

Smart Dustbins with GSM and ARDUINO Module

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Abstract: - Everywhere people are investigating on different aspects in several fields for making smart cities to enhance civilization and human comfort. This paper presents some basic ideas on smart dustbin which can be helpful to reduce human effort to make waste management more efficient. It will sense that dustbin is full or empty and will instruct to dump the garbage by for sending messages by Gsm and arduino module controls.

Keywords - Smart dustbin, GSM, arduino module, waste management.

I. INTRODUCTION

“ENVIRONMENT” is essential for everyone and present everywhere, that supply all natural needs in an abundant manner but also we have some responsibilities towards our environment. In several urban areas although the dustbins are provided so that it can be used by the people but its proper maintenance is also needed lacking of which inhygeine increases destroying our environment day by day also resulting severe adverse effects for mankind . This paper presents some revolutionary remedies in this context. People are more interested to use such technologies which can reduce their time and effort in efficient manner. Automation is the most demandable feature now a day. For this purpose smart dustbins are the much suitable approach. It will be helpful to develop green and smart city. [1]. For this we have to develop a fully automatic dustbin which will first be able to detect the current status and connected to local area network and servers by sending the data to computer system about its current status..

II. EXPERIMENTAL DETAILS

A. smart dustbin

We have developed a dustbin which is advance and we call it smart dustbin. GSM AND ARDUINO MODULE is used with it. This is done by the process flow of sensing, data transfer and messaging which make the dustbin able to sense to be open automatically as we come near to this and we get the display message on LCD screen that the dustbin is full, dump the garbage and At the same time it is connected to the servers and GSM system which send the information about the status of dustbin that either it is full or empty [2],[3],[4]. This whole process is controlled by the ARDUINO platform.

B. Description of key components

ARDUINO an open source kit is the key component of smart dustbin which provides complete hardware and software platform powered by c++ language. The programming module controls the command section and data transfer flow by the set of AVR microcontrollers which are one of widely used microcontrollers in the field of embedded system as well as in ARDUINO, much capable to have controlled LCD support as well as controlled USB support.



Fig 1. ARDUINO kit

GSM kit i.e. sim 900A module, is quad band modem suitable for voice ,message and data transfer used here so that messages could be sent to cell phones with standardized protocols for wide applications in cellular communication.



Fig 2. The GSM kit

Electronic sensors used here, are the integral part of the smart dustbin which is basically the PIR based motion detector, the passive infrared sensors well suited for sensing living being, by especially detecting the motion of the human near it by focusing the infrared radiation interacting the surface of the sensor. It has extended area of security applications.



Fig 3 PIR sensor

III. EXPERIMENTED RESULTS



Fig 4 A prototype model of smart dustbin

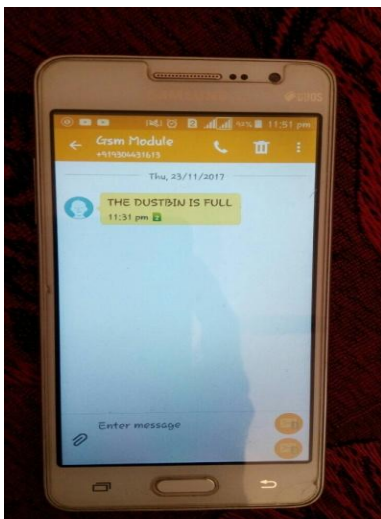


Fig 5 message displayed on cell phone

IV. CONCLUSION

World is changing very fast from launching satellite to space, our technology has reached to 5G but we have forget our home planet earth. In this paper we have investigated some of the automated and economical approaches based on programming module are much efficient to protect the environment from pollution inhygeine and also holds agreement to develop smart and green city .so smart dustbins are well suited as an important part in smart cities are. Otherwise days are not so far we have to take oxygen kit and go outside because no fresh air is left. So we have come with such an eco friendly hi tech prototype to save earth and existence of human in it

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REFERENCES

- [1]. Advanced Dustbin System by abid khan,neju prince in international journal in computer science,engineering and information technology 2017 IJSCSEIT/VOLUME2/ISSUE1/ISSN-2456-3307
- [2]. Gsm Based Automated Embedded system for Monnitoring and Controlling of substation ,amit sachan,M.tech.thesis ,page no. 7-9 june 2012
- [3]. krutika agrwal,"Intractive dustbin'',international journal of engineering and computer science ISSN:22319-7242, volume4, issue 8,aug2015,page no.13819-13821
- [4]. Suchi gupta,Krishna Mohan, Raj kumar Prasad,sujata gupta, arun kansal, "solid waste Management In India :option and opportunities in Resources, conservation and opportunities in resource,Conservation opportunities in resource,Conservation and Oppurtunties