

# Smart Waste Bin for the Effective Solid Waste Management in the Urban & Smart Cities

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**Abstract:** *In our daily life, we see the pictures of garbage bins being overfull and all the garbage spills out resulting in pollution. This also increases number of diseases as large number of insects and mosquitoes breed on it. Hence our problem statement is to design a System Based on Arduino Uno microcontroller for collecting the garbage from a particular area – the area whose public Garbage Bins are overflowing with prior concern. A big Challenge in the urban cities is Solid waste management. Not only in India, but for most of the countries in the world, the project gives us one of the most efficient ways to keep our environment clean and green.*

**Keywords:** *Pollution; Garbage bins; Microcontroller; Solid waste management; Clean and green.*

## I. INTRODUCTION

Global System for Mobile Communication (GSM) is the latest trend. To give a brief description of the project, the sensors are placed in the common garbage bins placed at the public places. When the garbage reaches the level of the sensor, then that indication will be given to a microcontroller. The controller will give indication to the municipality as to which garbage bin is completely filled and needs urgent attention. Arduino Uno microcontroller will give indication by sending SMS using GSM technology.

## II. PROPOSED SYSTEM

In this project work, a microcontroller based monitoring gadget is built & placed in every dust bin. The gadgets at the dust bin will be interfaced with sensors to monitor weight of the dust bin, to monitor whether dust bin is filled or not & to sense hazardous biodegraders.

Once any of this sensor alarms the critical conditions like over weights, overflow or biodegradation, the microcontroller unit in the transmitter system will send the information to the office display board and also message to the preloaded call number. The message sent will be displayed at the transmitter unit.

The receiver unit at the maintenance office of the help line will receive the information from transmitting unit and displays the information on the display unit. The displayed information will contain the ward number or

street number, dust bin as unweight, overflow or biodegrading.

The concerned authorities can take necessary action and dispose the waste. Once the waste is cleared, the display at the help line office will clear the information & messages will be sent to the concerned authorities.

## III. EXISTING SYSTEM

In the above project they are failing of controller i.e., they are using 89v51 Philips microcontroller hence it has low memory and less speed of execution and also having complexity of circuit.

In our project we are using Arduino Uno microcontroller hence the disadvantages of microcontroller are overcome.

Using Global System for Mobile Communication (GSM) is the latest trend it is one of the main theme of our project. To give a brief description of the project, the sensors are placed in the common garbage bins placed at the public places. When the garbage reaches the level, weighs more and any kind of bad smell then the sensors sense and the data will be given to Arduino Uno microcontroller. The controller will give indication to the municipality in which area and which garbage bin is completely filled and needs urgent attention. Arduino Uno microcontroller will give indication by sending SMS using GSM technology.

## IV. METHODS

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## V. BLOCK DIAGRAM

The main blocks of this block diagram are:

- Power system

- Sensors
- Arduino Uno microcontroller
- GSM module

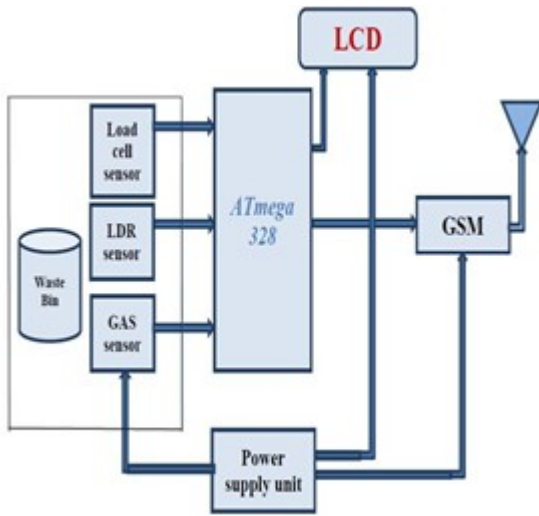


Fig 1. Block Diagram of the System

#### VI. SNAPSHOTS



Fig 2. System



Fig 3. System showing OVERLOAD



Fig 4. Received Message

#### VII. CONCLUSION

Public health is an important & foremost priority issues in the govt. Policies. As city grows, domestic wastage management will gain top priority. Improper disposal & maintenance of the domestic waste creates public health problem & environmental pollution.

This project attempts to give practical solutions through the electronics and communication engineering techniques to help the local administration in waste management system i.e., monitoring of domestic wastage clearance at appropriate time to avoid damage to the public Health.

OUR MOTTO IS “KEEP INDIA CLEAN”.

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