

# **IOT BASED WASTE MANAGEMENT FOR SMART CITY**

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**ABSTRACT:** In the present days, the dustbins which are located through the cities, hospital areas, industrial areas and campuses are overflowing due to increase dust present in the dustbin. This may lead to dangerous diseases which may cause human illness. So we have implemented the project based on IOT(Internet Of Things).In this project we have used multiple dustbins which are interfaced with the IR sensor and each IR sensor is given a unique ID. With the help of that ID we can find out which dustbin has been filled and we can display filled dustbin on the web browser.

**KEYWORDS:** ARM 7 Processor , RF module, IR Sensors, RF Transmitters, ESP8266(WI-FI Module), RF Receiver.

## **I. INTRODUCTION**

In our system, the Smart dust bins are connected to the internet to get the real time information of the smart dustbins. In the recent years, there was a rapid growth in population which leads to more waste disposal. So a proper waste management system is necessary to avoid spreading some deadly diseases. Managing the smart bins by monitoring the status of it and accordingly taking the decision.

This IOT based waste management is very useful for smart cities in different aspects. We have seen that, in cities there are different dustbins located in the different areas and dustbins get over flown many times and the concerned people do not get information about this. Our system is designed to solve this issue and will provide complete details of the dustbin located in the different areas throughout the city. The concerned authority can access the information from anywhere and anytime to get the details. Accordingly they can take the decision on this immediately.

## **II. LITERATURE REVIEW-**

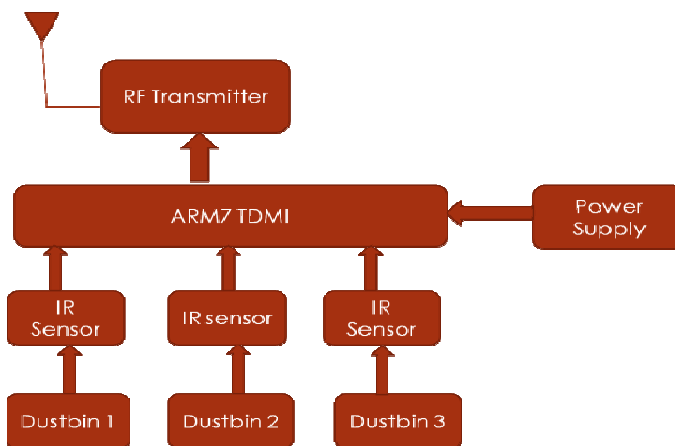
Literature gives the brief idea about the technology developed over the system. With the introduction of the internet of things, the research and implementation of waste management are getting more popular.

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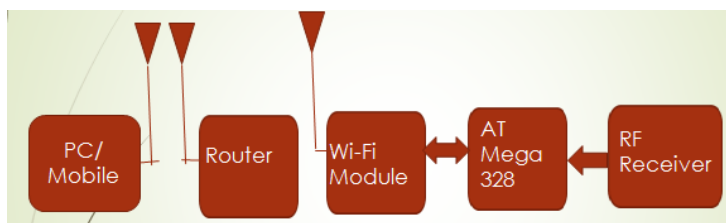
## **III. WORKING PRINCIPLE-SYSTEM IMPLEMENTATION-BLOCK DIAGRAM**

The Block diagram shows the different component used in the Smart Dust bin System. IR Sensor, ARM7 Processor, Power Supply, RF Transmitter, RF Receiver, ESP8266 wifi module and the web browser.

The project module is divided into two parts Transmitter section and receiver section. Here in the transmitter section we are using ARM7 Processor, RF Transmitter and sensors these are attached to the dustbin. Where sensor are used to detect the level in the dustbin whether the dustbin is full or empty. The sensor senses the content of the dustbin and sends the signals or the data to the ARM7 Processor and ARM7 Processor reads the data from the sensor and process the data received from sensor, and the same data wirelessly transmitted to the Central system (ESP 8266 wifi module) using RF Transmitter. RF Transmitter is to transmit the signal form ARM7 Processor to the ESP 8266 wifi module.



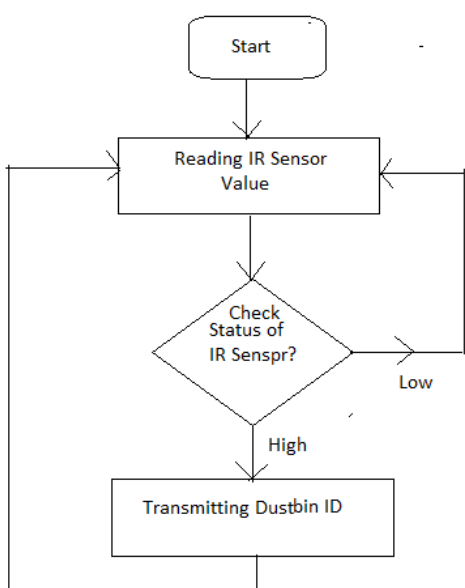
**Fig1-block diagram of transmitter**



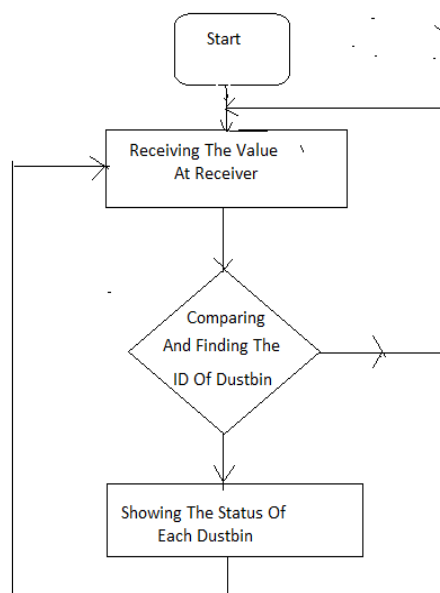
**Fig2-Block diagram of Receiver**

The other section is receiver section in which RF Receiver, AT mega 328, wifi module and Web Browser is used. Here RF Receiver is used to receive the data sent by RF transmitter to the AT mega 328. The AT mega 328 is used to receive the data sent by the multiple transmitters and process the data And the same data transmitted to the Web Browser.

**SYSTEM IMPLEMENTATION-FLOWCHART:-**



**Fig3-Flowchart of Transmitter**



**Fig4-Flowchart of Receiver**

**IV. ADVANTAGES-**

1. Avoids the overflow of the dustbin.
2. Reduces traffic noise.
3. Improves Environment quality
  - Fewer smells
  - Cleaner cities
4. Intelligent management of the services in the city.
5. Effective usage of dustbins.

**V. APPLICATIONS-**

1. This application can be used in the Hospital areas, Campuses, Industrial areas and cities.

**VI. CONCLUSION-**

We have implemented “IOT based waste management for smart city”, in this proposed work by using the dustbins connected with IR sensors can detect which dustbin is filled or not and the concerned people may collect the dust from the dustbin if the dustbin shows status as filled. This project reduces traffic as well as noise this means in the present days the concerned people send vehicles to collect the dustbin which causes traffic and noise by honking all day. This may be reduced by using this project.

**ACKNOWLEDGEMENT**

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