# SMART WASTE MANAGEMENT SYSTEM BY USING IOT

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**1.ABSTRACT:**-In this project an efficient smart waste management system for IOT applications. Basically, Smart waste management and monitoring system plays very important role in present generation.Firstly, when the waste is reached up to 70% then I.R Sensor-1 will be detected and sends an SMS to the corresponding officer of that street. In the same way, when the waste is reached above 95% then I.R Sensor-2 will be detected and sends an SMS to the corresponding officer of that street and gives buzzer indication also. Hence this project detects fast and gives effective outcome.

KEY WORDS:-Arduino,Crystal Oscillator,Buzzer,RS232,GSM

2.INTRODUCTION:-In India, improper garbage management has posed severe problems that results from moderate to severe health risk. With increase in the population and demand for food and other stuff, there has been enlargement in amount of waste generated. This garbage is collected by the area municipalities for disposal. further Generally, garbage collection vehicles have particular schedule of collecting the garbage from bins.

3.**WORKING PRINCIPLE**:-when the garbage is filling with waste and other wet wastes.Firstly, when the waste in the garbage is reached up to 70% then I.R

Sensor-1 will be detected and sends an SMS to the corresponding officer of that street. In the same way, when the waste in the garbage is reached above 95% then I.R Sensor-2 will be detected and sends an SMS to the corresponding officer of that street and gives buzzer indication also.

#### 4.BLOCK DIAGRAM:-



### 5.HARDWARE REQUIREMENTS:-

**i.ARDUINO:-** The Arduino Uno is a microcontroller board based on the ATmega328.It has 14 digital input/output pins (of which 6 can be used as PWM

outputs),6 analog inputs,a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button

**ii.GPS MODULE**:- GPS modules contain tiny processors and antennas that directly receive

data sent by satellites through dedicated RF frequencies. From there, it'll receive time stamp from each visible satellites, along with other pieces of data.

**iii.GSM MODULE**:- Global System for Mobile Communications(GSM) modems are specialized types of modems that operate over subscription based wireless networks, similar to a mobile phone.This is used send the message.





ii.GPS Module



### iii.GSM Module

**iv. IR SENSOR**:- 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.

**V. BUZZER:**- A buzzer or beeper is an audio signalling device, which may be mechanical, Electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

**Vi.CRYSTAL OSCILLATOR**:- An electronic circiut that is used to generate an electrical signal of Precise frequency by utilizing the vibrating crystal's mechanical resonance made of piezoelectric material there are different types of piezoelectric resonators, but typically,

Quartz crystal is used in these types of oscillators.



iv.IR Sensor







## vi.CRYSTAL Oscillator

### Vii. LCD Display:-

- ➢ Operating Voltage is 4.5V to 5.2V
- Current consumption is 1mA without backlight



Vii. LCD Display(16\*2)

### 6.SOFTWARE REQUIREMENTS:-

**i.ARDUINO IDE**:- It is a type of software in which we write (or) edit code in order to make it work for different tasks (or) ways. The open-source arduino software(IDE) makes it easy to write code and upload to the board. This software can be used with any arduino board.

**ii.BLYNK LIBRARY**:- It is type of library which consists of shortcut keys

which are used while writing codes to make changes in the circuit in order to make it work for different purposes.

**iii.ESP8266 LINK**:- It is low-cost Wi-Fi module that belongs to ESP's family. It provides Wi-Fi connection for external devices like phones, computers, tablets etc.

## 7.RESULTS:-



### **DEVELOPED PROJECT**



### **MESSAGE OUTPUT**

8.**CONCLUSION**:- The main aim of this paper is to protect environment and



humans health from improper disposal and improper maintenance of domestic waste. It is helpful to collect dumped waste in specific time. This is mainly used in several areas such as industries, hospitals, municipalities. this paper is used to keep the environment clean.

9.FUTURE SCOPE:- The authors are continuously working upgrade the smart dustbin.To rectify current shortcoming problems. the problems are bad odour smell of dumped waste and manual controlled mobility calls for the future scope which includes to get rid of foul smell garbage.It is also implemented by using raspberry pi.

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