

A REVIEW PAPER ON EFFICIENT GARBAGE MONITORING MANAGEMENT IN SOCIETY USING IOT

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Abstract—The Automatic Waste Segregator is used to sort the trash into metallic, wet and dry type so as to recycle them separately. The proximity sensor gets activated while dumping the waste inside the flap and conveys the same to the Arduino. Waste slips over the slope and falls on the sensors. The sensors which are placed in the trash can detect whether the waste is metallic, wet or dry waste. For the final segregation, DC geared motors are used. The motor changes a circular base with separate container for each waste and rotates according to the suitable wastes. For the garbage monitoring system, Ultrasonic Sensor is installed at the upper side of garbage can and will measure the availability of space in the trash. If the space is less than this threshold value, a message will be sent to the connected phone as “Basket is full” with trash identity number so that it can be emptied by proper arrangements. NODEMCU ESP8266 is the Wi-Fi module which is used to connect the arduino and shows the output in a BLYNK application which can be viewed in our smart phones. This kind of a project, if implemented on a large scale will help to maintain the cleanliness of the city.

keyword—Node MCU ESP8266, Arduino-UNO, Ultrasonic sensor, Gas sensor, IR sensor, DC motor.

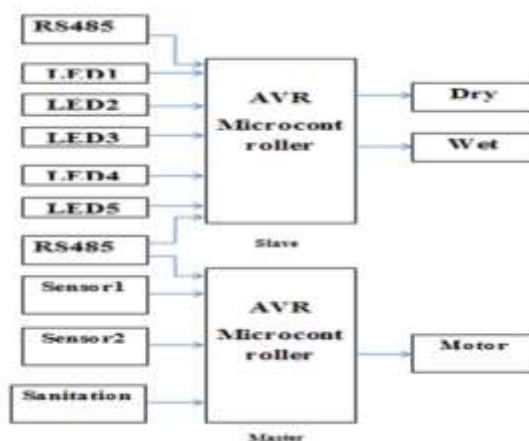
I. INTRODUCTION:

The Automatic Waste separation is used to settle the trash into wet and dry type so as to recycle them separately. The proximity sensor gets activated while dumping the waste inside the pipe and conveys the same to the Arduino. Waste slips over the slope and falls on the sensors. The sensors which are placed in the trash can detect the object or waste. For the final segregation, DC geared motors are used. The motor changes a circular base with separate container for each waste and rotates according to the suitable wastes. For the garbage monitoring system, Ultrasonic Sensor is installed at the upper side of garbage can and will measure the availability of space in the trash. If the space is less than this threshold value, a message will be sent to the connected phone as 'Basket is full' with respected society so that it can be emptied by proper arrangements. NODE MCU ESP8266 is the Wi-Fi module which is used to connect the arduino. This kind of a project, if implemented on a large scale will help to maintain the cleanliness of the city. The increasing population of India resulting hazardous issues with regard to the available area for living, utilization of natural things and raw materials, education and employment.

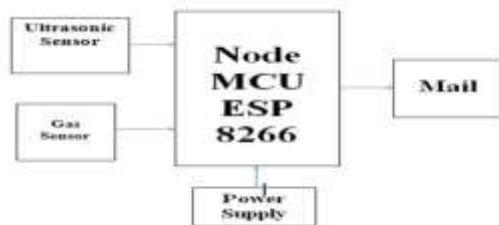
II. LITERATURE SURVEY:

The concept of smart garbage bins and systems have been in discussion for quite a long time. The technologies used at disposal to develop this high-tech system have also contains, i.e. from WSNs to RFIDs to now the most famous Internet of Things (IoT). Every idea seems to be similar but is slightly different at its core and our proposed work is no exception from the same. After the IoT field, finding its place in our lives, this is our main strategy for making a smart garbage collection system which has provision for peoples involvement and analysis of information for good decision taking. At hardware stage, the system is a trash bin with ultrasonic device, AVR microcontroller and Wi-Fi module for sending of data. The global implementation of IoT is making with a Cloud centric vision. This work extends the upcoming possibilities, key technologies and advantages that are same to operate IoT research. But a strong foundation to our work is provided, where the basics and uses of Arduino board is explained. It is somewhat interesting as it design a Get as You Throw system concept as a way to campaigning the concept of recycling in people. As we would discuss further, the citizen involvement part of this system is quite influenced by their concept.

III. PROPOSED WORK:

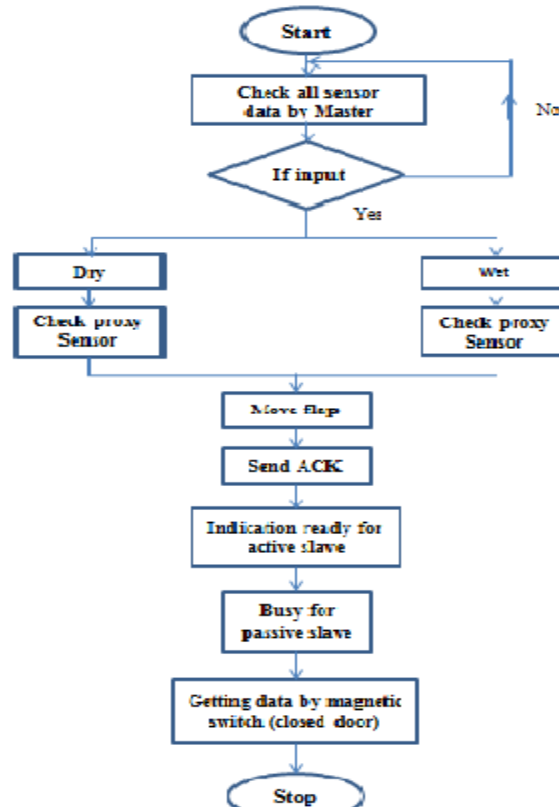


Block diagram of master and slave

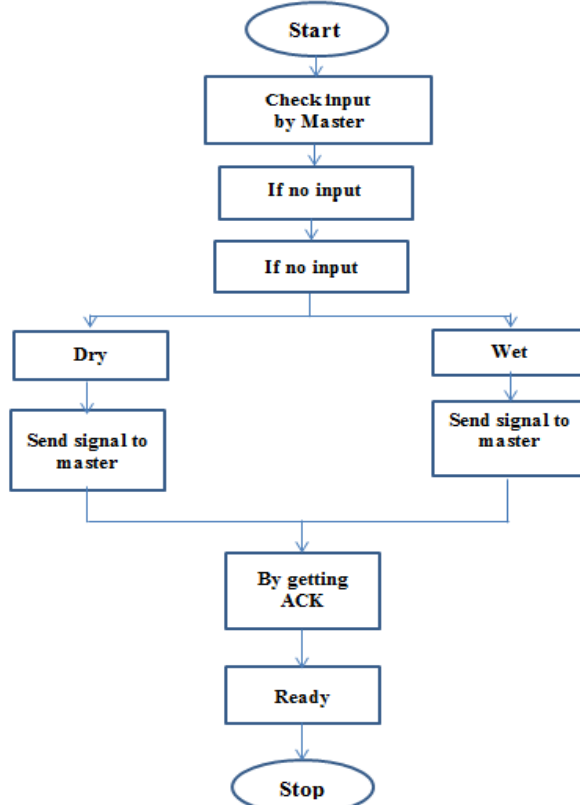


Block diagram of garbage control system

IV. FLOW CHART:



Flow chart of master



Flow chart of slave

V. PROPOSED SOLUTION:

Waste is pushed through a flap into the proposed system. An IR proximity device tracks this and begins the whole system. Trash then goes to the metal detection system. This system is used to detect metallic trash. After this the trash falls on the capacitive sensing device. This module differentiates between wet and dry trash. After the authentication of trash, a circular shaped base which contains bins for dry, wet and metallic trash is moved. The collapsible flap is falling once the bin corresponding to the type of trash is settled below it. The trash falls on the bin and the flap is increased. The trash in the bins then can be collected separately and goes for the next process.

VI. INNOVATIVENESS OF THE PROPOSED SOLUTION:

Where the ultrasonic sensor tracks the level of dust in dustbin and transmits the signal to AVR microcontroller the same signal is encoded and sent to the application and it's received. Here we can use the buttons for the purpose of wet and dry garbage selected.

VII. SOCIAL IMPACT OF THE PROPOSED SOLUTION:

It neglects the non-hygienic circumstances for the citizens and odour around the premises this leads to spreading some hazardous ailments and human sickness, to avoid such circumstances we are thinking to design 'Smart waste management system with the help of IoT'.

VIII. ADVANTAGES:

- a. Real time information of the saturation level of the dustbin.
- b. Deployment of dustbin according to actual needs.
- c. Cheap and resource optimization.
- d. Improves Environment quality.
- e. Fewer smells.

IX. APPLICATION:

- a. Empowered swachha bhara mission.
- b. E-Governance based on digital India.
- c. Reduce environmental pollution.
- d. Real time based cleanliness of our area.
- e. It makes good message between Municipal Corporation, workers and people.

X. CONCLUSION:

Several applications such as durability, affordability and defence against damage and maintenance problems are introduced when these smart dustbins are implemented. This Smart Dustbin can give a much towards clean and hygienic atmosphere in making a smart city. But from the technology is new in India, proper awareness should be created among the public before it is implemented on a large scale. Otherwise, sensitive devices like sensors might be damaged due to rough action of the users.

XI. FUTURE SCOPE:

In this paper, implementation is done only for a single bin. Integration of number of containers each with a unique identification can be completed by designing the principles of IOT and making database for every bin which can be maintained by utilizing SQL technology and a login web page is created to ensure authorized entries. Apart from this, segregation can be made between dry garbage bin and wet garbage bin by collecting dry waste like plastic, paper, break glasses etc. and biodegradable waste respectively. To make this gas sensor can be used like MQ-2 gas sensor. From the source, it helps us to segregate the waste, so because of this requirement of manpower is reduced. To enhance the India's "SWACHHA BHARAT" mission, an automated system can be developed. It is able to pick up the garbage in and around the garbage bin, differentiate them and put in respective garbage bin.

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