Socially Relevant Projects

Dadi Institute of Engineering & Technology has been in the forefront in developing technologies to solve pressing problems of the society. Department of Computer Science Engineering aims to sufficiently organize and disseminate information about these projects within student and faculty community.

Projects at **Socially relevant projects (SRP),** Computer Science Engineering department support sizable number of such projects.

PROJECT REPORT

ON

TRICYCLE FOR PHYSICALLY CHALLENGED

Submitted By

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For the Degree of

Bachelor of Technology
Computer Science Engineering

Under the Guidance of

Dr.Prasanna Kumar, HoD, CSE

Problem Definition

The product is a mobility device for outdoor usage meant for mobility challenged and economically disadvantaged people. The existing tricycles in use in India lack in many essential features concerning safety and comfort and have following issues:

1. Ride on harsh roads is uncomfortable and unsafe.
2. Climbing in and out is difficult.
3. Sitting posture is uncomfortable.

Solution

Following features are provided to address issues in existing design:

1. Fitting rear wheels with independent suspensions/shock-absorbers.
2. 'Open able' arm-rest to facilitate easy climbing in and out.
3. Independently adjustable foot-rests for suitable positioning of feet and therefore offering suitable sitting posture.
4. Seat-belts for enhancing safety.
5. Parking-brakes attachment to keep the tricycle stationary while climbing in and out.
6. Perforated seats for increased ventilation and air-circulation.

Uniqueness

1. Independent rear suspensions/shock-absorbers.
2. Open able arm-rest.
3. Independently adjustable foot-rests.
4. Parking brakes.

Sample Images

PROJECT REPORT

ON

Stirling Engine

Submitted By

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Under the Guidance of

Dr.K.Sujatha

Stirling Engine

Problem Definition

The lack of electricity in rural areas and the abundance of biomass.

Solution

The product focuses on utilizing the energy content in the biomass developed in agricultural fields by using them to power an external combustion engine, without going through the trouble of converting them to biogas. The Stirling engine (External combustion) converts the energy into electrical energy through an alternator.

Uniqueness

Small scale engines suitable for household ownership with a very simple design which means easy maintenance and hence the small price makes the product very suitable for rural household needs. Special importance has been given to make a very economical product rather than making it more and more efficient, because a very efficient but costly alternative will not sell in the existing conditions.

PROJECT REPORT

ON

A PORTABLE CABLE WAY FOR POST HARVEST RESOURCE COLLECTION

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A PORTABLE CABLE WAY FOR POST HARVEST RESOURCE COLLECTION

India is one of the largest sugar producers in the world. It is produced from sugarcane. Sugar can be produced from various crops: sugarcane, sugar beet, palm jaggery etc. The immediate reason for this project is the problems faced by Sugarcane Farmers in Visakhapatnam District of Andhra Pradesh . It is typical of other farmers also.The following points are facing the farmers of Andhra Pradesh

1. There is a significant shortage of labour in the Indian farming sector.
2. All sorts of agricultural activities are thus affected.
3. Especially affected is post harvest resource collection (most labour intensive).
4. Due to small size of Indian farms (Land Ceiling Act) western type of large-scale mechanisation is not possible.
5. Wetland fields (surrounded by ditches, canals) make vehicle entry difficult into some farms.
6. Damages of fruit like bananas during manual transportation. Cable way is a preferred option here.

A simple, economical, compact portable cableway has been developed, fabricated and tested for transportation of any produce loads from farm to collection point.

Cableway – Schematic diagram
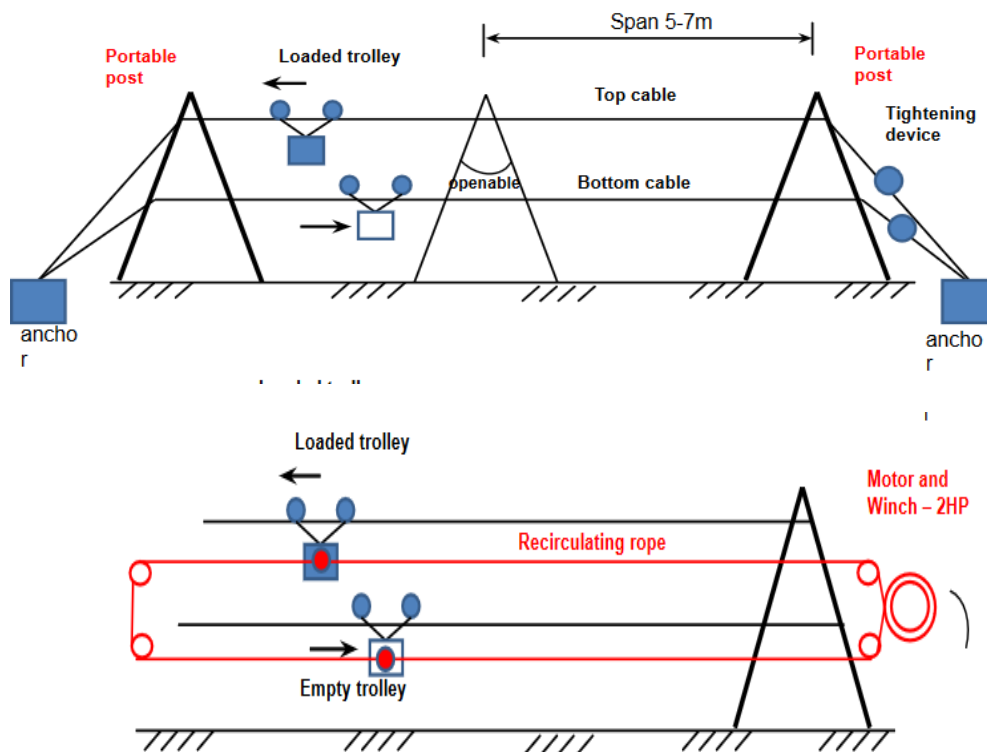
PROJECT REPORT

ON

Assistive Technology to the Needy People

Submitted By

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Assistive Technology to the Needy People

Assistive Listening Systems:

A variety of assistive listening systems, or hearing assistive technology, can help students who are deaf or hard of hearing, as well as those with other auditory and learning problems. According to the National Association for the Deaf, assistive listening systems can be used to enhance the reach and effectiveness of hearing aids and cochlear implants, or by children who do not need those tools but still need help hearing. Assistive listening systems use a microphone, a type of transmission technology and a device for capturing and bringing the sound to the ear. The specific transmission technology used in the system is typically what contrasts one type of assistive listening system from another.

Text to Speech:

As an assistive technology, text-to-speech (TTS) software is designed to help children who have difficulties reading standard print. Common print disabilities can include blindness, dyslexia or any type of visual impairment, learning disability or other physical condition that impedes the ability to read. However, other students can benefit from TTS technology, such as children that have autism, attention deficit hyperactivity disorder (ADHD) or an intellectual disability.

The technology works by scanning and then reading the words to the student in a synthesized voice, using a large number of speech sounds that make up words in any given context. With the advances in speech synthesis, TTS technology is more accurate and lifelike than ever.

ASSISTIVE LISTENING SYSTEMS

Intel Reader:

The Intel Reader is a mobile handheld device that uses TTS technology to read printed text aloud. It features a high-resolution camera that captures printed text, converts it to digital text and reads it to the user. During playback, words are highlighted as they are read aloud, and the user can pause and have the device spell out highlighted words. The available Intel Portable Capture Station functions as a stand for the Intel Reader to easily and quickly capture text from books and other documents.

At about the size and weight of a paperback book, the Intel Reader is mobile enough to use in any environment. Students can also transfer content from a home computer, or save generated audio versions of printed materials to a computer. Available voices vary in gender, pitch and speed.

FM systems:

According to American speech language hearing association (ASHA), FM systems are the best choice for children with sensor neural hearing loss. The most common type of hearing loss for all ages, sensor neural hearing loss occurs when the inner ear (cochlea) or nerve pathways from the inner ear to the brain are damaged.

FM systems work using radio broadcast technology. With a transmitter microphone and a receiver, the teacher and student can maintain a consistent sound level regardless of distance and background noise. Additionally, ASHA notes that the hearing aid microphone can be turned off, so the student can concentrate on the teacher alone.

Sip-and-Puff Systems:

Sip-and-puff systems are used by students who have mobility challenges, such as paralysis and fine motor skill disabilities. These systems allow for control of a computer, mobile device or some other technological application by the child moving the device with his or her mouth. Similar to a joystick, the child can move the controller in any direction and click on various navigational tools using either a sip or a puff. An on-screen keyboard allows the child to type using the same movements.

Sip-and-puff systems are a type of switch device, which refers to the technology used to replace a computer keyboard or mouse. Other switch devices include buttons or other objects that a student can touch, push, pull, kick or perform some other simple action that can then control the device.

PROJECT REPORT

ON

Waste Management Technologies

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Waste Management Technologies

Waste-to-Energy

Generating actual power from waste is one of the major innovations in the waste management industry. This technique aims to convert waste into energy in place of the accumulation of waste in the landfills. Digesters produce the biogas from different sorts of waste such as food, agriculture, etc. and transform that into the energy utilized on-site.

Within the waste-to-energy innovation concept, it is super important to mention thermal energy conversion. Broadly speaking, this technology is based on the change in heat and pressure and works well to turn waste into chemicals, fertilizers, oils, etc. Aside from that, the microturbines, burning waste gas to create power and heat, already became a substitute for traditional methods for landfill processes.

Software for Waste Management Companies

Today, a great number of prominent firms reap the benefits of SaaS (Software-as-a-Service) offering advanced digitized platforms for the most efficient waste management process. These platforms refer to facilitating solutions to cope with industrial challenges and amplify the performance.

Though several solutions are provided by **waste management software**, the most crucial ones are as follows:

- Central management & control
- Operational efficiency & improved service quality
- Immediate intervention capability through real-time alerts
- Increased employee productivity
- Increased customer and citizen satisfaction

Robot Recyclers

While talking about innovation, we cannot skip the robotic technology that has become the top trend in the last decades. After the import of recycling waste products was restricted by China in 2018, western companies expedited their innovative steps to integrate robotic technology in a better processing capability. Furthermore, researchers in numerous companies and universities highlight a more than $6 billion environmental service gap in the recycling industry and indicate robotic technology is a potential solution to fill this gap. All these institutions strive to develop more AI-enabled robotics that can assist in controlling quality, sorting recyclables, and minimizing the health risks to human work teams.

Currently, several companies produce robotic solutions for recycling efforts. As stated by the producer firms, the investments are mainly focused on improving the quality of shipped secondary commodities and reducing labor costs on the sorting line.

Internet of Things (IoT)

The leverage of the Internet of Things (IoT) and cloud computing technology provide high-tech sensors and enable waste management companies to optimize hauling routes and timing data. Throughout the process, haulers identify where full waste containers are located and when should they be collected. This technology lets customers collect waste from full containers. In fact, IoT aims to boost efficiency and save money by reducing unnecessary pickups.

The GPS monitoring system is a great innovation as well as sensors. As data is the key in today's world, waste companies utilize the computer algorithms collecting information associated with the most efficient routes based on the distance and traffic patterns. All areas including residential routes, industrial waste pickup, construction containers, and smart bins can seize the opportunity of merging with such an innovative tool.

Waste-to-Raw Material

The search to reuse waste in a productive manner and innovations in that regard have been markedly increasing. Companies turn waste products into a source of raw material by extracting plastics and cellulose fiber. Autoclave sterilization technology is essential within this operation. Autoclaves are used as heat treatment processing units to destroy microorganisms before disposal.

Self-Driving Trucks

Despite the fact that it's still in the development phase, autonomous waste pickup is close to being implemented. As known, Volvo has been working on this technology for 3 years. Uber became its partner and participated in the research and development process. This system targets a truck maneuvering itself whilst the operator gets out for collecting the garbage. Gear changing, steering, and speed are also optimized for low fuel consumption and emissions.

"Our self-driving refuse truck is leading the way in this field globally, and one of several exciting autonomous innovations we are working with right now" explains Lars Stenqvist, Chief Technology Officer, Volvo Group. Additionally, Stenqvist states this new technology provides benefits for a reduction in the risk of occupational injuries.

Robotic Trash Cans

Robotic wheeled trash containers that roll out on their own at the push of a button are an example of the greatest innovations. This innovation is especially helpful for those with limited mobility and motor skills.

Another invention in this category is motorized garbage bins with wheels which take themselves to the curb. They were programmed to travel from a docking station at a person's residence to a second docking station at the curb. The innovators also add a function in this invention to be scheduled for the time and day of the neighborhood's trash pickup.

PROJECT REPORT

ON

Navigator Based on Pedestrian Tracking and GPS for Visually Impaired People (iOS Application)

Submitted By

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Navigator Based on Pedestrian Tracking and GPS for Visually Impaired People (iOS Application)

Purpose: Navigator Based on Pedestrian Tracking and GPS for Visually Impaired People (iOS Application)" ("The Navigator") aims to offer a reliable guiding assistance for visually impaired people. Currently, visually impaired people always need guiding tools like tactile sticks or guide dogs when navigating outdoor. However, the number of guide dogs is limited and the tactile stick cannot provide accurate and informative feedback to the users. As technology advances, smart devices with AI technology can be combined and act as a new generation of guiding devices.

Method: The Navigator will use user's GPS location to plan a route from user's location to the destination, then the Navigator start uses the camera on the mobile device and an object tracking AI model to guide the user to follow pedestrian who is heading to the same destination. Whenever the pedestrian being followed is found not sharing the same destination as the user does, the Navigator will choose another pedestrian. Furthermore, the main feedback medium for guiding the users' direction is haptic. Sound is only used when sending complicated or dangerous messages to the user.

Result: The Navigator is able plan a route from user's location to destination, follow a pedestrian ahead of user and provide appropriate feedbacks to the user. Significance The Navigator integrated with advanced software technologies and a single hardware, the smart mobile device, can potentially provide a low cost temporary replacement for visually impaired people while they are waiting for their own guide dog. Therefore the Navigator may help visually impaired people utilize social resources and services more efficiently during their waiting time, hence better the inclusion of visually impaired people to our society.

Day time

Night time

Sunny day

Rainy day
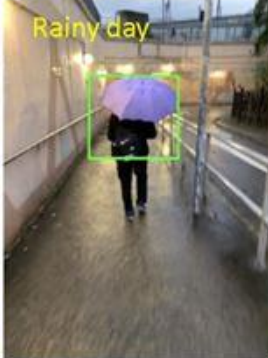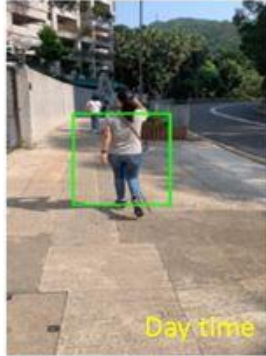
10:57
In 12.0 meters, then in 153.0 meters, Take a right onto Hollywood Road.
Button

Q Sheung wan station
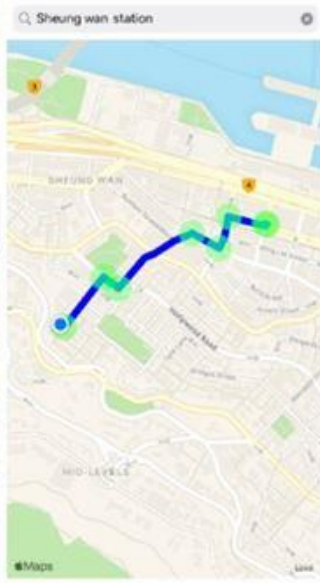
PROJECT REPORT

ON

Localization in the MTR for the Visually Impaired

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Under the Guidance of

Mrs.K.Komali

Project Description:

In MTR station, some aids are provided for visually impaired people (VIP) to navigate there. However, it may not fulfill all the needs for the VIP because of the complicated structure of the stations.

Considering this problem, we propose to use deep neural networks to train a model by Wi-Fi signals and develop an android app to help VIP locate their position and the facilities at the MTR platform. Several functions such as distance between the nearest elevator and user position would be provided in the apps with voice feedback.

Software / Hardware Available:
Android Application
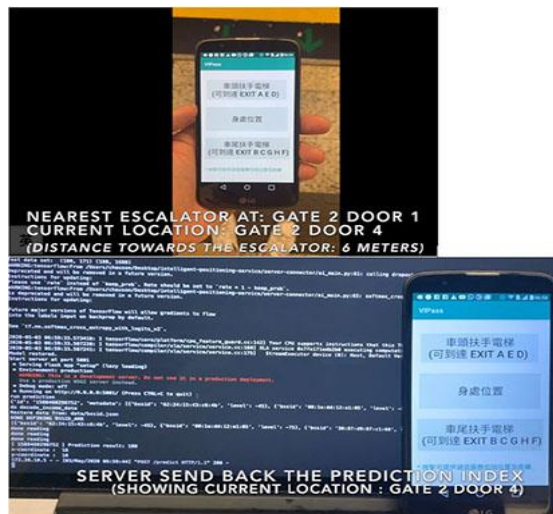
PROJECT REPORT

ON

An App to help the Visually Impaired People to Read Music Sheets

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An App to help the Visually Impaired People to Read Music Sheets

Project Description:

This project aims to design an iOS App to help the Visually Impaired People (VIP) to read music sheets. At present, the VIPs need to convert music sheets to braille before they could read them which is very inconvenience and expensive. Through this application, the VIPs can read music sheets via VoiceOver, an inherent accessibility on iOS, when they touch the screen, as if they are reading paper music sheets in braille format.

Software / Hardware Available:
Prototype of an App

PROJECT REPORT

ON

Real-time Outdoor Objects Recognition and Distance Detection for Visually Impaired People

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Mrs.A.Kamala Priya

Project Description:

According to the World Health Organization, there are 257 millions of people with visual disabilities. Among them, 217 million have moderate to severe vision impairment and 36 million are totally blind. According to another study, low mobility is one of the major daily life problem encountered by the visually impaired. Walking on unfamiliar roads can be challenging and possibly dangerous for them. Currently, there are existing applications designed for helping the visually impaired. For example, Microsoft has employed image recognition technology in their Seeing AI application to identify different scenes, colors and emotions.

Another application, TapTapSee, describe objects in a photo or short video from user's smart phone camera. The application uses "Cloud Sight Image Recognition API" in the pre-processing stage hence the images are able to return correct description even if the picture was taken under narrowed angles or poor lighting conditions. However, majority of the existing application on smart phone are not designed for identifying outdoor objects, and their processing speed are quite slow due to the high latency of cloud computing, combined with issues such as lacking distance detection. The existing applications fail to provide timely notifications regarding the objects surrounding the individual.

The objective of this project is to develop an offline smart phone application that performs real-time object recognition and distance detection on common outdoor objects. The application aims to create a low cost and real time application to minimize stress and the risk for visually impaired people when walking around unfamiliar locations.

Technology Available:
IOS Application "SeePath"
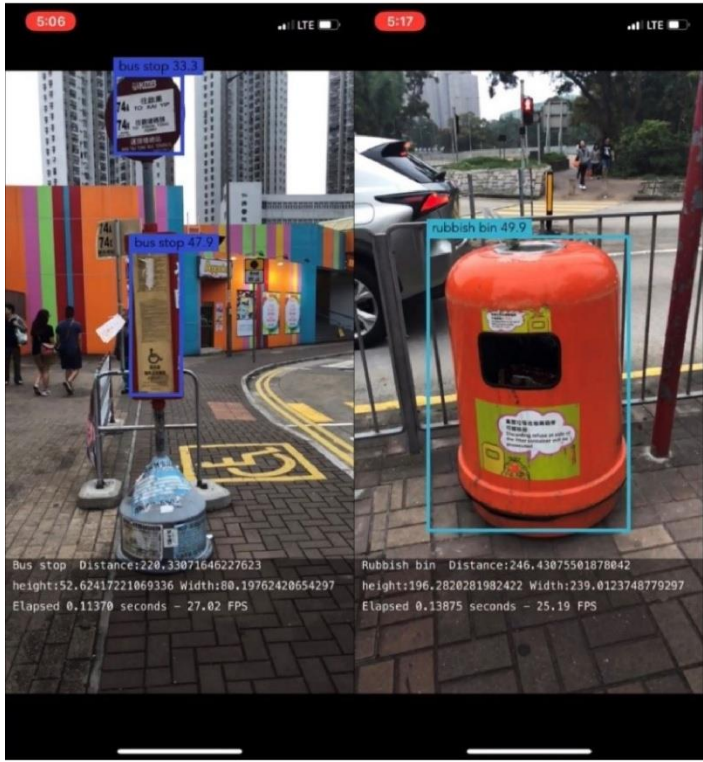
PROJECT REPORT

ON

BAMBOO CYCLE

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For the Degree of

Bachelor of Technology
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Under the Guidance of

Mrs.V.Manasa

Problem Definition

Bicycles offer a healthy, eco-friendly and affordable means of transportation. Although they are much cheaper than other vehicles, their cost is still prohibitive for most people in developing countries.

Uniqueness

Bamboo bicycles are available in a few countries, most notably, the USA. This product represents one of the few attempts in India. Besides being eco-friendly and affordable, bicycles made of bamboo offer excellent ride.

Solution

Making the frames out of bamboo, a fast-growing, sustainable and ubiquitous materal could reduce the cost of the bicycles.

PROJECT REPORT

ON

Page Flipper

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For the Degree of

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Under the Guidance of

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Page Flipper

Problem Definition

This device has primarily been aimed at the differently-abled section of the society who require help of others to flip pages of books every time they read. This enables them to get a feeling of reading from a book like any other person as opposed to alternate methods like

- Getting assistance from parents/care taker or hire personnel to turn pages
- e-book reading

Solution

The Page Flipper is a simple, economical and effective device that can flip pages of any book, one at a time, in both directions and without the use of hands.

It has been designed to help flip pages of any book, one at a time in both directions without the use of hands. It works with books of any paper quality or size and once preset, it can be activated either using a pair of foot switches or voice recognition(This version is yet to be released).

Uniqueness

This product is quite economical as the solutions available in the market are very expensive and not affordable to the common man. One version of this product would help the musicians flip pages of their notes while they play their instrument. This product can also be used for automatically turning and scanning pages of old literature in libraries and for the benefit of patients in hospitals.
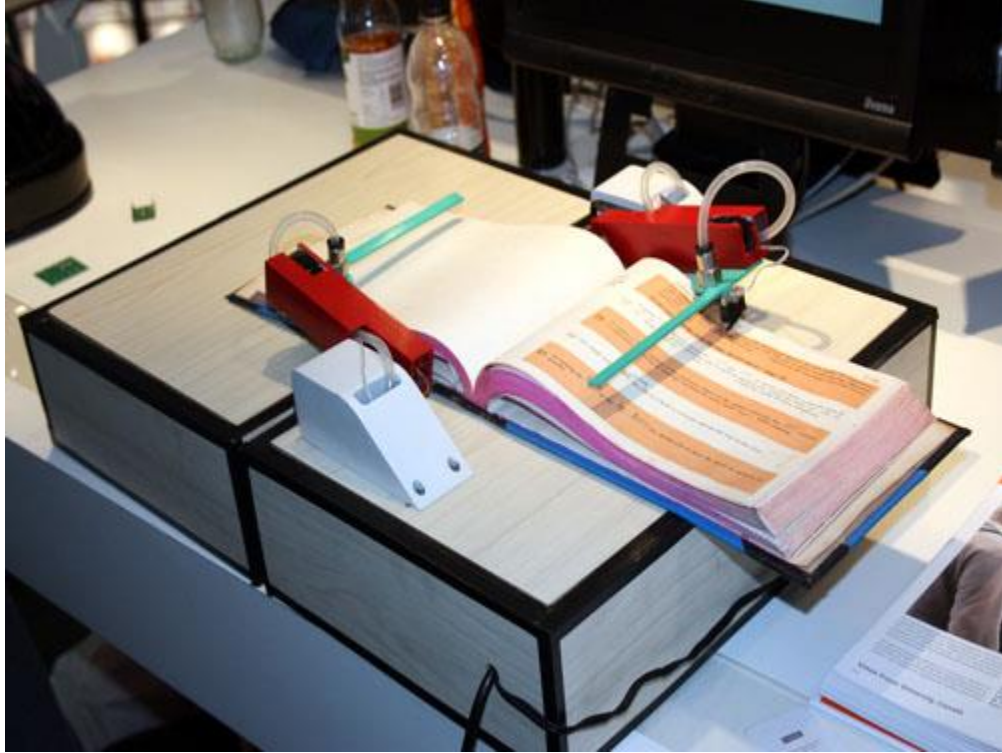
PROJECT REPORT

ON

E-PLASTIC MANAGEMENT SYSTEM

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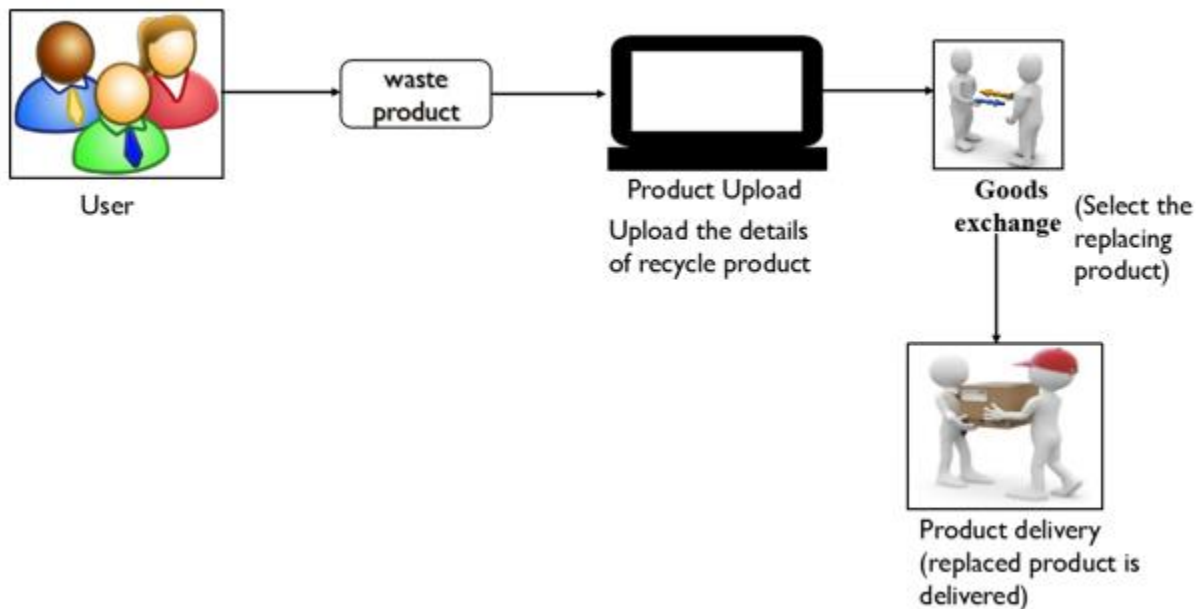Under the Guidance of

Mrs.V.V.Kalyani

E-PLASTIC MANAGEMENT SYSTEM

E-Plastic management system is an website project in the project we are used to recycle the waste plastic. It is very helpful in order to overcome the wastage issues of the plastics. The user can able to view the list of plastic categories based on their shapes they can choose any of it. The admin used to maintain all the records. Admin also can view the users details add details of product and can also able to update the changes in the details.The management and recycling of E plastic waste is rapidly growing as it is a valuable resource of industries and it is very substances and with low recycling rate. The Utilization of e plastic waste materials is a partial solution to environmental and ecological problems. As the use of E plastic waste will reduces the Aggregate cost and provides a good strength for the structures and roads. It will reduces the landfill cost and it is energy saving. The e plastic waste consists of discarded plastic waste; these plastics are non-biodegradable components of E plastic waste as a partial replacement of the coarse or fine aggregates.

ARCHITECTURE DIAGRAM

User

waste product

Product Upload
Upload the details of recycle product

Goods exchange (Select the replacing product)

Product delivery (replaced product is delivered)

Rod

Custom Shaper

ABS

Acetal

CE Canvas Phenolic

Polyimide

CAB

Acrylic

×

Rod Data added successfully

OK

Diameter	10
Length	80
Color Group	Naturals
Texture / Surface / Pattern	Mirror
Grade	Sign Grade
Property	High Tensile Strength (Strong

Submit   Cancel

PROJECT REPORT

ON

CROP MANAGEMENT SYSTEM

Submitted By

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Under the Guidance of

Mrs.G.Sujatha

CROP MANAGEMENT SYSTEM

The crop is basic reason of production of food and raw material, which eventually is reason of survival of the population. In Indian most of the population is dependent on crops. However, there is also need to review and revitalize the mechanism for updating the technology. In the upcoming years agriculture will see major changes. The main purpose for such project is to develop a mobile phone-based solution that helps in crop management, leads to agricultural yield improvement and helps in care/maintenance of the crops. The large amount of crop is getting damage in the field due to the bacterial attacks and lack of information resources. Annually, such loss exceeds 40% in total. So, the project presented here suggest various ways in which a farmer can utilize on their handsets using application called "crop management system", to assist them for relatively better cultivation and merchandise. Our proposed crop management system application will provide the details about customer and farmer and also it avoids the third party buyer problem which cause problem for farmers. This project used to search for fertilizer and cultivate crop. This helps to update the fertilizer and crop and cultivate. And shows the result of the crop cultivated.
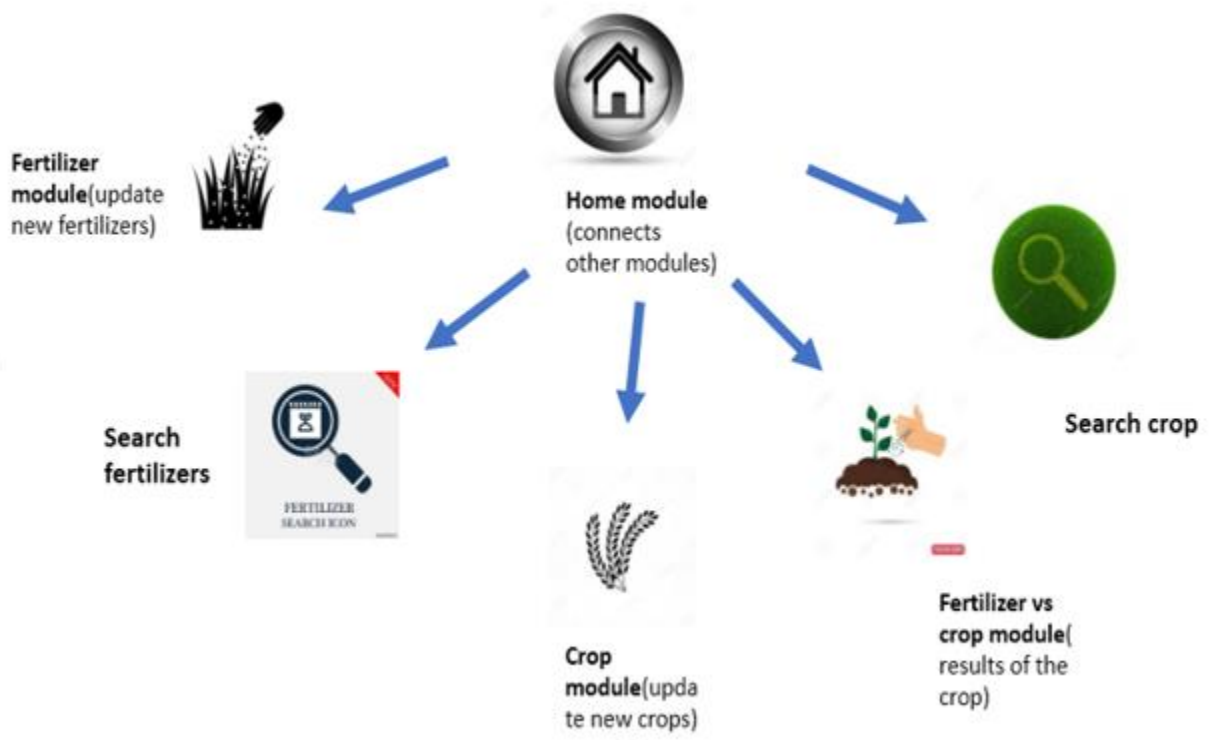
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1.IoT based Weather Monitoring system using Raspberry Pi

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19U41A0412	

Abstract

Internet of Things (IoT) has provided a promising opportunity to build powerful industrial systems and applications by leveraging the growing ubiquity of RFID, wireless, mobile and sensor devices. A wide range of industrial IoT applications have been developed and deployed in recent years. The advancement of Automation technology, life is getting simpler and easier in all aspects. In today's world Automatic systems are being preferred over manual system. With the rapid increase in the number of users of internet over the past decade has made Internet a part and parcel of life, and IoT is the latest and emerging internet technology. Internet of things is a growing network of everyday object-from industrial machine to consumer goods that can share information and complete tasks while you are busy with other activities. This work proposes that the industrial monitoring by using Gas sensor, Temperature sensor, MEMS, Piezoelectric Sensor values to read the value and monitoring using Thingspeak system via Raspberry Pi.

ThingSpeak is an application platform for the Internet of Things. ThingSpeak allows to build an application around data collected by sensors. At the heart, ThingSpeak is a Channel where sent data to be stored. Each channel includes 8 fields for any type of data, 3 location fields, and 1 status field. Once ThingSpeak Channel is created, data can be published to the channel, can be processed and application can retrieve the data.

Existing System
- Manually Monitoring the Industrial application
- By using the GSM technology, it will take more time to get the exact situation
- CCTV camera monitoring is possible but can't able to sense the gas, temperature, and position of the valves.

Proposed System
- The Internet of Things is regarded as the third wave of information technology after Internet and mobile communication network, which is characterized by more thorough sense and measure, more comprehensive interoperability and intelligence.
- IoT Consumes the time and monitoring the exact situation.

Hardware
- Raspberry Pi
- Temperature Sensor

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- Gas Sensor
- MEMS Sensor
- Piezoelectric Sensor

Software
- OS: Raspbarian OS
- Python Language

Block Diagram

Monitoring Section

Advantages
- Decreased field damaging conditions
- Improved safety and security
- High quality receiving data
- Less power consumption
- High speed data rate

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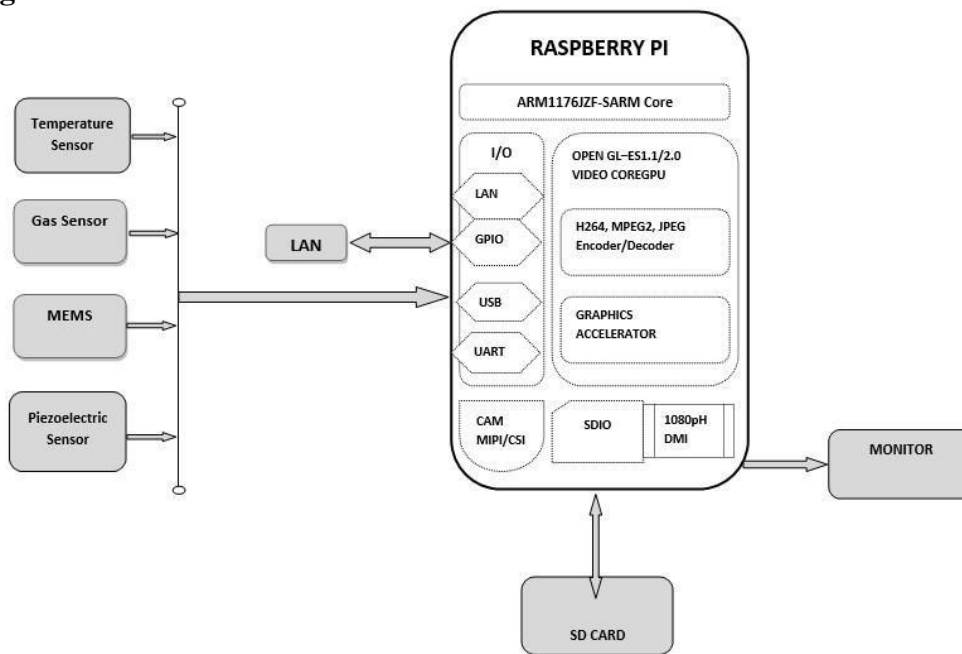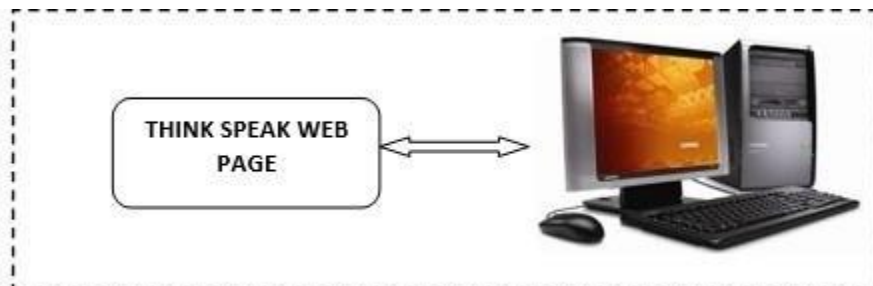
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Applications

- Industry Monitoring
- Home Automation
- Medical Industry

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2. IoT based Health Monitoring System using Node MCU

19U41A0402	Guide Name
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19U41A0417	Asst.Professor
19U41A0422	
19U41A0433	
19U41A0432	

Abstract

This work introduces a wireless health monitoring system that can monitor a human 24x7. Controlling and data processing is done through the NodeMCU ESP8266 board, all the sensors are connected to NodeMCU ESP8266. Through this system, we can measure ECG, heartbeat, BP, and temperature. Through sensors, it is possible to measure all these values. Here all the sensors are powered using USB. The analog sensors can be connected to MCP3008 through any of the eight analog pins. These values are then used for detecting any critical situation. In the case of a critical situation, an alert value displayed in Thingspeak. Also, it is possible to monitor the person's health from any location in the world through the Thingspeak cloud. Data from sensors is uploaded to the Thingspeak periodically without any interruption if the internet is available. Here NodeMCU ESP8266 is used for connecting the internet.

Introduction

Health is the most important part of any human's life without health it is useless to any treasure of life. Most humans live a busy life in which going to a doctor for weekly or even monthly checkup is an impossible task. Without monitoring health it is not possible to judge whether a person is healthy or sick. This problem leads to the design of a product which monitors health every day without going to a doctor. In this work, a system is designed as a prototype for monitoring alerting based on the health of a person. This system is fully automated little or no human help is needed. Any doctor can monitor the person from anywhere through the internet.

Existing System
- Diagnosing with the help of a doctor
- Conventional devices that can only measure a particular parameter
- Devices that have to be connected invasively to get measurements
- No automated system exists
- Smart watches are expensive and not specifically for healthcare

Proposed System
- In this work, a system for 24x7 human health monitoring is designed and implemented
- In this system, the NodeMCU ESP8266 board is used for collecting and processing all data

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- Different sensors are used for measuring different parameters
- All this data is uploaded toThingspeak for remote analysis
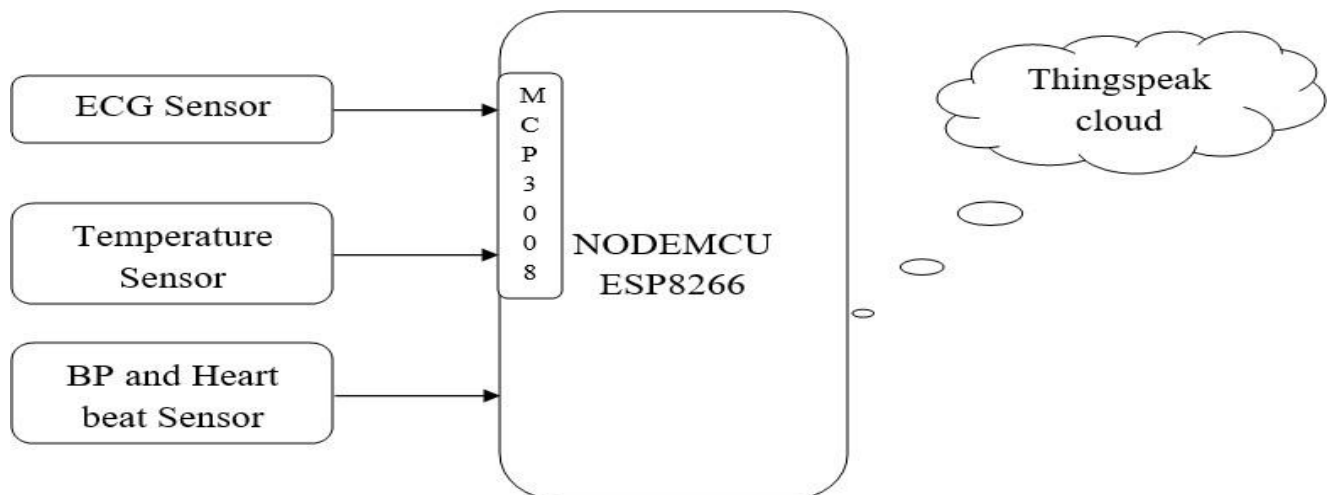- A nodeMCU ESP8266 module is used for connecting to the internet

Hardware Required

- NodeMCU ESP8266
- ECG Sensor
- Heartbeat Sensor
- BP Sensor
- Temperature Sensor

Software Required

- Arduino IDE

Block Diagram

Block Diagram Description

- NodeMCU ESP8266 is the controller board which is a heart-whole system
- All the different analog sensors are connected through MCP3008 analog pins
- Here the NodeMCU ESP8266 connects the whole system to a Wi-Fi network
- Data from sensors are uploaded to the cloud

Conclusion

This system is very effective in monitoring a person's health continuously because it is fully automated. It can be tested very easily with any person. This system is a very good example of remote health monitoring.

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3. Smart Irrigation System using IoT and cloud

	Guide Name
19U41A0406	Ms. S Shabeena,
19U41A0416	Asst.Professor
19U41A0420	
19U41A0425	
19U41A0430	
19U41A0438	

Abstract

This work presents the development of a smart sensor based environment monitoring system, in remote villages especially for crop fields. Basically, it is difficult to monitor the environment, weather all the time, so this work is proposed to monitor the weather and any environment changes using IoT through SMTP and MQTT which having some sensors like Temperature sensor, Moisture sensor, Gas sensor and LDR which measures respective parameters throughout the day. At the same time sensors are not having ability to predict the weather accurately, so weather cloud is used to know the current weather and climate change yet to happen, like every weather information is monitored, when there are any chances of rain in weather cloud then the camera gets triggered and capture the image of the atmosphere with the data log of current weather logs and upcoming weather logs are sent to mail by the user. And also parameters measured by sensors are sent through MQTT protocol, which having the common node, whenever MQTT client comes into the network, not only the current data log, but also the old data also sent to that MQTT client which has high speed transmission.

Introduction

Beginning with the quote "SAVE THE AGRICULTURE", main factor of agriculture is to predict the climatic changes, here we are using IoT for monitoring the weather as well as atmospheric changes throughout the crop field by having several systems in different fields as clients, which is getting reported every time to the server, about the current atmospheric change at that every certain place. So that, watering and pesticides can be served based on the conditions of the field.

Existing system

In the existing system, all weather predictions and environmental change are done manually and they are using WSN for the communication, it is actually slower than MQTT so that transmission occurs slowly which also may cause a collision, when client is disconnected unexpectedly.

Proposed system

In this proposed system, both sensors and weather forecasting cloud is used, so that resulting data having high accuracy about the environment, also using MQTT (Message Queuing Telemetry Transport) which is very much faster than WSN, yields good result. By this system all

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gets processed automatically, if there is any possibility of rain in weather cloud, then the current climatic conditions and upcoming possibilities of rain data log and also the current image of the environment will be sent to the user's mail. At that time sensor's data were sent to the MQTT client, whenever the client comes into the network, they will receive that data.

Hardware required

- Raspberry Pi
- Temperature (LM 35)
- LDR
- Moisture Sensor
- Smoke sensor
- MCP3008 (ADC IC)
- USB Camera
- SD card
- Monitor

Software required

- Raspbarian Jessie

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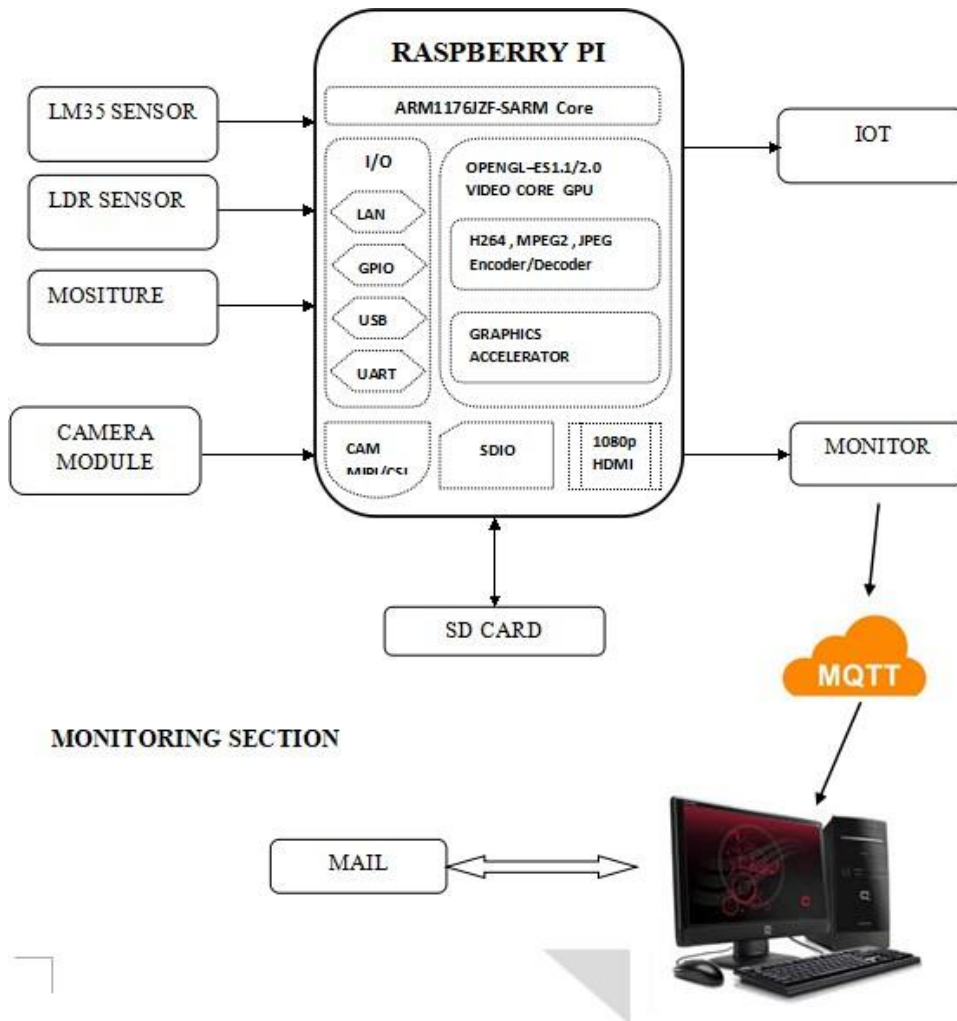
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Block diagram

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Block diagram

- In this work, MCP3008 is used, so connect 3.3v pin from raspberry to all sensors
- Similarly MCP3008 and all sensor's ground pins should be grounded
- Now connect the sensor's output pins to each channel of MCP3008 (ex: LM-35 to channel 0, LDR to channel 1 and Moisture sensor to channel 2 of MCP3008)
- Connect USB camera with raspberry pi
- Connect power supply for Raspberry pi
- Plug the HDMI cable in Raspberry pi from the monitor using VGA to HDMI converter cable
- Connect USB Mouse and USB keyboard to the Raspberry pi
- PHP
- MQTT Protocol
- Language – Linux
- Python

Conclusion

According to this system, irrigation system becomes more autonomous with quick transmission of data by using MQTT protocol. The main advantage in MQTT protocol is, even when clients are not in the node network, data will be sent, whenever a client is connected with that node, they can able to see the data which has been sent already. So that, they can able to analyze the atmospheric change throughout every day.

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4. IoT based Smart Waste Management System using Arduino

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19U41A0413	Mrs. P Amrutha,
19U41A0415	Asst.Professor
19U41A0421	
19U41A0424	
19U41A0426	

ABSTRACT

In this work, a system is introduced to manage waste in big cities effectively without having to monitor the parts 24x7 manually. Here the problem of unorganized and non-systematic waste collection is solved by designing an embedded IoT system that will monitor each dumpster individually for the amount of waste deposited. Here an automated system is provided for segregating wet and dry waste. A mechanical setup can be used for separating the wet and dry waste into separate containers here sensors can be used for separating wet and dry. For detecting the presence of any waste wet or dry can be detected using an IR sensor in the next step for detecting wet waste a moister sensor can be used. In this process, if only IR is detected motor will rotate in the direction of the dry waste container if both the sensor detects the waste then it will go to the wet container. Both these containers are embedded with ultrasonic sensors at the top, the ultrasonic sensor is used for measuring distance. This makes it possible to measure the amount of waste in the containers if one of the containers is full then an alert message will be sent to the corresponding person.

INTRODUCTION

Today big cities around the world are facing a common problem, managing the city waste effectively without making city unclean. Today's waste management systems involve a large number of employees being appointed to attend a certain number of dumpsters this is done every day periodically. This leads to a very inefficient and unclean system in which some dumpsters will be overflowing some dumpsters might not be even half full. This is caused by variation in population density in the city or some other random factor this makes it impossible to determine which part needs immediate attention. Here a waste management system is introduced in which each dumpster is embedded in a monitoring system that will notify the corresponding personal if the dumpster is full. In this system, it is also possible to separate wet and dry waste into two separate containers. This system provides an effective solution to the waste management problem

EXISTING SYSTEM
- Manual systems in which employees clear the dumpsters periodically
- No systematic approach towards clearing the dumpsters
- Unclear about the status of a particular location

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- Employees are unaware of the need for a particular location
- Very less effective in cleaning city

PROPOSED SYSTEM

- In this work, a 24x7 monitoring system is designed for monitoring dumpsters
- Here a smart and organized system is designed for selective clearing
- The ultrasonic sensor is used for measuring the level of waste in the dumpster
- DC motor powered platform is used for segregating wet and dry waste
- IR sensor and moisture sensor is used for separating wet and dry waste
- If either of the containers is full then an alert message is sent from the dumpster
- In turn, employees can clear the corresponding dumpster

- All these sensors are connected to an Arduino UNO board
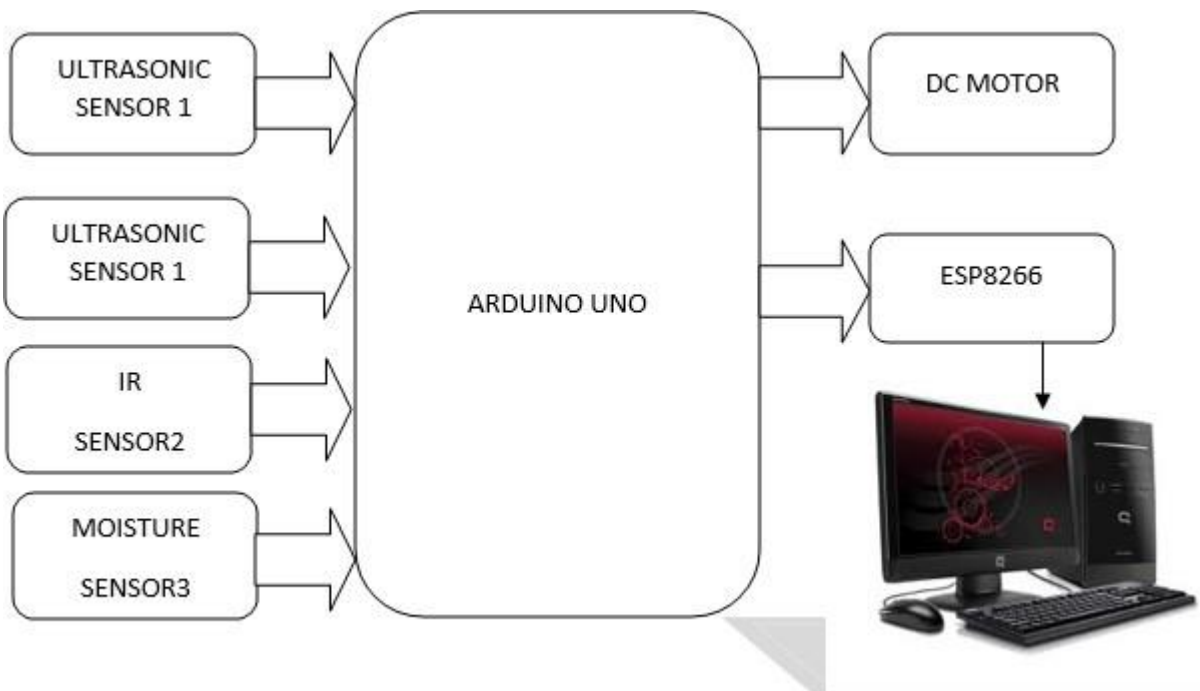- It can be used for controlling all mechanical setup based on current conditions

HARDWARE REQUIREMENTS

- Arduino UNO
- Ultrasonic Sensor
- IR Sensor
- Moisture Sensor
- Dc Motor

SOFTWARE REQUIREMENTS

- Arduino IDE

BLOCK DIAGRAM

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BLOCK DIAGRAM DESCRIPTION

- Ultrasonic sensor Sensors measure distances by using ultrasonic waves. The sensor emits an ultrasonic wave and receives the reflected wave back from the target.
- IR Sensor emits in order to sense some aspects of the surroundings.
- Moisture Sensor measures the volumetric water content in the soil. ... Reflected microwave radiation is affected by the soil moisture and is used for remote sensing hydrology and agriculture.
- DC motor which is connected to the digital pins of Arduino
- Serial monitor for the display

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5. Greenhouse Monitoring and Control System using IOT Project

19U41A0429	Guide Name
19U41A0408	Mr. Jagan Mohan Panigrahi
19U41A0419	Asst.Professor
19U41A0427	
19U41A0431	
19U41A0434	

Abstract

A green house is where plants such as flowers and vegetables are grown. Greenhouses warmup during the day when sun-rays penetrates through it, which heats the plant, soil and structure. Green houses help to protect crops from many diseases, particularly those that are soil borne and splash onto plants in the rain. Greenhouse effect is a natural phenomenon and beneficial to human being. Numerous farmers fail to get good profits from the greenhouse crops for the reason that they can't manage two essential factors, which determines plant growth as well as productivity. Green house temperature should not go below a certain degree, High humidity can result to crop transpiration, condensation of water vapour on various greenhouse surfaces, and water evaporation from the humid soil. To overcome such challenges, this greenhouse monitoring and control system comes to rescue. This Work demonstrates the design and implementation of a various sensors for greenhouse environment monitoring and controlling. This greenhouse control system is powered by Atmega328 microcontroller it consists of temperature sensor, light sensor, soil moisture sensor, LDR sensor, LCD display module, 12v DC fan, Bulb and pump. Temperature sensor senses the level of temperature, if it goes high DC fans gets on and when the temperature goes low the fan gets off. Soil moisture sensor, senses the water level as the level decreases the pumps gets on. In the absence of light, the LDR sensor senses and the bulb start glowing. By this way it will become easy to monitor and control the system.

Hardware Specifications:

- At mega Controller
- WIFI
- Moisture Sensor
- Light Sensor
- Temperature Sensor
- LCD
- DC FAN
- Bulb holder
- AC Pump
- Crystal Oscillator
- Resistors
- Capacitors

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- Transistors
- Cables and Connectors
- Diodes
- PCB and Breadboards
- LED
- Transformer/Adapter
- Push Buttons
- Switch
- IC
- IC Sockets

Software Specifications:

- Python
- MC Programming Language: C
- IOT Gecko

Block Diagram:

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6. IOT Early Flood Detection & Avoidance

19U41A0429	Guide Name
19U41A0408	Mr. R Suneel
19U41A0419	Asst.Professor
19U41A0427	
19U41A0431	
19U41A0434	

Abstract:

"IoT Early Flood Detection & Avoidance System" is an intelligent system which keeps close watch over various natural factors to predict a flood, so one can embrace themselves for caution, to minimise the damage caused by the flood. Natural disasters like a flood can be devastating leading to property damage and loss of lives. To eliminate or lessen the impacts of the flood, the system uses various natural factors to detect flood. The system has a wi-fi connectivity, thus it's collected data can be accessed from anywhere quite easily using IoT.

To detect a flood the system observes various natural factors, which includes humidity, temperature, water level and flow level. To collect data of mentioned natural factors the system consist of different sensors which collects data for individual parameters. For detecting changes in humidity and temperature the system has a DHT11 Digital Temperature Humidity Sensor. It is an advanced sensor module with consists of resistive humidity and temperature detection components. The water level is always under observation by a float sensor, which works by opening and closing circuits (dry contacts) as water levels rise and fall. It normally rest in the closed position, meaning the circuit is incomplete and no electricity is passing through the wires yet. Once the water level drops below a predetermined point, the circuit completes itself and sends electricity through the completed circuit to trigger an alarm. The flow sensor on the system keeps eye on the flow of water.

The water flow sensor consists of a plastic valve body, a water rotor, and a hall-effect sensor. When water flows through the rotor, rotor rolls. Its speed changes with different rate of flow. The system also consists of a HC-SR04 Ultrasonic Range Finder Distance Sensor. The Ultrasonic sensor works on the principle of SONAR and is designed to measure the distance using ultrasonic wave to determine the distance of an object from the sensor. All the sensors are connected to Arduino UNO, which processes and saves data. The system has wi-fi feature, which is useful to access the system and its data over IoT.

Hardware Specifications

- Arduino Uno
- Wifi Module

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- Temperature Humidity Sensor
- Ultrasonic Sensor
- Water Flow Sensor
- Water Level Sensor
- LCD Display
- Resistors
- Capacitors
- Transistors
- Cables and Connectors
- Diodes
- PCB and Breadboards
- LED
- Transformer/Adapter
- Push Buttons
- Switch
- IC
- IC Sockets

Software Specifications

- Arduino Compiler
- MC Programming Language: C
- IOT Gecko

Block Diagram:

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