

Iot Based Garbage Monitoring And Clearance System For Smart City

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Abstract:

The increase in pollution has led to tremendous degradation in the state of affairs of hygiene with respect to waste management system. The spillover of waste in civic areas generates the polluted condition in the neighboring areas. It may aggravate numerous severe diseases for the nearby people. This will humiliate the appraisal of the affected area. For eliminating or mitigating the garbage's and maintains the cleanness, it requires 'smartness based waste management system. This paper is proposed IOT based smart waste clean management system which checks the waste level over the dustbins by using Sensor systems. Once it detected immediately this system altered to concern authorized through RF system. For this system used Microcontroller as an interface between the sensor system and RF system. To monitor and integrate an URL is developed for the desired information which is related to the various level of waste in different locations.

Indexterms : Garbage, Microcontroller, RF system

I. INTRODUCTION

In metropolitan or city areas, the clearance of waste management is one of the challenging tasks for the majority of the country all over the world. There is need of a well-organized waste clearance system is mandatory by keeping green environment. There are many existing expertise mechanism are available for handling as well as managing waste. But, there is a latency for gathering information is a major challenging task. And also Lack of efficient waste management has caused serious environmental problems and cost issues. Therefore, in this project, an IOT-based smart garbage system (SGS) is proposed to manage the amount of waste. In an SGS, battery-based smart garbage bins (SGBs) exchange information with each other using wireless mesh networks, and a router and server is used to collect and analyze the information for service provisioning. The SGS includes various IOT techniques considering user convenience and increases the battery lifetime.

II. LITERATURE SURVEY

The literature surveyed some different papers to get information about the existing work which have been done Sauro Longhi, Davide Marzoni, Emanuele Alidor, Gianluca Di Bu` o, Mario Prist, Massimo Grisostomi and Matteo Pirro [2] proposed, garbage collector supported by using sensor motes which is providing information and status about the bin and also sending the retrieved data through DTN (Data Transfer Nodes). This bin has a custom prototype instead of basic installation of sensor nodes. The whole system is designed for allowing heterogeneous sensor for communication. A wireless sensor network is helped for controlling bin

by gathering data from motes. The limitation here is that the information about the bin is not directly transferred to the server or to the client; it needs to be sent through the Data Transfer Nodes. Shubham Thakker, R. Narayanamoorthi, in this paper, using the Near Infrared Reflectance (NIR) spectroscopy we can identify the type of plastic. The alienated dissipate equipment from MSW (municipal solid waste) can be placed in a needy area. By using a dissenter material which can be mixed into a uniform material. The entire process is repeated every hour. The fermentation mechanism took place in a sealed atmosphere, where bacteria converted into undividable enzymes which results in biogas. Thompson A.F, Afolayan A.H, Ibidunmoye E.O projected work about the internet-based platform for the organization and monitoring of waste collection, discarding and carrying etc. This is comprised of the client, server and storage. The client is the device which can access the pages and forms used by web application e.g. PDAs, phones, laptops etc. the desktop is a program that launches the application and makes it perform over the application.

III. IOT BASED GARBAGE COLLECTOR

In the proposed system, the level of waste in the dustbins is detected with the help of Ultrasonic sensor. Force sensor is used to measure the weight of the dust bin. When the measured value of sensors exceeds then the level of the dustbins will be updated to the webserver through the IOT module.) this information with URL. Android device will detect, in which area dustbin is located, by comparing coordinates and updates the location and inform the respective vehicle to collect the waste. Microcontroller is used to interface the sensor system

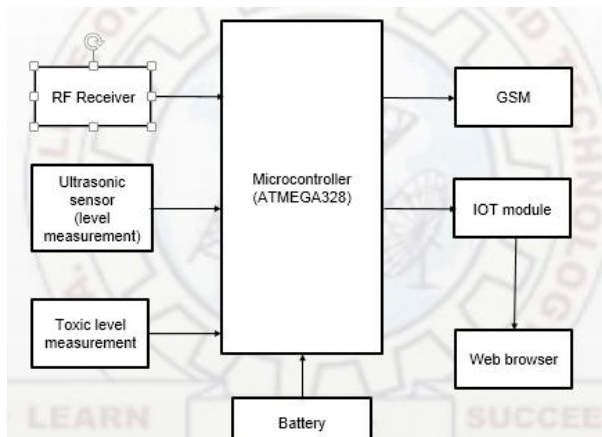
with RF system. This will help in managing the garbage collection efficiently.

IV. IMPLEMENTATION

The system is implemented with the help of different modules which are explained in this section along with code snippets.

A. User

The user opens the application. If he is already a registered member he can login using his Username and password. If he is new user he should click on the New User button on the screen which will take him to the register page. In the registration page the user needs to provide his details and click on the submit button.[7] In the Login page, if the entered data matches with the stored data in the database then Login is successful.



B. Status Indicator

Once the user logs in successfully he would be able to access the information like status and location of the bin. Two LEDs green and red will be placed on the bin. When the bin is filled or if the weight of the waste inside the bin exceeds a threshold value then the red LED is lit up. And the green LED is on when the bin is empty. The overall process information is being displayed on the LCD display.

C. RF Module

The RF module sends a message saying that the dust bin is filled along with the position i.e. A notification will be sent to the user's application receiving which the app gets activated. Hence the waste management can be achieved in an efficient way.

D. Web Server

An android application is used by the user to access the information like latitude, longitude, volume and weight of the bin. This information is also represented on the web server and is stored in the database.



Fig.1



Fig.2

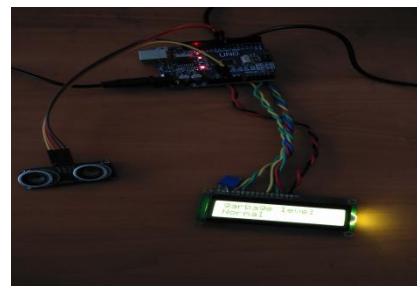


Fig.3

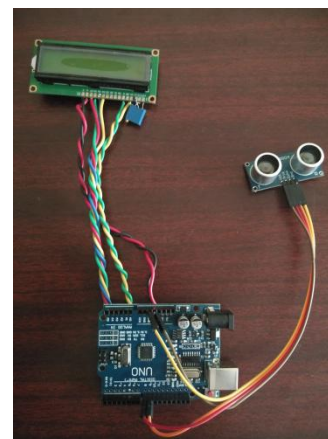


Fig.4

V. CONCLUSION AND FUTURE ENHANCEMENT

In the entire world, waste management is a major challenging one. If it is not properly disposed or cleaned, it causes a lot of diseases and spoils the green environment. There is a need for new

mechanism to properly dispose the waste. In our project, we have developed an efficient waste management system [9]. Technology is been used to provide better garbage disposal methods in urban areas. We have used sensors to indicate if the bins are filled or empty. When filled a truck driver receives a message to clean the bin. This system is eliminating the current day status about the bins which are the most of the time laying in a pathetic situation regarding full of garbage without being cleaned. A web server is also been set up through which the municipal authorities also get information about the bins in their area. This project came in comfortable which a worthy elucidation for maintaining green environment. This model is providing lot opportunity of improvement and future development. In our project, the following enhancements can be made.

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