iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** X **Month of publication:** October 2018

DOI:

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue X, Oct 2018- Available at www.ijraset.com

IOT based Garbage Monitoring System

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Abstract: ***Waste management is one of the primary problems that the world faces irrespective of the case of developed or developing country .The main issue in the waste management is that the garbage bins at the public place get overflowed. This in turns leads to various hazardous diseases. To solve this problem we propose the IOT based garbage monitoring system. This process is aided by the ultrasonic sensor which is interfaced with microcontroller to check the garbage level in the dustbin. It also involves moisture sensor to separate out the dry and wet garbage into the respective dustbin and the data of garbage level will update on the webpage. Thus our system targets two crucial problems that is cost and time efficiency in waste sorting and waste collection.***

Keywords: ATmega328, Webpage, Ultrasonic sensor, IOT.

I. INTRODUCTION

The basic idea of the project is to design a smart garbage monitoring system in which it will automatically give the information about the level in dustbins to the municipal corporation using webpage. In this project we are separating the dry and wet garbage into two different dustbins using a DC motor. The level of the garbage filled in the dustbin will be sensed by ultrasonic sensor and upload the garbage level information on the webpage, from where municipal-corporation can easily access the information. Thus, it will help the municipal corporation in reducing cost related to the waste collection by sorting system. It will also help to save the time of the municipal corporation of personally visiting to each and every dustbin. Also it avoids the overflow of the dustbins which in turns help in maintaining a clean and healthy environment and prevents the various hazards like bacterial growth, unhealthy surrounding and bad odor.

II. LITERATURE SURVEY

1) Title: Location Based Garbage Management System with IoT for Smart City.

a) Author: Shashika Lokuliyana, Anuradha Jayakody, G.S.B. Dabarera, R.K.R. Ranaweera, P.G.D.M.Perera. **Abstract:** This paper proposes a cost-effective IOT based system for the government to utilize availableresources to efficiently manage the overwhelming amounts of garbage collected each day, while also providing a better solution for the inconvenience of garbage disposal for the citizens. This is done by a network of smart bins which integrates cloud-based techniques to monitor and analyze data collected to provide predictive routes generated through algorithms for garbage trucks. An android app is developed for the workforce and the citizens, which primarily provides the generated routes for the workforce and finds the nearest available smart bin for citizens. [1][2]

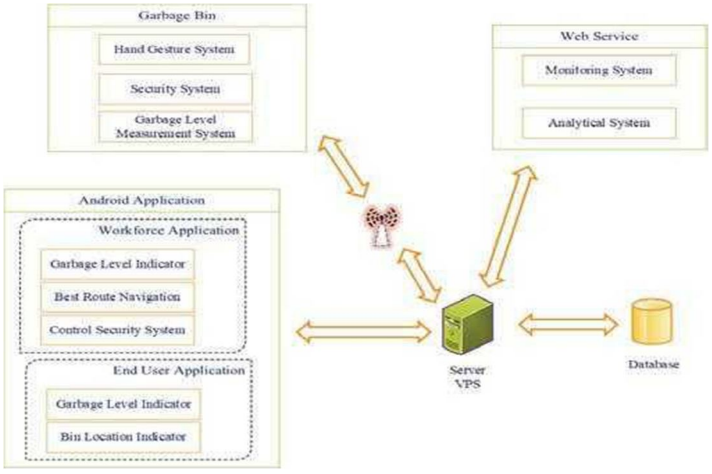

Figure: System Overview

2) Title: Automation of smart waste management using IOTto support "swachh bharat abhiyan"

a) .Author: Bharadwaj B,M Kumudha, Gowri Chandra N, Chaithra

b) Abstract: By using IoT monitoring and controlling of components were clearly discussed in whichsensors will play an important role. Using ultrasonic sensor level and weight of garbage is detected and information is send to the corresponding authority. Ultrasonic sensor is fixed on the bin to display the weight and garbage level. These garbage bins contain lids it will close automatically if there is 80% garbage in it and automatic rotation of the conveyor belt is performed. If in other cases, the operation is done by switching the switches & the other in each floor. When the operated bin reaches the ground floor, then the waste is dumped in the underground bin.

If the conveyor belt rotates for one cycle the information or the database of the dustbin is made enabled to the people to Use the mobile communication network, the signals are sent to a web-based software application which is viewed by waste management company.

In this paper they have used radio frequency transmitter & receiver, to communicate between the micro-controller and switching buttons. LCD is used for displaying the status of the garbage. [3][4]

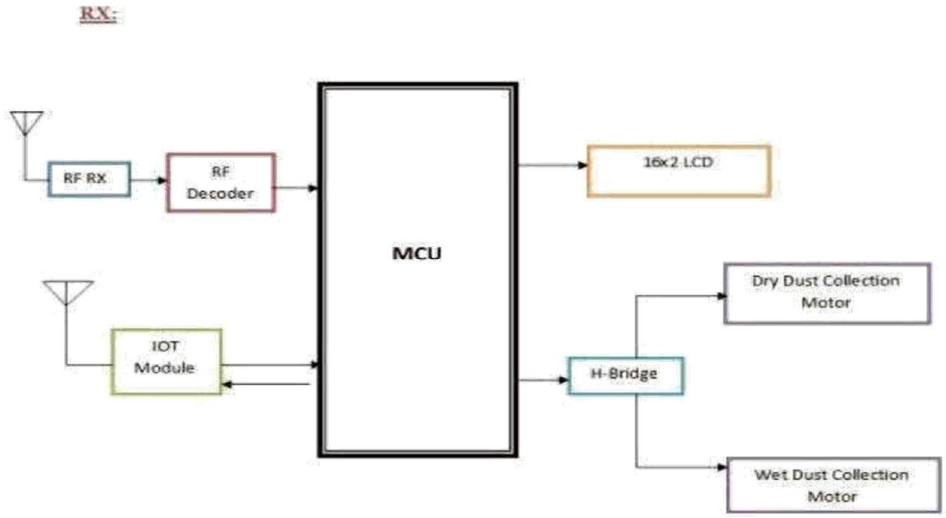

Figure: Block Diagram

3) Title: Smart Garbage Monitoring and Clearance System using IoT.

a) Author: S. Vinoth Kumar, T. Senthil Kumaran, A. Krishna Kumar Mahantesh Mathapati.

b) Abstract: In urban areas, the clearance of waste management is one of the challenging tasks for themajority of the country all over the world. It is important to organize the waste properly to keep green environment. There is lacking for gathering information which is a major challenging task. This will affect the fast national growth rate in dense suburban area and also it is increasing demand for urban ecological protection. So it is important to create a prototype because the lack of coordination among government, people and local authority for shipping and processing waste. In this system, garbage level in the dustbins is detected by the Ultrasonic sensor. Force sensor is used to measure the weight of the dustbin. When the garbage level exceeds a certain value then red led becomes ON. Through GPS the location of the filled dustbin is send to the android device using GSM. GSM system is interfaced with sensor by Microcontroller. This project will help the people which can confine extra information from different places which is used for increasing effectiveness and recuperating protection and defence.[5][6]

4) Title: IoT Based Smart Garbage alert system.

a) Author: Dr. N. Satish kumar, B. Vijayalakshmi, R. Jenifer Prathana.

b) Abstract: Nowday's waste management is one of the primary problem that the world faces irrespectiveof the case of developed or developing country**.** Environmental pollution may be caused due to the Municipal Solid Leftovers. So the proper maintainance is required for an efficient and effective removal of the generated Municipal Solid Left-over .The main purpose of the system is to create a smart garbage which regularly monitors the garbage level and make the garbage collecting process efficient providing a clean surrounding. This project proposes an e-monitoring system that putforths an embedded system and web based software assimilated with RFID and IoT technology. Using this system, monitoring of the waste collection status could be maintained effectively. This system regularly checks the level of garbage in the dustbin which prevents the overflow

of the bin. Also it alerts the respective authority to collect garbage from the filled up dustbins. The level of the garbage in the dustbin height could be sensed/ monitored by the ultrasonic sensor. The programming is done in such a way that in the Arduino UNO once a particular level is sensed message is sent to request a clean-up.[7][8]

III. CONCLUSION

IOT Based Garbage Monitoring System pays a lot towards clean and disinfected pollution less environment in building smart city. This is an automatic dust bin monitoring system in order to sense the full condition of the garbage bins. It provides the updates of the garbage bins to the authorized users and thus eliminates the need of intermittent manual checks and overflowing garbage bins. This will help in keeping the environment clean. Thus, the garbage collection is made more efficient, effective and operative.

IV. ACKNOWLEDGEMENT

This research was supported by DY Patil Institute of Engineering Mgmt. and Research, Akurdi. We are thankful to our HOD Priya Charles for assistance. We would like to extend my sincere gratitude and thankful to our guide Asst. Prof. Mr. M.H. Thigale who provided expertise that greatly assists the research.

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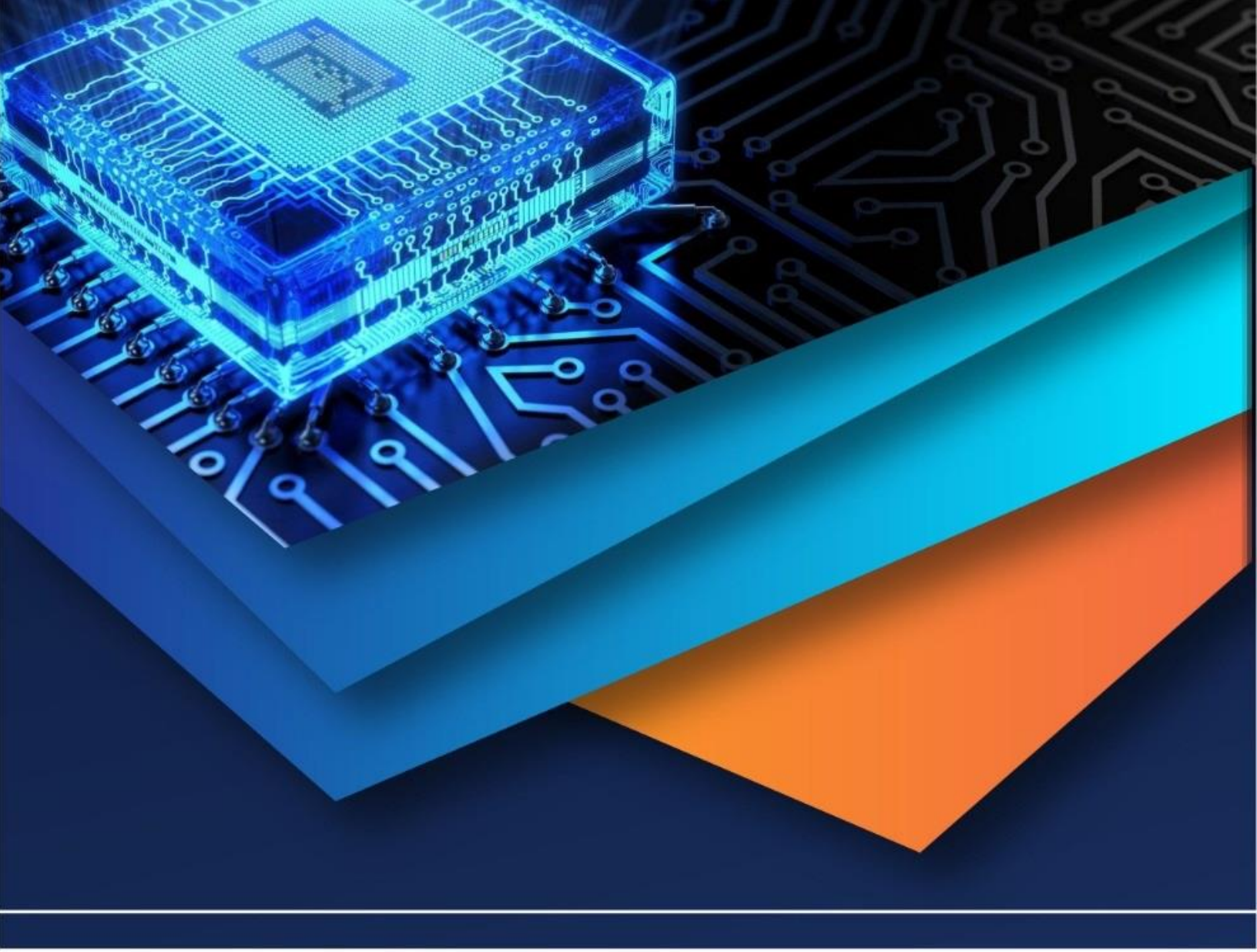

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