IOT Based Garbage Monitoring With Weight Sensing System

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Abstract : *Keeping the city clean has been always an ongoing task which needs laborious efforts of people working on ground level emptying the garbage bins whenever they are full. The event of garbage bin getting full is not strictly dependent on a time pattern, instead it sometimes becomes rapidly full or sometimes requires more than normal time to become full. IOT Garbage Monitoring with Weight Sensing paper is an innovative step towards making this process more smooth and efficient.*
This system monitors the garbage bins and informs about the level of garbage collected in the garbage bins via a web page. For this the system uses ultrasonic sensors placed over the bins to detect the garbage level and compare it with the garbage bins depth. In addition, we also have weight sensors attached below the garbage bins.
Thus the system sends over the internet the level of fill of the garbage bins as well as the weight of the fill of the garbage bins. The advantage of this combo sensing is that the garbage bin lifting weight can also be known by the authorities. If the garbage bin is not filled up, but still the weight of fill has reached the limit of what the garbage lifting vehicles can pick up, the vehicles can be immediately driven towards that bin for evacuation.

Keywords: *IOT Garbage, Sensing paper, lifting weight, lifting vehicles*

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1.INTRODUCTION

One of the main concerns with our environment has been solid waste management which impacts the health and environment of our society. The detection, monitoring and management of wastes are one of the primary problems of the present era. The traditional way of manually monitoring the wastes in waste bins is a cumbersome process and utilizes more human effort, time and cost which can easily be avoided with our present technologies. This is a method in which waste management is automated. This is an IOT Garbage Monitoring system, an innovative way that will help to keep the cities clean and healthy.

The ultimate need of the hour for a developing nation is the key for "Smart City". The influential ecological factors that pose to be a threat to this may include: hazardous pollution and its subsequent effects on health of humanity, alarming global warming and depletion of ozone layer etc. Mostly Environmental pollution may be owing to the Municipal Solid Leftovers. A Proper maintenance becomes mandatory for an efficient and effective removal of the generated Municipal Solid Leftover. It is perceived that often the waste space gets too much occupied due to irregular removal of garbage occupancy in the dustbin. This exposition proposes an e-monitoring system that putforths an embedded system and Wi-Fi based software assimilated with IOT technology. Using the anticipated system, monitoring of the waste collection status could be monitored effectively. This design designates a technique in which the garbage level could be checked at regular intervals which would prevent the undesirable overflow of the bin. In addition to this it also has facilitation so intimate the authority to clean up in case of any overflows. The filling level of the garbage in the dustbin and its original level height could be sensed/monitored by the ultrasonic sensor. Programming in the Arduino UNO is done in such a way that once a particular level of filling is sensed or the weight, information message is sent requesting a clean-up.

2.BLOCK DIAGRAM & WORKING

This paper IOT Garbage Monitoring system is a very innovative system which will help to keep the cities clean. This system monitors the garbage bins and informs about the level of garbage collected in the garbage bins via a Wi-Fi to the android device of the municipality department.
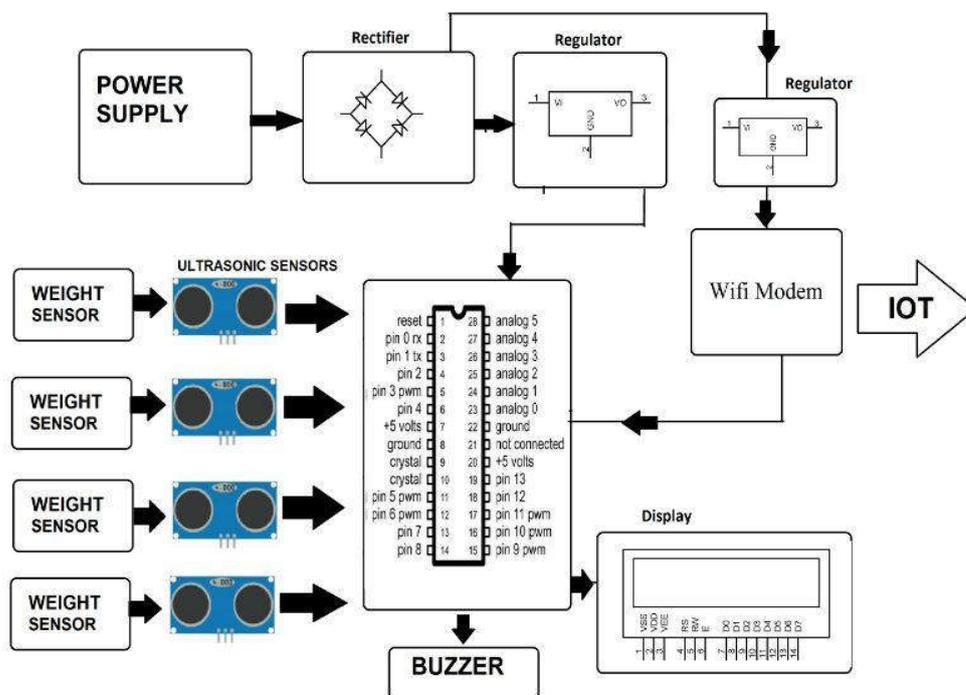
For this the system uses ultrasonic sensors placed over the bins to detect the garbage level and compare it with the garbage bins level. The system makes use of AVR family microcontroller, LCD screen, Wi-Fi modem for sending data and a buzzer if necessary as an acknowledgement. The LCD screen is used to display the status of the level of garbage collected and the weight in the bins. The LCD screen shows the status of the garbage level and the weight. Thus this system helps to keep the city clean by informing about the garbage levels of the bins by providing the status of the garbage bin via IOT (Wi-Fi) and android development platform.

3.RESULT & CONCLUSION

The paper work Titled **"IOT based garbage monitoring with weight sensing"** is successfully designed & developed, and a demo unit is fabricated and the results are found to be satisfactory.
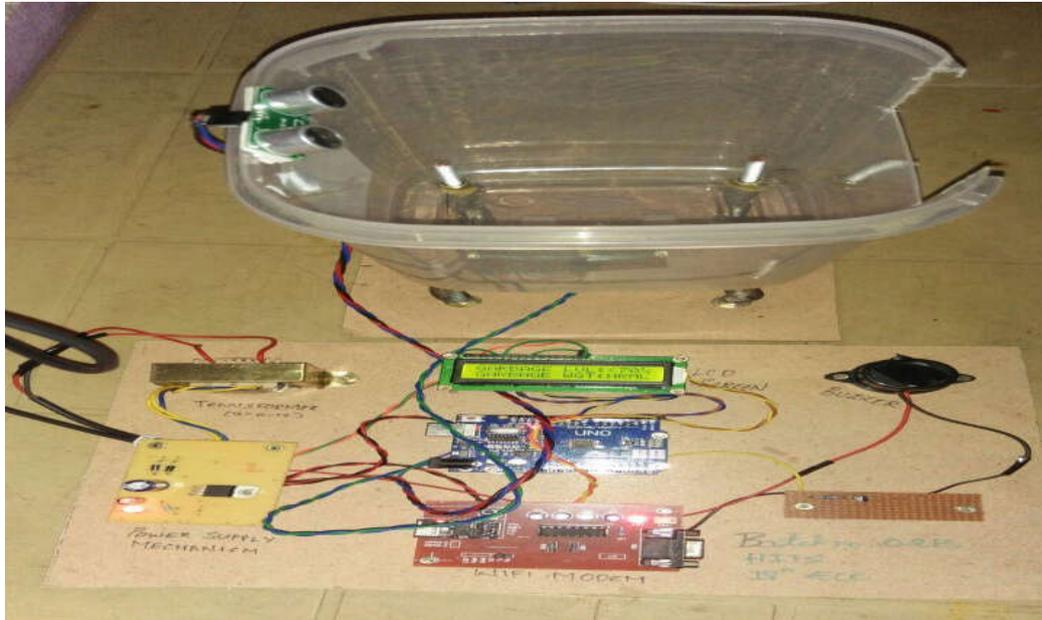
Since it is a demo module, we have consider for one garbage bin only and according to that LCD panel is used for displaying the garbage level in the bin. But when the system is utilized for real applications the garbage bins of all the localities can be monitored.

In this paper, an integrated system of Wi-Fi modem (IOT), Ultrasonic Sensor is introduced for efficient and economic garbage collection. The developed system provides improved database for garbage collection time and waste amount at each location. We analyzed the solutions currently available for the implementation of IOT. By implementing this paper we will avoid over flowing of garbage from the container in residential area which is previously either loaded manually or with the help of loaders in traditional trucks. It can automatically monitor the garbage level & send the information to collection truck. The technologies which are used in the proposed system are good enough to ensure the practical and perfect for solid garbage collection process monitoring and management for green environment.

Reference: The following are the references made during the development of this paper work.
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