SMART WASTE SEGREGATOR AND MONITORING SYSTEM

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Abstract - *Throughout the years, Indian Railways, which is being one of the largest railway systems in the world suffers with a very major problem. A problem, over which no one has looked since decades and the problem has achieved its height from the time when plastics, Bisleri bottles, and chips packet were introduced in Railway. It is a problem of waste generated inside the running train and around the railway track, and so Indian Railway itself becomes one of the biggest garbage centers.*

***Key Words*: IOT, Arduino UNO, Garbage monitoring system.**

1. INTRODUCTION

Garbage Monitoring System: - Garbage may consists of the unwanted material left over from City, Public area, Society, College, home etc. This project is related to the "Smart City" and based on "Internet of Things" (IOT). So for smart lifestyle, cleanliness is needed, and cleanliness is begins with Garbage Bin. This project will helps to eradicate or minimize the garbage disposal problem. The Internet of Things (IoT) is a recent communication paradigm that envisions near future, in which the objects of everyday life will be equipped with microcontrollers, transceivers for digital communication, and suitable protocol stacks that will make them able to communicate with one another and with the users, becoming an integral part of the Internet. This project 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 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. The system makes use of Arduino family microcontroller, LCD screen, Wi-Fi modem for sending data and a buzzer. The system is powered by a 12V transformer. The LCD screen is used to display the status of the level of garbage collected in the bins. Where as a web page is built to show the status to the user monitoring it. This project will helps to eradicate or minimize the garbage disposal problem. The Internet of Things (IoT) is a recent communication paradigm that envisions near future, in which the objects of everyday life will be equipped with microcontrollers, transceivers for digital communication, and suitable protocol

2. PROPOSED APPROACH

The system will provide automatic waste segregation so human efforts of manually segregating the waste will be easy and it saves time and human efforts . It will notify directly to the user about the level of the dustbin and no need to check manually. It will provide a alert system to the user about overfull of waste and manages the system and provide fully automated smart bin

3. LITERATURE SURVEY

"Smart garbage collection system in residential area"- In this project mainly Solid waste management is a big challenge in urban areas for most of the countries throughout the world. An efficient waste management is a pre requisition for maintain a safe and green environment as there are increasing all kinds of waste disposal. The main concept is that a Camera will be placed at every garbage collection point along with load cell sensor at bottom of the garbage can. The camera will take continuous snapshots of the garbage can. A threshold level is set which compares the output of camera and load sensor. There are many technologies are used for waste collection as well as for well managed recycling. The Information gathering is big and cumbersome. The concurrent effects of a fast national growth rate, of a large and dense residential area and a pressing demand   for urban environmental protection create a challenging framework for waste management. The complexity of context and procedures is indeed a primary concern of local municipal authorities due to problems related to the collection, transportation and processing of residential solid waste today the garbage collection is manual which takes a lot of efforts and is time consuming. In this project humans and vehicles were used to do that work and here we are using automatic technique to detect garbage level in Garbage. "Intelligent Waste Separator"-This paper proposes a prototype of the Intelligent Waste Separator (IWS) that consists of a common trash can, with more containers inside it, using multimedia technology. People can throw their waste, no matter what kind, into the system. The latter is able to decide what kind of waste it belongs to and to deposit it in the correct container. Garbage is a global problem that affects all living beings. A study from Grow NYC shows that 80% of the world's solid waste is produced in the United States of America. Also, 70% of its trash is used once and 45% is buried or burnt, such waste is paper, plastic, etc. A lot of places like universities, downtowns, subways, and malls have different containers for specific kinds of waste.

Unfortunately, there are people who do not place waste in the correct containers. For this reason, it is more difficult to recycle waste which has to go through a separation process of a high economic cost. Most of garbage is buried or burnt or even kept in places to which it does not belong. Big volumes of garbage thrown away and the methods used to store it cause air, water, and soil pollution. "Waste segregation using smart dustbin"-Thus, aim of our project is to make a municipal waste management system useful at domestic level. Dry, wet, metallic are the categories in which waste is compartmentalized. Continuous increase in populace is increasing waste generation. Waste generated in India is in the range of 200-870 grams per day and its rate is rising by about 1.3% per capita per year in India. In addition to this, some portion of waste is burnt openly on dumpsites or streets. As the production and consumption is proliferating, extensive amount of solid materials are generated as well as rejected by people on regular basis. Garbage Mountains are a commonly seen today. The waste dumped is ubiquity in the form of rotting mound that dot our terrains and make our rivers, wells, lakes abhorrent. 68.8 million tons municipal solid waste is generated per year in India. Unsorted waste, when collected, is dumped openly that leads to generation of leachate and gaseous emissions contaminating the nearby environment. As this system is aimed deliver results at household level, municipal solid waste (msw) is its target. The waste is sorted out in three categories dry, wet and metallic. Wet waste at household level may be vegetable peel, garden leaves, weeds, dried fruits etc.

4. BLOCK DIAGRAM
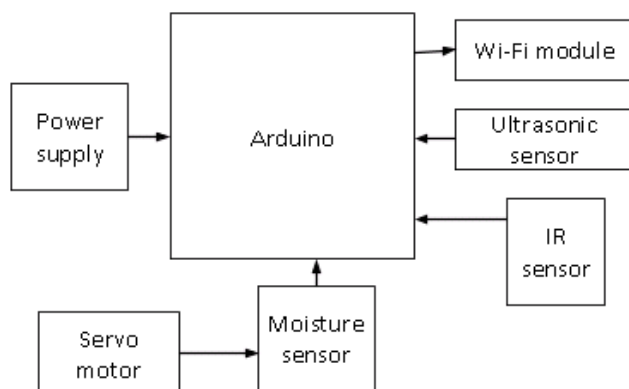
5. RESULT AND DISCUSSION
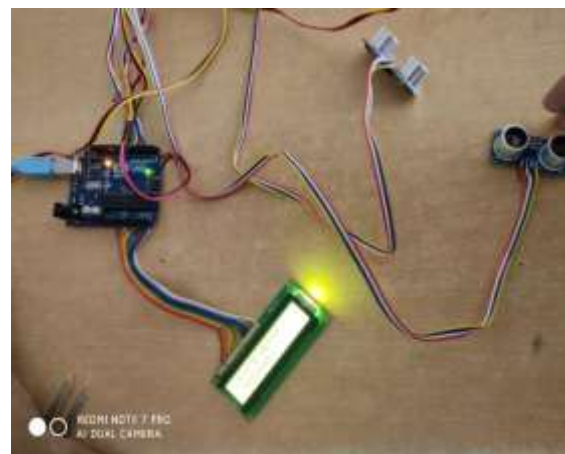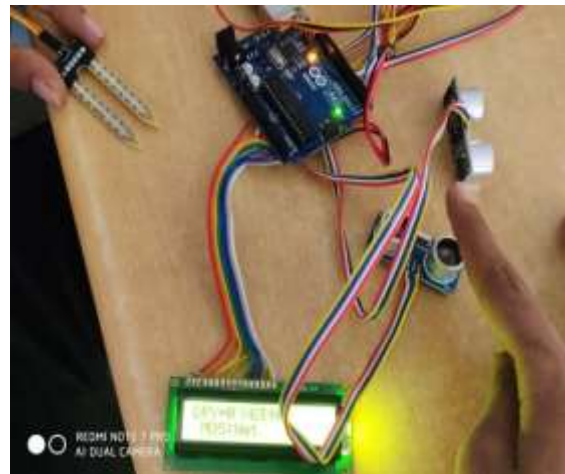
We have implemented waste segregator by taking inputs height and weight then the systems are how much activities we are doing regularly. Also it predicts whether waste will be dry or wet.

6. CONCLUSION

Different features, for example, durability, affordability, prevention against harm and support issues are tended to when these smart dustbins are manufactured. This smart dustbin can contribute a great deal towards spotless and clean condition in building a smart city. In any case, since the innovation is new in India, appropriate awareness ought to be made among general society before it is executed on a substantial scale. Something else, sensitive devices like sensors may be harmed because of activities of the dustbin users. We developed an IoT enabled garbage collecting bin in this paper. The developed prototype was named as Smart Waste Segregator And Monitoring System and after developing, its performance was evaluated to verify its working capability. Experimental studies conducted reveals that SGB's proven to work as per the designed consideration giving the validations in test cases as well as in status identification. Future work will be on the large-scale implementation of 'Smart Garbage Bins' considering the realistic possible cases. Also thinking of the possibilities and

efficient operation of collecting and cleaning service as per the study area size and complexity.As per the recent article, it was suggested that, the use of smart facilities in relevant sector of smart cities will help in the progress. The developed smart garbage bin facility can be used in the smart city for having proper waste management especially in the newly planned Indian smart cities. However, implementing SGB's on a larger scale might face a wide range of challenges that are still uncounted like delay in bin cleaning service if multiple bins have the filled or spill over status.

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