

City Garbage Collection Indicator Using Wireless Communication

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ABSTRACT

We see a present day; many times Dustbin is placed near public places in the cities/villages are filled due to increase in the waste every day. so efficient method to dispose of the waste has been designed with GSM system. If the disposal of waste is not properly done it creates the unhygienic condition for the people and it creates ugliness to that place. At the same time, the bad smell has also spread this leads to causes some deadly diseases & human illness, to avoid such a situation we are planning to design. In this proposed designed System there are multiple dustbins located throughout the city, these dustbins are provided with an ultrasonic sensor which helps in the level of the garbage bins and a so that it is easy to identify which garbage bin is full. When the level reaches the Maximum limit, the ultrasonic device will transmit the level along with the percentage of dustbin these details can be accessed by the concern authorities from their place with the help of GSM Modem and an immediate action can be made to clean the dustbins.

Keywords: Microcontroller, LCD, GSM, GPS.

I. INTRODUCTION

With the increase in population, the scenario of cleanliness with respect to garbage management is degrading tremendously. The overflow of garbage in public areas creates the unhygienic conditions in the nearby surrounding. In our city, we see the garbage bins or dustbins placed in places overflowing. It creates unhygienic conditions and may provoke several diseases to the surrounding people. Generally, we see that they have a regular schedule of picking up these garbage bins or dustbins. This schedule varies as per the population of that place. It can be once in a day or twice in a day or in some cases once in two days. However, we see that in case there is some festival or some function, lots of garbage material is generated by people in a particular area. To avoid all such situations, we are going to implement this project.

II. LITERATURE SURVEY

[1] Kanchan Mahajan, Prof .J.S.Chitode Department of Electronics Engineering, Bharati Vidyapeeth College of Engineering, Pune, It is proposed in this paper that India Waste Bin Monitoring System Using Integrated Technologies such as Zigbee & GSM. The sensor is placed in garbage bins placed in public places. when the garbage reaches the level of the sensor then the indication will be given to ARM7 controller.

[2] Silumin Fan Minghua Zhu, Xi Zhang, Qichang He, Alberto Rovetta. In this paper, we consider energy utilization and provide a new method for municipal solid waste. It cares about waste weight, volume, and content. It is based on GIS (Geographic information system) technology and intelligent sensors. This system can monitor waste information real time and optimize work plan effectively.

[3] Narendra Kumar G., Chandrika Swamy, and K. N. Nagadarshini. It proposes a system in which dynamic routing of GCV (Garbage collecting vehicle) is more effective when more than one dustbin fills up at the same time. The real-time monitoring with the help of sensors and wireless communications is used for planning optimal routes. It is based on available travel time information, indicating prevention of garbage overflow on road at right time.

III. BLOCK DIAGRAM

Figure 3 represents the block diagram of the proposed system. The pH sensor detects the acidic content of the material and used to detect the type of the material whether it is degradable or non-degradable material. The waste is separated by a conveyor mechanism. After detecting the nature of the material then it is made to pass through the conveyor belt. The conveyor model has a pneumatic which helps in pushing the material into the degradable or non-degradable bin. When the PH value range is below the threshold the waste is pushed into a non-degradable bin. When the PH value is greater than the threshold the waste is pushed into the degradable bin. This mechanism is thus done through the conveyor belt. The IR sensor detects the level of the garage to check the overflow condition of the garbage. IR sensor emits the light, which is invisible to the naked eye but the electronic components can detect it. The IR Sensor-Single is a general purpose proximity sensor. It is used for collision detection. The module consists of an IR emitter and IR receiver pair. The high precision IR receiver always detects the IR signal. An LED is present on the IR sensor board. It is used to indicate the presence or absence of an object. The garbage level reaches the threshold value the LED will be on. IR sensors are highly sensitive to surrounding lights. Hence, these sensors are covered properly in order to reduce the light effect on the sensor. The LCD display is used to display the overflow of garbage in the bin .If the level of IR

sensor reaches the threshold level the garbage overloaded message will be sent to the authorized person via GSM.

If in case of fire inside the collection bin then buzzer will be automatically on. It will intimate the person about the fire occurrence in the garbage. GSM modem mainly consists of the antenna for wireless communication, SIM holder, and the communication port, ON or OFF switches and power supply. A GSM modem is connected to the computer via serial or USB cable. The advantage of connecting is it provides a mobile network to the computer to transfer and exchange information with modems. Meanwhile, it provides mobile internet connectivity and also used for forwarding the SMS and MMS messages. A UART, universal asynchronous receiver transmitter is responsible for performing the main task in serial communications with computers. The device changes incoming parallel information to serial data which can be sent on a communication line. Radio-frequency identification (RF-ID) is the wireless non-contact use of radio-frequency electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The RFID card is used by the worker to clear the garbage and to make the record of clearance of garbage.

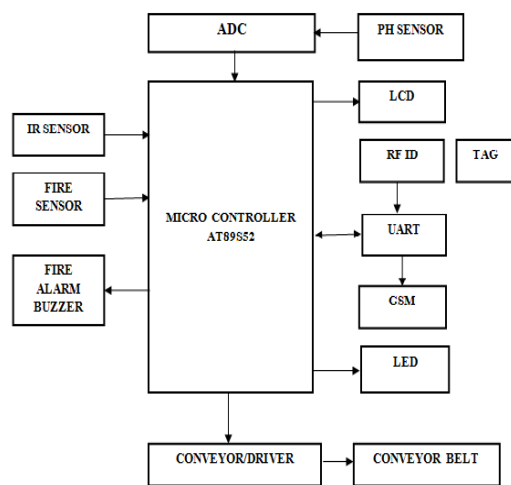


Figure 1. block diagram of proposed system

IV. RESULTS AND DISCUSSION

VI. REFERENCES

The disposal of garbage is done efficiently in this system. The IR sensor measures the level of the garbage. Once the threshold level is reached it will immediately send message to the authorized person. Once the waste is thrown it is immediately send message that the dustbin is started to collect the waste. The message started message is sent to the person through GSM. In this each garbage can will be allocated with the mobile number such that the message will be sent to the authorized person via GSM. Once the threshold level is reached it will immediately send message to the authorized person that the garbage level is overloaded.

V. CONCLUSION

In this paper, we propose a new solution to enhance waste collection efficiently using the RFID technology and sensor systems. In this, proposed system the garbage can be cleared and the overflow of garbage can be managed efficiently.. This system can also avoid fire accidents in the garbage cans with the help of fire sensor. This will intimate or send SMS to the authorized person through GSM. It can also indicate degradable and non-degradable waste with the help of PH sensor. This method helps in keeping the waste bin clean when the bin is completely filled and separate them using conveyor model mechanism. The garbage managing system and the facility of collecting the garbage presently doesn't fit to the current requirement. Hence better facility of collecting garbage and transportation should be provided. Since, this system provides the information when the bin gets completely filled with garbage, it reduces the number of times the arrival of vehicle which collects the garbage. This method finally helps in keeping the environment clean. Thus, the garbage collection is made more efficient.

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