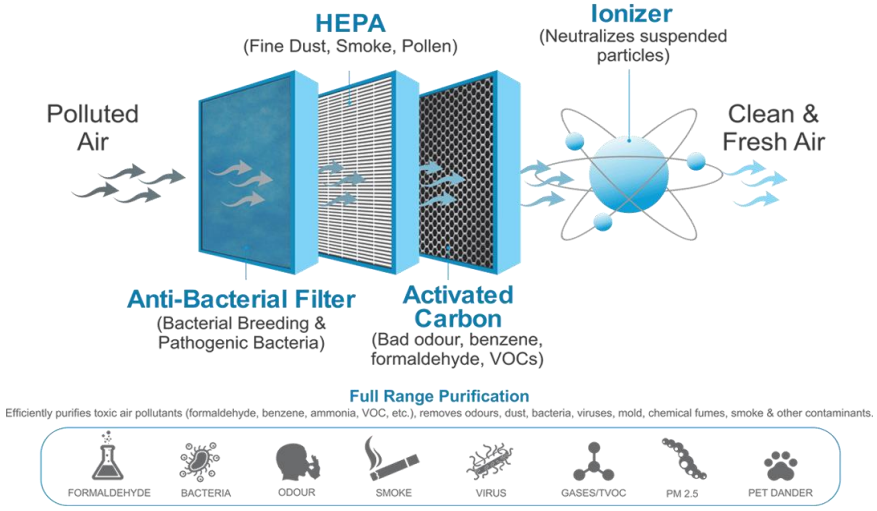
Air purifier:-

We often open our windows to improve air quality inside our car. Outside air usually has a higher concentration of pollutants than indoor air. However, these daysair pollution is a serious problem for public, especially if you live near a busy road or highway. Traffic pollutants tend to be at the highest concentrations generally within the first 10 feet of a road, and do not reach background levels until 200 feet away. An air purifier for nearby traffic pollution may help to cut down on the traffic related pollutants.

Different vehicles on the roadways have different parts that pollute the environment in different ways. Cars emit different pollutants than heavy trucks with diesel engines. And a significant portion of traffic pollution comes from dust generated by brakes and tires, as well as soil dust kicked up by passing vehicles. It is impossible to know every chemical that gets into the air near a busy roadway, but they all fall into a few categories.

Air purifiers on highway to control road pollution:-

Several pollutants need to be control Hence, air purifier technologies is being introduced .It effectively removes some types of pollutants, to maintain pure air. There are some pollutants, such as carbon monoxide, that no filter is capable of eliminating from the air.



Output values:

S.no	Voltage (volts)	Current (mA)
1.	3.25	44.4
2.	3.8	52
3.	4.1	57
4.	4.6	64
5.	5.2	71.2
6.	5.54	74.8

Conclusion:

This system is environmental friendly. The working model of our project is combined energy source with air purifier system and vertical axis wind turbine system which is a good and effective solution for power generation, basically this system involves the utilisation of unwanted air of vehicles and generates the electricity and this will serve street lights and signals

Future Scope:-

1) As this is proposed model it is built at very low cost. Instead of plastic, if Fiber Reinforce Plastic (FRP) is used it will yield to more output.

2) The Word hybrid means a thing which is made by the combination of more than one element. In energy system, electricity can be produced by more than one source at a time like Wind, solar, biomass etc. There are various methods to generate hybrid energy like wind-solar, Solar-diesel, Wind- hydro and Wind –diesel and **V-NRGY.**

References:-

[1]M.K. Sharma ”The study of wind energy potential from highway”. In International Journal of Engineering Research and Technology, 2012.

[2] “J Berrocal, Brian Dolan, M Tangredi” “Design of Vertical Axis Wind Turbine to Power Led Street Lights”.

[3]“Satish Balineni, Siva Rama Krishna, Bshriramkumar,”“Design and fabrication of savonious vertical axis wind turbine”.

[4]“Mahasidh.R. Birajdar, Sandip.Kale, S. Sapali”, “Numerical Analysis of New air foils for Small Wind Turbine Blade”.

[5]"The Wind Energy Explained”,by David Wood.

[6] “Peter .J. Schubel and Richard J. Crossley”, “Wind Turbine Blade Design” 2012

[7] “M.C.Claessens” “testing and design of aerofoils for Application in Small Scale Vertical Axis Wind Turbines” 2007

[8] “Guoying Feng, Zhinhang Liu, Bao Daorina, Zheng Gong”, “ Experimental Research on Verticaly Wind Turbine”, 2009

[9] www.Wikipedia.com

[10] www.Powertechnology.com.

29. SOIL HEALTH MONITORING SYSTEM

COLLEGE	MATRUSRI ENGINEERING COLLEGE
GUIDE	MRS. HARI PRIYANKA
COLLEGE STUDENTS	REHAN MOHIUDDIN, C. PRATEEK, T. SAI VAISHNAVI
SCHOOL STUDENTS	MD.ADNAN AHMED, MD.MUZAMMIL, VISHWA BHARATHI HIGH SCHOOL

ABSTRACT:
Today's one of the major problems faced by Farmers is selecting suitable soil in which they can grow crops. For this, they need to send their soil sample to testing labs and get tested, basing on results they decide the crop to be grown. But the problem is time and lack of awareness of how soil is being tested.

Aim of our is to test the soils quality. Our project monitor's soil health by which it makes farmers work easy. In this project, we're testing the quality and health of soil by using the ***pH*** of soil. ***PH*** is the negative logarithm of Hydrogen ion [H^+] concentration, that is ***pH*** is a scale used to specify how acidic or basic a solution is.

WHY DID WE USE *pH?*

pH scale ranges from 0 to 14. A ***pH*** of value 7 is neutral, ***pH*** of solution under 7 is considered to be acidic in nature and above 7 is considered to be basic in nature.

Reasons behind using ***pH*** as parameter for testing soil health are as follows:

- For testing the pH of soil, soil must contain moisture levels (pH can be calculated only from solutions). Since pH of soil can be tested only if there are moisture levels in soil, hence we can say that soil has good water levels.
- pH of soil ranges between 3-10, whereas the optimum pH range for growing plants is between 5-8. If the pH of soil is less than 3.5, soil is considered to be highly acidic in nature and if pH is greater than 9 then soil is considered to be highly alkaline in nature.
- NITROGEN, PHOSPHATE, POTASH are major nutrients required for plant growth. Using pH, we could estimate the quantities of these essential nutrients which are present in the soil.

These are some of the major reasons, due to which we considered ***pH*** as important parameter for monitoring Soil Health.

HYPOTHESIS:

This project aims to design a system which monitors soil health. The objective of the project includes,

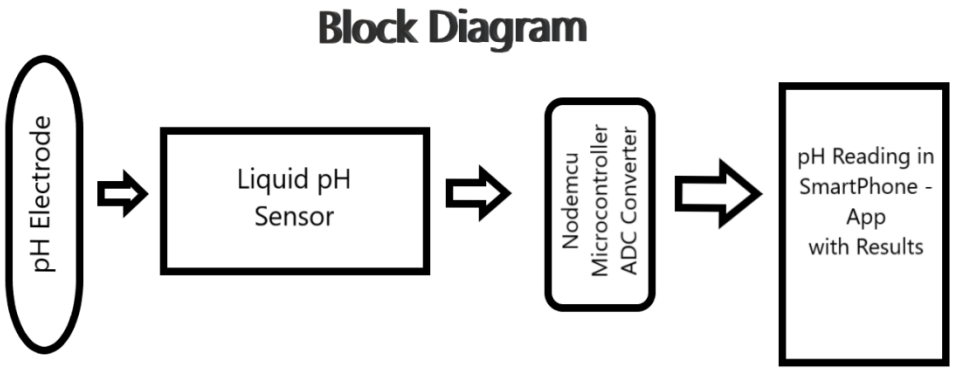
- Reading the pH value of soil using sensor.
- Processing this pH value using Amplifiers and Analog to Digital Converters.
- Displaying the output on Mobile using Blynk MQTT Server.

PROCEDURE:

- Collect the soil sample which is to be tested in a beaker.
- Filter the soil sample such that we get fine soil only. Collect this fine soil into another beaker.

- Now add water to finely filtered soil such that ratio of soil to that of water is 1:1.
- Stir this mixture thoroughly. Let this mixture be left for 10 minutes.
- After 10 minutes, test the pH of soil by inserting the pH Electrode.
- Before testing, make sure that pH electrode is properly washed with distiller water.
- Another importing thing to be noted is before using pH electrode for testing pH of a solution, it should be kept dissolved in an acidic solution of 0.1N for minimum of 2 hours, so that pH electrode works properly. The value of pH would be shown using Blynk app.

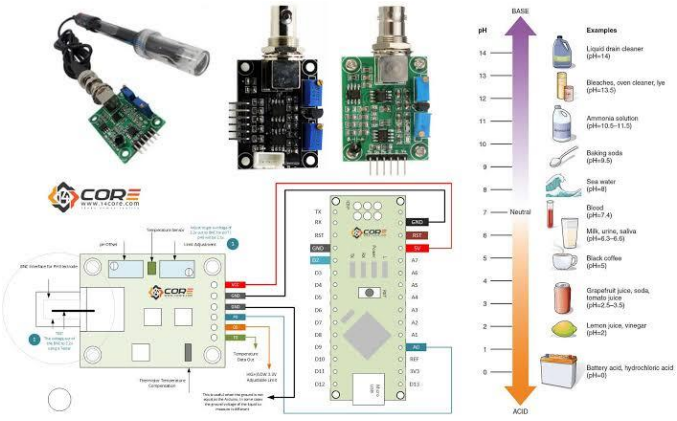
BLOCK DIAGRAM:



WORKING:

- Firstly, the pH electrode is immersed into a soil solution and by measuring the potential difference, it sends the voltage values to Liquid Sensor.
- After receiving these voltage values, this Liquid Sensor converts voltage values into analog values. Here after, these voltage values are sent into NODE MCU which has 10 bit ADC.
- This 10 bit ADC (Analog to Digital converter) converts Analog values received from Liquid Sensor to Digital values.
- We have written a small code which converts these Digital values into pH values.
- Finally, these pH values which are output of our code are displayed by means of Blynk app.
- In this Blynk app, values of pH would be updated dynamically per each second.
- In this way, ***pH*** of soil is calculated.

EXPERIMENT (Circuit (pic)):



1. Node MCU

2. pH Electrode

3. Liquid Sensor

SUMMARY:

This project aims in designing a system which monitors soil health and acknowledges farmer with the quality of soil, basing on which he decides whether crop can be grown or not. Since Farmer gets the soil updates on time, his time is saved and he's also aware of his soil health time to time.

ESTIMATED COST:

Rs 2000/- only

30. WATER WASTE MANAGEMENT

COLLEGE	B.V. RAJU INSTITUTE OF TECHNOLOGY
GUIDE	PANDURANG MIRAJKAR
COLLEGE STUDENTS	H SAHITHYA , G SRAVANI, D AJAY CHANDRA, K RANGANADH
SCHOOL STUDENTS	K RAMAKRISHNA , VAISHNAVI

ABSTRACT:
Day in and day out of the water usage is increasing due to the increase in population and so is the problem of exhaustion of ground water in major cities and many rural areas. Keeping a check on amount of water used will help us to prevent from over usage of water. If the situation continues, we are steadily inching towards catastrophe. To prevent catastrophe from happening, there are various devices such as a shower timer, shower, low flow faucets and many more. We have come with a smart water usage monitoring system as a solution for this problem. This is a mobile application based system through which we can directly monitor the water usage at any place and any time. We can check the water level in our tank at any time by simply using an application. This system will enable us to monitor the level of water in our tank and hence will prevent from overflowing of the tanks while filling them.

HYPOTHESIS:
This project aims in designing a mobile application interfaced with Hardware through the application of Internet of Things to check the water level of the tank at anytime. The objectives of the project are

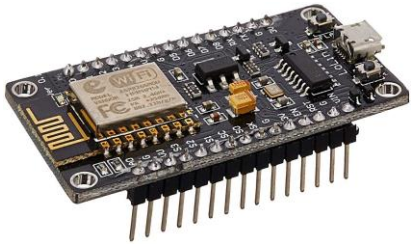
- To check the water level of the tank at any time.
- Avoiding water overflow into the tank.
- Avoiding from water tank becoming empty.

PROCEDURE:
We will connect the water flow sensor in between pipeline. With the help of that sensor we will get the flowrate. Thereby we will calculate the volume flowed out. We will create an application and upload the flow data to it with the help of Node MCU through Wifi. This can be done by using real-time database from Google Firebase. We connect both application and node MCU to firebase. The data about waterflow will be updated to firebase and the application will retrieve it and it will be shown in the application. For water level indicator we use an ultrasonic sensor to know the water level.

EXPERIMENT:
The major components used in the project are:

- NODE MCU

Node MCU is an open-source firmware and development kit that helps you to prototype or build IoT product. It includes firmware which runs on the ESP8266 Wi-Fi SoC from Espress if Systems, and hardware which is based on the ESP-12 module.



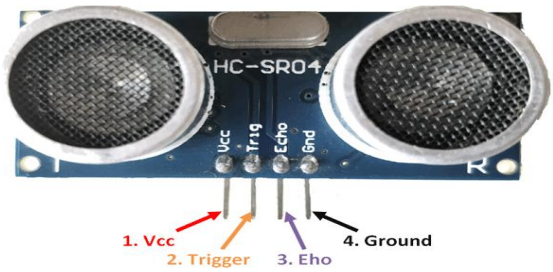
- **WATER FLOW SENSOR**

Water flow sensor is basically used to take a note of how much water has been transferred from one area to the other.When water flows through the rotor, the rotor start rolling after feeling the pressure. Its speed changes with different rate of flow. The hall-effect sensor outputs the corresponding pulse signal.

- **OLED SCREEN**

Here we are using OLED to display the flow rate and depth of water level to be filled with water.

- **ULTRASONIC SENSOR**



SUMMARY:

The project aims in monitoring water level of the tank at any time by using a mobile application so that we can avoid unnecessary wastage of water as we monitor the usage of water daily.

ESTIMATED COST:

4000 rupees only.

31. EFFECTIVE IRRIGATION SYSTEM

COLLEGE	MLR INSTUTUTE OF TECHNOLOGY
GUIDE	T.ANURADHA
COLLEGE STUDENTS	P.DEVI SRI PRASANNA, S.BHAVANA REDDY
SCHOOL STUDENTS	JYOTHI, DURGA BHAVANI, ZPHS GOWDAVALLY

ABSTRACT:
Agriculture industry is wide and ever-growing as the farmers being the backbone for food production but the technological advancements seen in the field of agriculture is quite less compared to other industries now so to minimize the effort and drastically increasing the efficiency of the work use of robotics is must in agriculture. Robots can be used for many purposes in agriculture like seeding, irrigation, fertilizing, harvesting etc.
The Agricultural field promises a wide scope for improvement, which makes the work of farmers relaxed in the agricultural system and ultimately helps in effective crop quality or quality production. At the end this robot should be able to do many complex and time- consuming operations quickly like Seeding, where it has to check the moisture content if it has less the moisture content and drop the seed, operation like irrigation, here again moisture check should be done and watered based on requirement, we should even be able to change the settings based on crops like rice will need a large amount of water, apart from these it should be able to do weed control.

HYPOTHESIS:

The main aim of this project was to provide water to the plants or gardening automatically using microcontroller (Arduino Uno).
The objective of the project includes,

- Reduce the water wastage.
- Reduce the amount of electricity.
- Reduce the manual intervention of farmer.
- To increase the speed of seed planting.
- To maintain accuracy of seed planting.
- It should overcome the difficulties present in current irrigation system with relatively less cost.

METHOD:

In the proposed model, there is no need of man power and operate the agribot the man where ever it. It has a programmed control toward all path and programmed seed sowing and covering the dirt. It keep up legitimate separating starting with one plant then onto the next and it has appropriate usage of seed should be possible with less misfortune. It performs different concurrent task and thus spares work necessity, work cost, work time, adds up to cost of sparing and can be reasonable for the agriculturist. It achieves programmed in rural area. We need to build up a versatile computerize water system robot framework that plays out the assignment of the ranchers, for example, sowing the seed, straightening the land, manures and water and supply to the product. The fabricated robot is capable of performing the seeding operation. The robot consists of an on board battery which supplies the required power. The battery is rechargeable type. The seed placement arrangement consists of a seed container and a motor. The opening of the seed container consists of a hole through which the seed will be dropped. The motor used for

the purpose of seeding is low rpm high torque 12V geared DC motor. The seed container is made up of plastic. It can be used to store and feed wide variety of seeds. The main advantage is the seed feeding flexibility in terms of the size of seeds used. The seed container consists of a screw rod which is used for seed feeding. The end of the screw rod consists of threaded portion. This threaded portion is connected to the motor shaft by a coupler. The motor is directly mounted on to the frame. When the motor shaft is rotated the seeds that are accumulated in the container will move towards the opening of the container and will fall from it. The number of seeds that are dropped can be controlled by the number of rotation of the motor shaft. It also depends on the size of the seed that is being used.

EXPERIMENT:

The major components used in the above circuit are as follows:

1. A DC motor is any of a class of rotary electrical machines that converts direct current electrical energy into mechanical energy.
2. Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.
3. A motor driver is an integrated circuit chip which is usually used to control motors in autonomous robots. Motor driver act as an interface between Arduino and the motor most commonly used motor driver IC‘s are from the L293 series such as L293D, L293NE, etc. These ICs are designed to control 2 DC motors simultaneously. L293D consist of two Hbridge. H-bridge is the simplest circuit for controlling a low current rated motor. We will be referring the motor driver IC as L293D only.

SUMMARY:

As India is agriculture based country we need more amount of water. But predicting exactly how much water is required at that particular temperature is difficult. So, to remove wastage of water and electricity we are doing this project. By manual seed sowing farmer has to face many problems like depending on ox driven machines, musculoskeletal disorders due to sowing by bending and sowing, high cost for buying and maintaining the equipment, handling of equipment due to excess weight of the machineries. To overcome this problems we are introducing automatic seed sowing machine.

TEAM PHOTO:

Estimated cost:
Rs.3500/- Only

32. SMART CRADDLE

COLLEGE	B.V. RAJU INSTITUTE OF TECHNOLOGY
GUIDE	M PANDURANG
COLLEGE STUDENTS	LOCHAN SRIKAR PALAKA, SRIHITA, AASHISH PAUL, BHUKYA VINAYAK, HARSHA VARDHAN, MALLIKARJUN
SCHOOL STUDENTS	ISHRATH ANJUM, V SAI PAVAN CHARY, TELANGANA MODEL SCHOOL, JAKKAPALLI

ABSTRACT:
As we are very well familiar with the hurdles faced by Parents to nurture their infant and especially in case if both the Parents are working. To give 24 hours of time in such cases is next to impossible. Thus, we need to develop something unique that can help Parents to have a continuous surveillance/watch on the Baby/Infant and can notify about the same.
Thus, we have come up with an idea to design a Smart Cradle System using IOT which will help the Parents to monitor their child even if they are away from home & detect every activity of the Baby from any distant corner of the world.

HYPOTHESIS:
Product Code Design:
The coding section has been divided into two major sections:

1. Interfacing of Arduino using Arduino C programming
2. Interfacing of Android Mobile Application using Android programming (Java + XML)

Product Features:

- Instant Mobile App Notification
- Better Monitoring of Baby
- Automization of System
- Real-Time Database
- Accurate Sensors

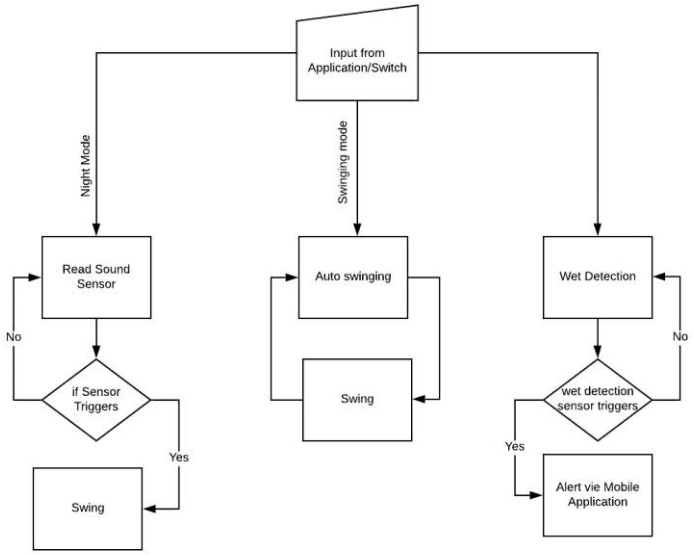
METHOD:

The design of smartness & innovation comes with the use of technologies/methodologies which include Internet Of Things (IOT) (Modules like Arduino, Humidity & Temperature sensing), Swing Automation, Cry Detecting Mechanism, Live Video Surveillance, Cloud Computing (Data Storage) & User Friendly Android Mobile Application (for User Controls).
In order to detect each & every activity of Baby, different Sensors/Modules are attached to the Cradle: Humidity & Temperature Sensing Module for detection of Wetness of the bed, A Camera on top of the Cradle for live video footage & Cry Detection Circuit to analyse Cry Patterns which eventually triggers the swinging mechanism (if required based on the range of frequency). All the data which is been taken from the sensors/modules will be stored in Cloud (Google Firebase) & analyzed at regular intervals. A Health Algorithm is applied to these datasets to get

information about the body conditions which is helpful as any regular symptoms of a disease can be identified easily.

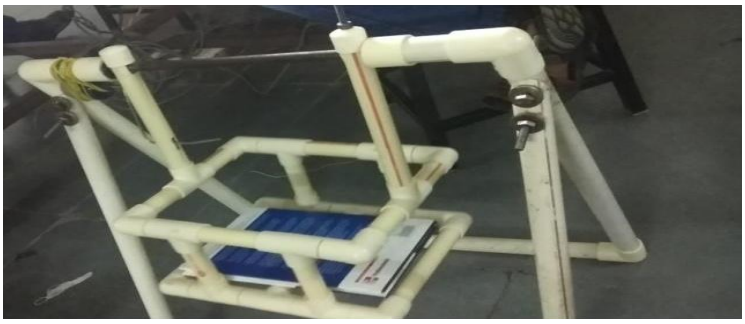
An instant mobile notification will be generated if any abnormal activity is detected (something unusual OR crying of baby OR wetness due to Baby Urine) in the Android Mobile Application which has been developed. It has UI controls which include the feature of controlling the swinging mechanism of the cradle (can be turned on, turned off & can maintain the speed of swing), control for switching on the camera live footage & controls for playing the toy/projector whenever the baby cries.

BLOCK DIAGRAM:



EXPERIMENT:

Circuit:



the major components used in the above circuit are as follows:

1. ESP 32

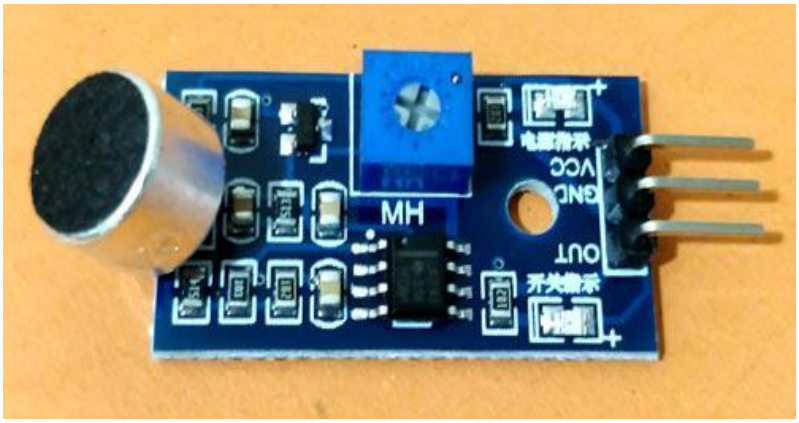
ESP32 is a series of low-cost, low-power system on a chip microcontrollers with integrated Wi-Fi and dual-mode Bluetooth.

2. OV7670 CAMERA MODULE

The **OV7670 Camera Module** is a small image sensor, low operating voltage, providing all functions of a single chip of VGA camera and image processor. Used to monitor the baby.

3. XCLUMA SOUND SENSOR

When the baby starts crying, it is detected by the audio sensor and is given to the microcontroller. At the same time, soothing mechanism gets activated. The microcontroller is embedded with the programme for detecting the reason for the cry.

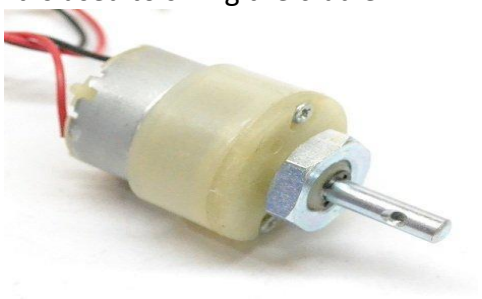


4. MOTOR DRIVER

A **motor controller** is a device or group of devices that serves to govern in some predetermined manner the performance of an electric motor. Motor controllers can be manually, remotely or automatically operated. They may include only the means for starting and stopping the motor or they may include other functions.

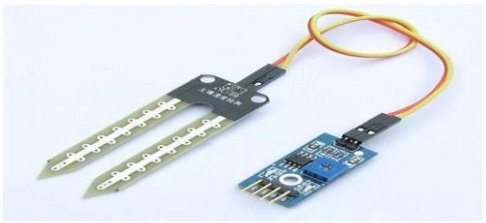
5. DC MOTOR

A DC motor is any of a class of rotary electrical machines that converts direct current electrical energy into mechanical energy. It is used to swing the cradle.



6. SOIL MOISTURE SENSOR

Humidity & Temperature Sensing Module(moisture) is used for detection of Wetness of the bed.



SUMMARY: By using the proposed system, we can give a great attention to the child when the baby cries. The message is forwarded to the corresponding number through GSM & alarm starts to indicate the condition of the baby whether there is any temperature variation or any wet condition. These implies that we need to keep the baby in a hygienic condition. Thus we can protect the baby from many health issues. This product is mainly useful for working parents, hearing impaired & blind parents. This system helps parents and nurses to take care of babies without physical attention. The experts confirmed that the traditional manual swing size and speed are not stable. Unbalanced swing can make babies' brain not regulate smoothly, and then can affect their health for entire life. Besides that, this baby's cradle also is safe and comfortable for baby with the timer that make a smooth rock on and not continuously that can affect the babies' health. The most precious treasure for a parent is their child. Although the days with little kids often seem long, the years fly by. So they opt to spend excess of money for the ease and

nourishment of their baby. Finding the right child care is a big deal and it's no wonder is there anything more important for them. For a baby, this cradle will act as a baby sitter for about 2 years

Technology has been developed in a great way that it makes human work simpler. So, that aspect to convenient the baby care smart baby cradle has been designed. The automatic electronic baby cradle is the finest solution for today's parents who cannot find the sufficient time for their babies. This automatic baby cradle would let the working mother to do household works besides taking care of baby at the same time. It is economical and user friendly. The automatic baby cradle can be used in hospitals and home. It is very useful for working parents and hospitals to take care of babies.

This designed product will be reliable, easy to maintain, safe to operate and less in cost compared to other types of automatic electronic cradle and will be available in an affordable price.

Estimated cost:

Rs.5000/- Only

33. GARLAND MANKING MACHINE

COLLEGE	MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY
GUIDE	K SHIVA SHANKAR
COLLEGE STUDENTS	G. BALA BHANU PRAKASH, G. SRAVAN KUMAR
SCHOOL STUDENTS	AILI PRANAYA, M RAKSHITHA

Problem identification:

1. Identification and justification of problem

Flower market is a huge market with a lot of labour. Garland making is one of the major categories of the market where garland makers put a lot of effort to earn their livelihood and with a lot of time period invested. As traditional knotting of the flowers is the only method followed in the market it needs a special machinery to do the exact work which never existed in the market before.

2. village / study area / location.

The study about the actual garland making is studied in the village Medchal at a local flower decor shop. The garland maker Mr.Mallesh Goud helped us to understand his stream of work. Where he spent around 7-9 working hours daily on the garland making and flower decor shop.He takes the help of others on huge orders mostly in the months of January, March, October and November.

3. Description of problem (challenges / felt need / market opportunities)

Major aspect to consider here is the livelihood earned with comparison to the work efforts put together with the valuable time. Here the considerable facts are the scale at which the products are sold and profit or the market value they get out of it. To meet the competition market, the makers need to find a new efficient way to make and sell the product at the low cost. Garland making machine have the dual usages as the garland machine and separated Stitching machine at the initial stage.

Description of proposed solution:

1. Brief description of innovative solution

An innovative solution for any problem comes only when we travel with the problem.
We as a team, after interacting with the garland makers we understood the challenges they are facing in the production of the garlands. The idea of the Garland making machine is to provide the efficient production of garland with the combination of machinery and technology. The Garland making machine works completely automatic and semi-automatic. The automatic Garland making machine mainly consists of three parts: 1.Robotic arm 2 Conveyor belt and 3.Stitching machine. The working of the machine starts with the picking of the flowers and placing them on the conveyor belt by the robotic arm and the flowers are carried by the conveyor belt to the stitching section where flowers are stitched in a proper precise alignment. The whole production of garland can be done without human surveillance.

2. Description of the technology/ management practices involved in innovative solution to achieve given objective

The robotic arm works with the given set instructions,instructed through the arduino with the embedded C program. The instruction is to pick the flower and place it in the conveyor belt at an instructed rate of time. The conveyor belt carries the flowers to the stitching section where the speed of conveyor belt can be adjusted with the n according to the requirement. The stitching of the flowers is carried out by the stitching machine which runs with the help of a stepper motor, its speed can be varied by embedded C program. We can improve the working progress with the addition of another robotic arm with colour sensing. The colour sensing works best with Artificial Intelligence.

3. Target beneficiary group/ anticipated size of market for proposed solution/innovation.

The targeted beneficiary group of garland machines are the flower decor shop owners and small scale garland makers. At the initial stage the machine can be separated where we can use the stitching machine on a regular basis which will be a dual usage for the tailoring purpose and garland making where it attracts a large audience. And by expanding the possibilities of combination of AI and new machine design we can reach the requirements of large scale industries.

4. Expected outcomes/outputs

The expected outcome from the garland making machine is the efficient production of garlands. And the standard of garland makers can be improved. The machine can approximately make a garland of length 1 meter within the time period of 60 seconds on a full scale working model. With the garland making machine we can make the garland of different sizes and different pattern garlands. With a fully scaled designed model we can meet industry needs.

5. Brief description of implementation of delivery and business model.

The Garland making machine can be delivered to the market with the help of the government. The major platform we can put out to the market by schemes such as the Make in India and t-hub.

6. Description of support/ecosystem provided by/ available at institute to facilitate the startup

In our college we have a dedicated student platform to provide all the necessary support which any project or startup needs. It is the MLR Institute of Technology Centre For Innovation and Entrepreneurship (CIE) dedicated to promoting Creativity, Innovation and Entrepreneurship.it is a pedestal to help Knowledge driven enterprises to establish and prosper under organized guidance. It also facilitates swift commercialization of a product based on sophisticated technology. CIE aims to foster a vibrant ecosystem for the creation and growth of enterprises.

34. ADVANCED AGRICULTURE BY USING SENSOR AND ANIMAL PREVENTION

COLLEGE	TUDI RAM REDDY INSTITUTE OF TECHNOLOGY AND SCIENCES
GUIDE	G SHEKHAR
COLLEGE STUDENTS	MANI CHANDRA, AYUF
SCHOOL STUDENTS	GANANADH, NISHANTH, SHLOKA A BIRLA SCHOOL

ABSTRACT:

Today's formers major problem faced by water to agriculture crops in sufficiency of water .Drought areas likely desert areas Rajasthan they are facing a lot problems water resources available less water .water is major part to grow crops ,developing agriculture land .we developing new innovation technology to supply water where evaporation losses is more we are reducing evaporation losses by using rise husk .we are supplied water by automated running mortar through sensor system. Sensor detecting 50% of water moisture content then mortar automatically off. This project mainly used for where water availability is less .

HYPOTHESIS:

This project aims in designing to reduce water losses, usage proper way to tree roots.

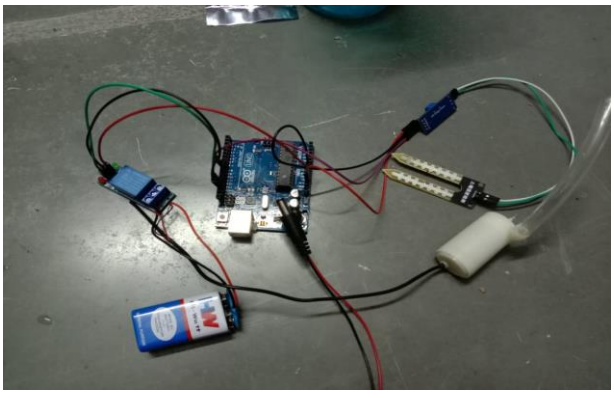
1. Automatic mortar off when water supplied horticulture system.
2. Reduced water evaporation by wind temperature.
3. Detecting water percentage by sensor.
4. Increase percolation losses through using rice husk.

METHOD:

This moisture sensor is programmed by arduino software .this sensor working through arduno by connected with the relay an electronic device .we are increase percolation losses by using gross sheet placing below ground top of tree roots in subsurface drip irrigation system . sub surface drip irrigation system we provided below ground gross sheet to increase percolation losses to touch immediately to the moisture sensor. We are used D.C mortar .connected with the automated off by moisture sensor. When moisture sensor absorbed 50% of water from soil .then automatically D.C mortar off . The crop protected from forest pigs and other animals when animals are entre to crops laser light .alarm is ringing high sound.

EXPERIMENT:

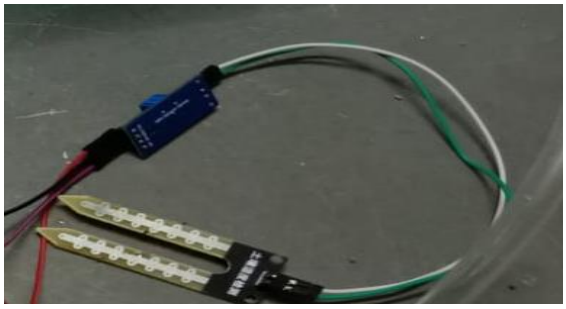
MOISTURE SENSOR MORTAR CONNECTION:



The major components used in the above MOISTURE SENSOR are as follows:

SOLAR POWER CONNECTION:

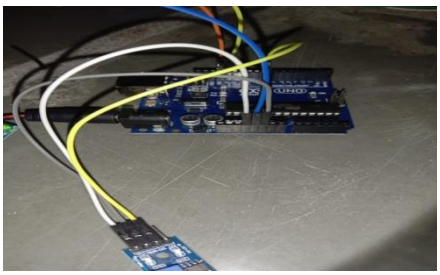
MOISTURE SENSOR:



RELAY

D.C MORTAR

ARDUNIO CONNECTION:



1) moisture sensor programmed by using arduno software at percentage level of crop depths 50% to 80%
2) moisture sensor connected with arduno and relay of sensor
3) D.C mortar connected with an arduno to pumping of water to crops .

4) sub surface drip irrigation system we provided below ground gross sheet to incease percolation losses to touch immediately to the moisture sensor.

SUMMARY:

This project aims in designing reduce water wastage by by using moisture sensor how much percentage ofwater reuired to crop depth that quantity of supplied to tree roots by using solar D.C mortar .power generated by solar energy .

Estimated cost:
Rs8500/- Only

35. GESTURE TO VOICE TRANSLATOR

COLLEGE	MUFFAKHAM JAH COLLEGE OF ENGINEERING AND TECHNOLOGY
GUIDE	B.SUCHARITHA
COLLEGE STUDENTS	SYED TAHA AHMED, MOHAMMED WAEL
SCHOOL STUDENTS	MOHAMMED WALEED, SCHOLARS ACADEMY-ALKAPUR TOWNSHIP SYED OWAIS UL HAQ, IQBALIA INTERNAIONAL SCHOOL

Abstract:
The 2011 Indian census cites that roughly **1.3 million people,** which accounts to **1 percent** of the Indian population, have some sort of speaking impairment. It's a struggle for many mute children to access appropriate education in India, a country where mute, and disability in general, has been under-reported and under-served. The major problem in being mute is conveying the message of one's mind, in most cases the conveyer i.e. mute person may not be able to convey the message properly to the listener resulting in miscommunication. The suicide rate of mute people is 0.2% due to their disability. This project aims at developing a system that can help the mute convey their message in a suitable manner. The Gesture to Voice Converter glove when worn by a mute person, or anybody with a speaking impairment, allows them to convey his/her message using sign language. This developed system is capable of converting the gestures and actions of people into equivalent words and in this way he can convey his message to the listener at his best. This glove is easy to wear and use by any person. This developed glove is low cost, robust and highly reliable.

HYPOTHESIS:
The project aims at developing an embedded system to help the voiceless people to convey their message.
The objective of the project includes:

- Converting the hand gesture into appropriate sound signal.
- Converting the gestures of hand into an appropriate voltage signal.

Methodology:
The system is developed with a glove having flex sensors stitched in it. The output resistance of the flex sensor is converted into equivalent voltage. The output voltage of flex sensor is connected to input pin of arduino. The arduino is programmed in such a way that the values of flex are mapped to different audio files saved in arduino. Depending upon the flex values the different voltages are given to speaker which results in output speech.

Components :

Flex Sensor

Arduino

Speaker

Glove

Summary:
The project can work as a transducer between the voice and voiceless persons. The system is very robust and effective.

Estimated cost: Rupees 1500/- only

DIGNITARIES IN ANVESHANA BANGALORE (2012 to 2015)

In 2012 *- Mr. G. Kumar Naik I.A.S,(Education Secretary, Karnataka Government) giving the inaugural speech to students (Mr. Ramji Raghavan, Mr. Sharat Kaul, Mrs. Erin Brennock, Dr. V S Ramamurthy, Director NIAS, Bangalore, Padmashri Prof. R M Vasagam, Former Vice Chancellor, Anna University Prof. Ramaswamy, Rtd. Prof IISc on the stage)*

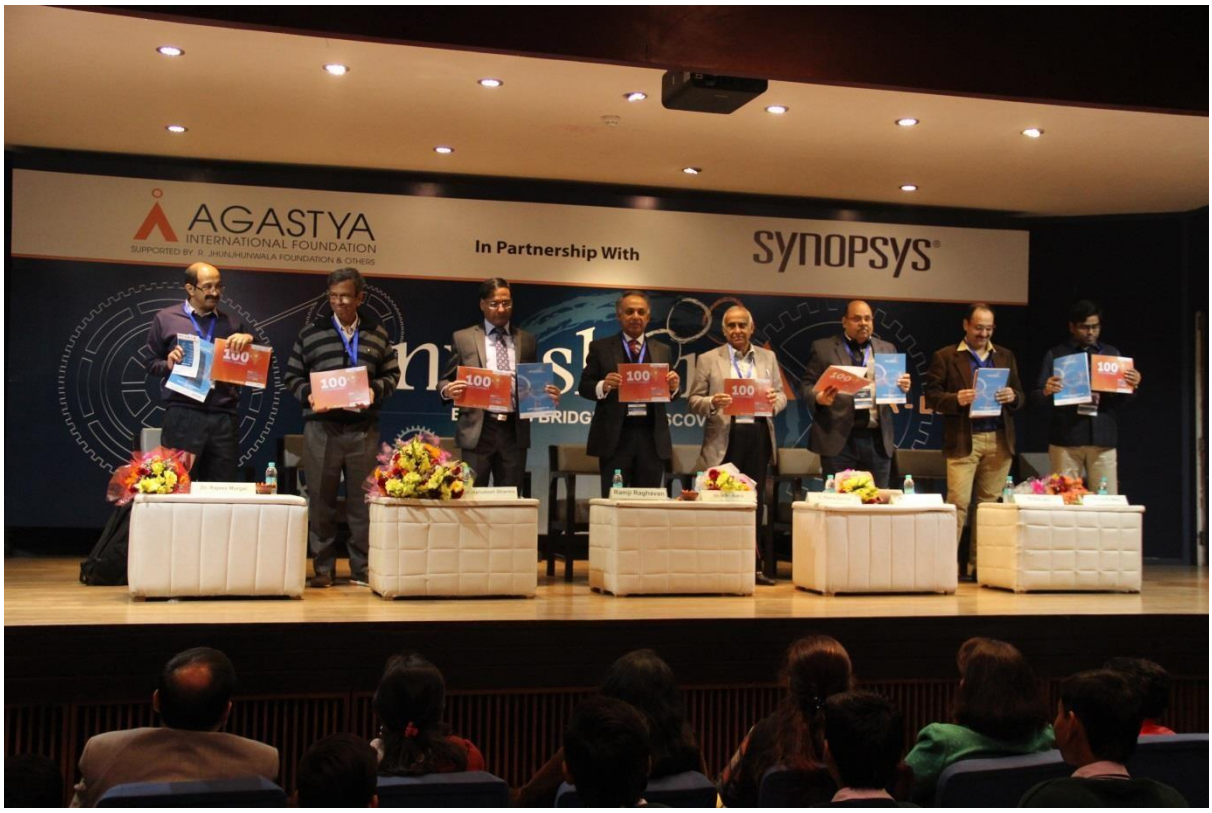
In 2013 *- Anveshana abstract Book Launch - Ramji Raghavan, Chairman Agastya International Foundation, Sharat Kaul, Sr. Executive Account Manager, Synopsys India, Dr. Pradip Dutta, Corporate Vice President & Managing Director, Synopsys India, Dr. H. Harish Hande, Magsaysay award winner, G. Kumar Naik I.A.S.(Education Secretary, Karnataka Government), Dr. K.G. Narayanan, Former Director Aeronautical Development Establishment, Bangalore*

In 2014 *- The program was inaugurated by Prof U.R. Rao, Former Chairman, Space Commission & Secretary, Department of Space, and ISRO- DOS in presence of Dr. Rajkumar Khatri, IAS, .Education Secretary, Karnataka Government, Raja Subramanian, Country Director, Synopsys India, Dr. Wooday P Krishna, Chairman IE, Karnataka State Center, Padmashri Prof. R M Vasagam, Former Vice Chancellor Anna University, D R Seetharaman, Group Director, R&D Solutions Synopsys India*

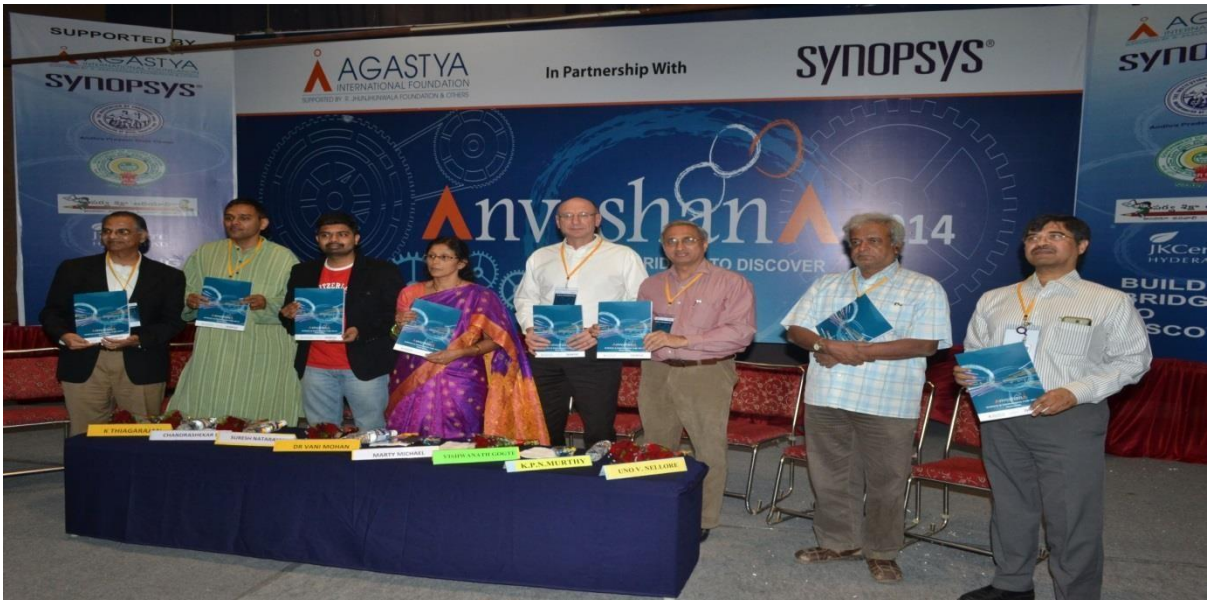
In 2015 *- Inauguration by Sri Kimmane Ratnakar - Minister for Primary & Secondary Education, Karnataka State Government in presence of Dr. V K Aatre, Scientist & Former Head of DRDO, Dr. Pradip K Dutta, Corporate Vice President & Managing Director, Synopsys India, Prof. Anurag Kumar, Director IISc, Bangalore, Padmashri Prof. R M Vasagam, Former Vice Chancellor Anna University, Prof. Sudhindra Haldodderi, Science Writer, Former Scientist DRDO, and Dr. A Maulishree, CEO ICT Skills Development Society, Department of IT,BT & S&T, Government of Karnataka*

DIGNITARIES IN ANVESHANA NCR-DELHI (2015-16)

In 2016 *- Prof. Ashutosh Sharma, Secretary DST, GOI, in presence of Dr. V K Aatre, Scientist & Former Head of DRDO interacting with students before inauguration at Anveshana NCR-Delhi*



DIGNITARIES IN ANVESHANA HYDERABAD (2014 to 2015)



In 2014 -Abstract Book launch by Dr. G. Vani Mohan, I.A.S, Commissioner & Director of School Education, Government of AP in Presence of Marty Michael, Senior Director, Technical Support and Training, Synopsys USA, Jury Panel - Dr.Vishwanath Gogte, Director, Vignyan Vahini, Prof. K. P. N. Murthy, Director Center for Integrated Studies, University of Hyderabad, K Thiagarajan, COO, Agastya International Foundation, Chandrashekar DP, COO, JGI Group, Suresh Natarajan, Jiddu Krishnamurthy Center, Hyderabad,

2015 - Dr. R.S. Praveen Kumar I.P.S, IG of Police and Secretary, TSWREIS present in Anveshana 2015-Hyderabad addressing students

28th January 2015 *Inauguration by Ms. Erin Brennock, Director- Government Affairs, Synopsys in presence of Mr. Uno V Nellore, Manager Technical Support and training, Synopsys Mr. Ajith Basu, CPE, Agastya International Foundation along with the Jury Panel*

29th January 2015 *–First prize winners after receiving the Prize from* Marty Michael, Senior Director, Technical Support and Training, Synopsys USA, in presence of *Ms. Erin Brennock, Director- Government Affairs, Synopsys, Mr. Uno V Nellore, Mr. Thiagarajan, and the Jury Panel*