

Smart Garbage Collection Indicator

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Abstract— In many crowded cities we see that many times dustbins placed at public places are overflowing. It creates unhealthy conditions for people. Also it creates unattractiveness to that place. At the same time bad odor is also spread. To stay away from all such situations we are going to implement a project called Smart Garbage collection indicator using sonar and GSM technology. In these dustbin are interfaced with microcontroller based system having GSM wireless system. These dustbins are interfaced with the central System showing status of garbage in Dustbins on LCD. If the dustbin are filled with garbage the status will be display on screen. If the dustbins are not cleaned in particular predetermined time then SMS will be send to the person informing that dustbin are not cleaned yet. The same SMS will be send to the contractor who is responsible for the cleanliness. Hence an automatic system can be designed with the help of electronics and wireless system such as GSM to maintain our city clean. In this project windowing mechanism is also used. Two separate dustbins are provided to collect dry and wet garbage separately with each having separate windows on the top. If dry garbage is thrown in thrown in dry dustbin window will open and garbage will fall in dry dustbin. If reverse case occurs that means if wet garbage is thrown in dry dustbin then window will not open and buzzer will get started. Logic probes are used to detect the status of garbage either it is wet or dry. Buzzer is provided so that the person can understand that he has thrown garbage in wrong dustbin.

Keywords— Sonarsensor, Microcontroller, GSM, Logic probes.

I. INTRODUCTION

The worldwide truth is that wastage of anything is dangerous for the human beings as well as other living world. Still there is a wastage of minerals, water, natural oils in our day to day life. The increasing level of pollution distracts the natural things. There are number of sources from which garbage is generated in numerous types and in tremendous amount. Garbage management is very critical task as it includes assorting of garbage, transportation of garbage, processing of garbage, reusing of garbage or eliminating and monitoring garbage material. In Indian countries garbage processing and management is not efficient as compared to other countries. Indian Government struggling to manage and process the all type of garbage. Lack of garbage management is answerable for the earning of garbage at public places and all spots. Due to these improper facilities, Municipal Garbage management is becoming complicated.

II. LITERATURE SURVEY

In the last few years there is a tremendous growth in the rate of population. Therefore there is a need of economical urban development plans. With the help of new emerging technologies and vital approach smart and clean cities are developing all over the world. The primary objective of smart city concept is that there is smart management of garbage. This paper represents the application of proposed model of smart garbage management which is based on internet of things[1]. For the effective garbage management there should be separate sections for dry and wet garbage management facilities are not effective in India. There is no governmental efforts for management and processing plan to segregation hence lot of human efforts are needed[2]. If there is a system that can monitor dustbin level in real time, the collection process can be improved[3].

III. BLOCK DIAGRAM

Container unit:

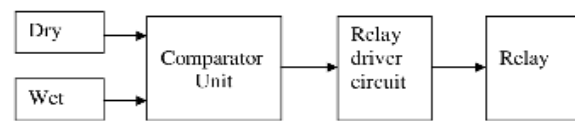


Fig.:3.1 Society Unit for Collecting Wet and Dry Garbage Separately.

Society Unit:

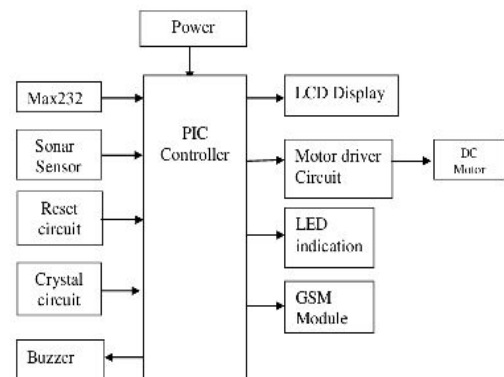


Fig.:3.2 Level Detection & Transmitter Section

GSM:

GSM stands for global system for mobile communication. It is a global standard for digital cellular communication. It is established in 1982. It requires SIM (subscriber identity module). In this project GSM is used for sending the information about garbage level.

PIC
Microcontroller:

It is central controlling unit. It is a small computer having simple CPU memory, timers, counters, clocks, I/O ports etc. Sonar sensor, LCD display, GSM are interfaced with PIC microcontroller. PIC requires clock pulse for its processing.

Ultrasonic
Sensor:

It is used to detect garbage level in container. It is mostly used for detecting motion in free space. Sensor sends a high frequency sound pulse of 40KHz and then measure the time how long it takes for the echo of the sound to return back.

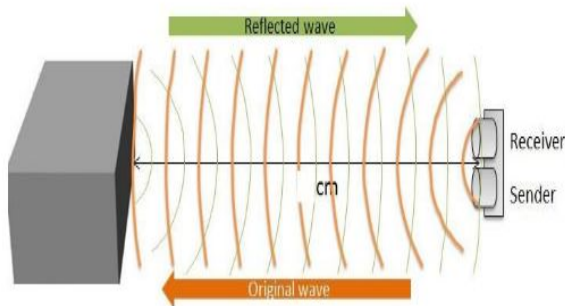
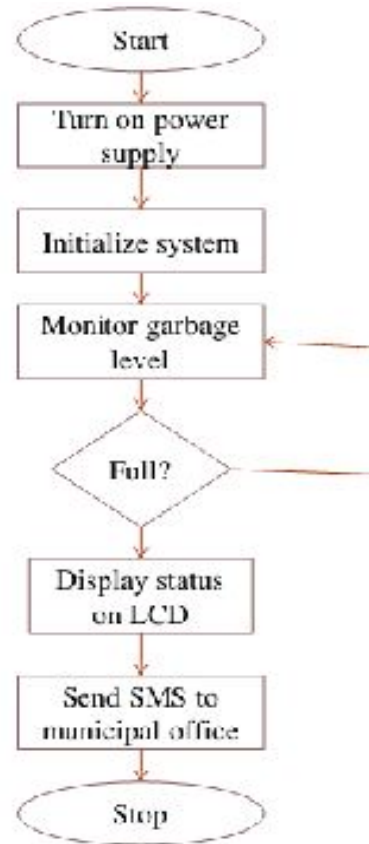


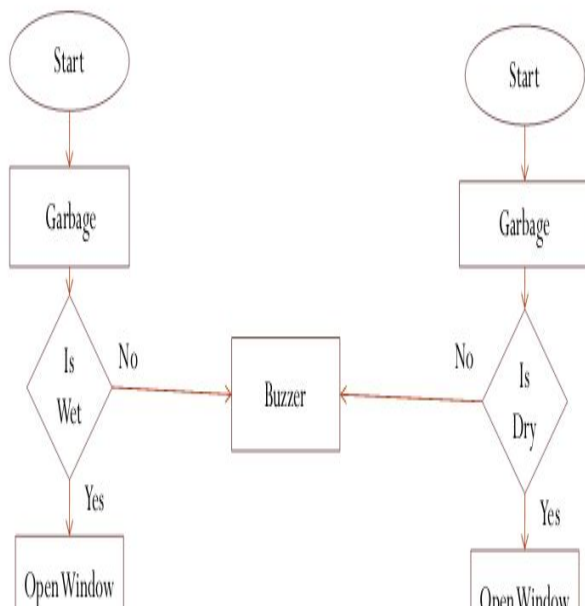
Fig.:3.6 Operating principle of ultrasonic sensor

IV .FLOWCHART

Container unit



Society unit



V.CONCLUSION

Implementation of managing the garbage uses sonar sensor and GSM technology. By implementation of this concept there is reduction in unhygienic conditions. Garbage managing system and facility of collecting garbage presently does not fit to current requirement. Hence the better facility for collecting garbage and transportation should be provided. This can be achieved by implementing this project.

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