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SMART AND ADVANCED GARBAGE COLLECTION SYSTEM

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ABSTRACT

This project is in concern with the municipal corporation work. Waste management is a crucial and serious Part of our society, the workers have to rush daily for the disposal of waste materials so called as garbage. The waste materials is smashed into the garbage can, without any precaution. Mostly we see that garbage is there at the roads leading to pollution mostly in rainy seasons. The labourers take away the garbage from that can but all the waste material sinked at the bottom which gives bad smell and hence leading to various problem. The conclusion is that there need of accuracy & hygeinity in the system. Hence we are making a system which will work with the GPS and GSM system module, along with the compressor having shaft. This mechanism will not only compress the garbage but also will notify the respective location using the message service. Such system already exist in market but this system will work more accurate as shaft along with the moving opener will help the garbage to keep the bin clean. The compressor used here is the mechatronics mechanism. Such system will surely help our society and Municipal Corporation too.

Keywords: *Garbage collection, compression, level sensing*

I. INTRODUCTION

Currently the Municipal Solid Waste (MSW) is one of the main urban lifestyle materials. The annual solid waste is about 1.3 billion tons and it seems it will raise to 4.3 billion tons by the year of 2025, which will cover 50% of the general population worldwide. In addition, managing the waste collection process is one of the most complicated tasks in the rural habitat because the amount of solid waste generated by residential and commercial-industrial sites are huge. The waste management cycle includes the generation of the waste from industries, houses, markets etc. from which the waste is thrown in the garbage bins. This waste is further picked up by the municipal corporations to finally dump it in dumping areas and landfills. But due to lack of resources, ineffective groundwork, some waste is not collected which poses serious health hazard to the surrounding environment. Proper cleaning intervals may provide a solution to this problem. But keeping a track of the status of the bin manually is a very difficult job. A smart waste monitoring and collection system is designed and developed to reduce the cost and the time of waste collection as well as to protect both public environment and public health and provide safe life. Waste collection and monitoring by using new technologies such as Radio Frequency (RF), ultrasonic sensors, GSM/GPRS as well as Arduino, offer a new way to optimize the waste management systems.

II. METHOD & MATERIAL

Working

Here, we are going to using Arduino MEGA 2560 R3 which is a microcontroller board based on Atmega 2560. It will be interfaced as shown in the figure. The GSM module will send the message to the garbage collectors to come and collect the garbage. The GPS module will track the location of the garbage which is full so they can go there to collect the garbage. Three DC gear motors are used for rotation purpose. Level sensor or sensing the level of the garbage and weight sensor will used as a reference weight which the container can hold.

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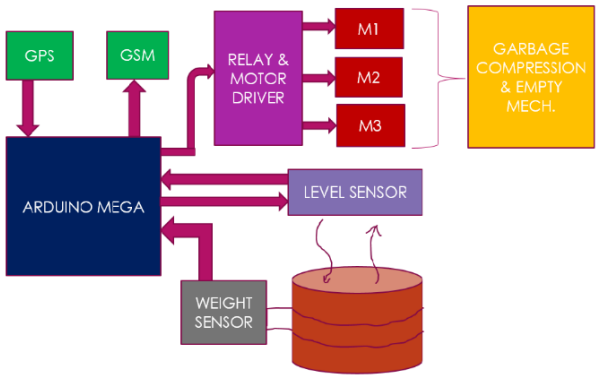
Figure:



Block diagram of Smart and Advanced Garbage Collection System

Components Requirement:-

- Arduino Mega 2560 R3
- DC gear motors
- Ultrasonic sensor
- Load cell
- GSM module
- GPS module
- LCD display

Software used:-

- Arduino software

III. SCOPE AND APPLICATIONS

Scope:-
Our project can also be implemented with the help of solar panels.

Applications:
In public areas, housing societies and many other places for dry as well as wet waste management.

IV. CONCLUSION

This system can monitor the level of garbage, compress it which increases the efficiency of garbage bin. Also once the garbage bin is full, the system will send the message to the municipal corporation along with it's location, level and weight of garbage so that the garbage collection people can come and take away the garbage.

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