Garbage Monitoring system Using Ardiuno

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Abstract - **The rapid growth of the population has also resulted in an increase in the production of waste on a regular basis. City governments and national governments have faced difficulties in dealing with this increase in waste production. Garbage being discarded everywhere poses a major risk to people and the environment. In order to ensure a low risk, it is critical to segregate and distribute waste responsibly. In India, waste is traditionally segregated through rag pickers, which is a time-consuming process and may have detrimental effects on the health of people who are involved. Using a proper segregation method reveals the true economic value of waste. We recommend the use of an Auto Waste Segregator (AWS) that is inexpensive and easy to use for separating household waste. It is designed to separate waste into two types, clean wet waste and dirty wet waste. A wet sensor, along with a moisture sensor for detecting dry waste, and an LCD monitor are used to indicate whether wet or dry waste has been separated.**

Index Terms - **Artificial Intelligence, Garbage level, IoT, Open CV, Raspberry Pi, Ultrasonic sensor, Garbage detection, LCD, Arduino, Ultrasonic Sensor, IR Sensor.**

I.INTRODUCTION

Contamination of wastes has become a significant problem in the world today. The method of managing the amount of waste generated has had a negative impact on the environment. Unplanned open dumping at urban landfill sites is a common practice of garbage disposal. This process promotes the development of diseases that are harmful to humans, plants, and animals. The unsafe method used to treat waste creates chemicals that pollute the soil and groundwater. This process may also lead to the growth of disease vectors that spread dangerous diseases. In India, rag pickers play an important role in the disposal of urban solid waste, which further degrades the aesthetic value of the natural ecosystem and destroys the natural environment. There is a high incidence of skin infections, bacterial infections, gastroenteritis, and multisystem allergies among ragpickers and nurses,

along with biting by rodents, dogs, and other vermin. gastroenteritis, and multisystem allergies among ragpickers and nurses, along with biting by rodents, dogs, and other vermin.

There may be a reduction in dependence on ragpickers if urban waste production is segregated. Until the waste produced has been completely recycled, it is impossible to determine its economic value.

Since then, a variety of technological advances have allowed waste to be transformed into useful materials, such as waste to energy, in which the waste is used to create carbon monoxide and hydrogen gas (syngas) The carbon is then burnt to produce energy and steam; diesel waste can be used to process biofuels. Wet and dry waste can be separated into basic sources for a larger capacity of disposal and are thus filtered and recycled. Therefore, the wet waste fraction is either converted into compost or methane gas, or both. Compost can replace artificial fertilizers, and biogas can serve as a renewable energy source. It is possible to reuse or recycle metal waste. Even though industrial waste segregators exist, it is much easier to remove the waste from the source. There is a drawback to this technique: a better consistency of the substance is retained for recycling, which saves on waste management costs. It also reduces the exposure of waste workers to workplace hazards. Separate waste could also be sent directly to the processing facility, rather than being sent to the sorting plant or the recycling facility. Yeah, J.S. Bajaj[3] suggested creating a technology that was less expensive and more appropriate for the separation of dry, wet, and metal waste at household level at the moment. To streamline waste management, this project aims to create a lightweight, low-cost, and user-friendly segregation system for urban households.

II. PROPOSED SYSTEM

This is due to the fact that the demand for accommodation has increased dramatically since

migration from villages to cities to find work has resulted in hundreds of apartment and apartment developments in the rapid urbanization sector. Consequently, the government has developed more residential complexes to meet the demands of the rapidly growing urban population. However, tenants face a number of problems. . There are all the same, which is the disposal of solid waste. Unlike at private residences, tenants of apartment buildings use traditional dustbins that appear to fill up quickly. As a sanitary hazard, overflowing trash can exacerbate diseases such as cholera and dengue, in addition to being an unnecessary waste of fuel to drive into a complex to see where some of the garbage is disposed of and where it is not. The garbage truck might not have enough space even during special days when there is a lot of garbage. We realized this issue when we saw that garbage trucks would drive across town twice a day to collect solid waste. It was elaborate, however it was rather inefficient to separate garbage by type (Dry Wet Garbage) and to warn the public.

III SYSTEM DESIGN

System use ultrasonic sensor to detect garbage type that is its dry garbage or wet garbage. Ultrasonic sensor detects the level of the dustbin that is dustbin is full or not. Sensing the garbage servo motor will rotate accordingly in the respective section of dustbin.

1. If person has thrown the dry garbage it will detect the type of garbage it will move in dry section
2. If a person has thrown the wet garbage it will move in wet section
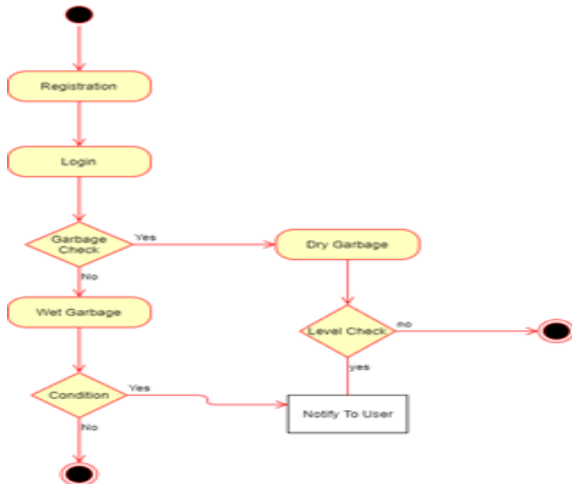3. In case if dustbin is full it will send message to respective owner or municipality.

Fig. Flowchart of the system.

IV HARDWARE & SOFTWARE REQUIREMENT

System Necessity Hardware:
Ardiuno Uno
IR sensor
Rain sensor
Servo motor
Ultra sonic sensor

Software:
1. Operating System: Windows XP and later versions
3. Programming Language: Python, php.
4. Database: MySql , Xamp

Advantages:
1. Helps to make surrounding clean.
2.Helps to distribute garbage automatically.
3.Contribution to clean india.
4.No need of manual work in distribution on garbage so it saves lots of efforts and prevents diseases causing it.
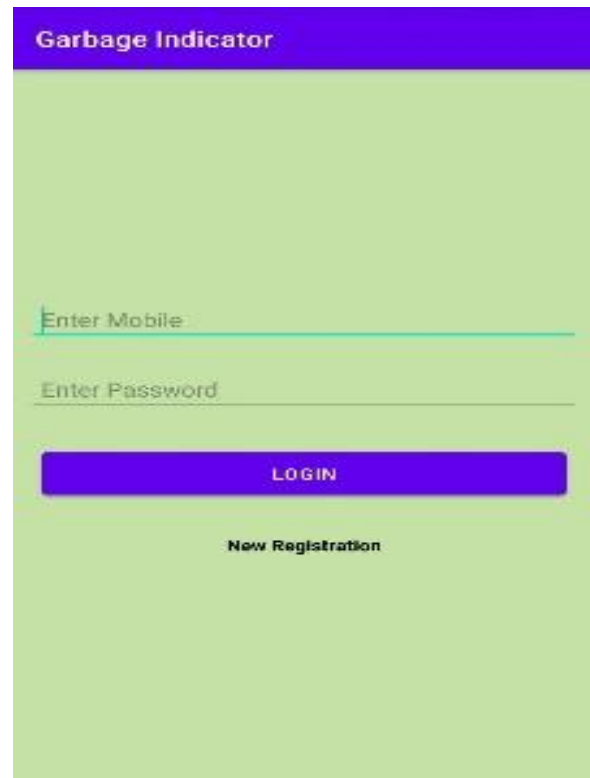
V. RESULT

Fig. Login page

User can login with the App to get notified and check the status of dustbin
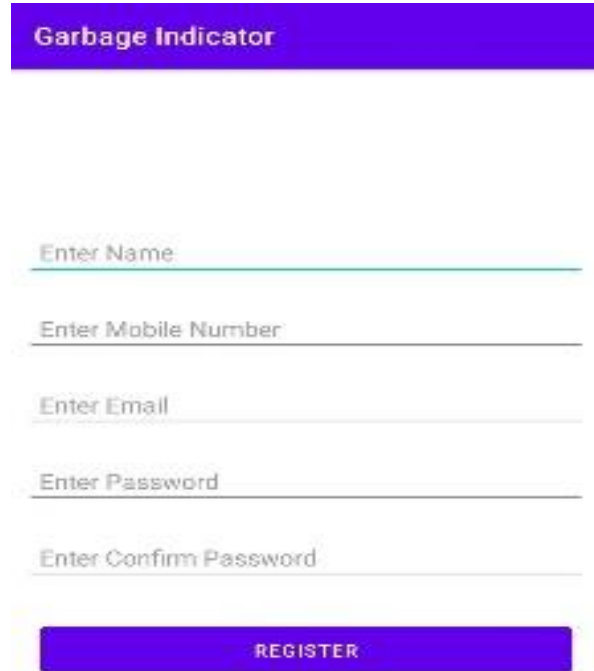

Fig. Signup page

App will allow new user to get registered and then login.

Fig. Hardware model

In any IoT device needs at least one microcontroller device to function properly. In our this system we use ardiuno. All the sensors and ardiuno kit is mounted on the board and all are connected using wires.
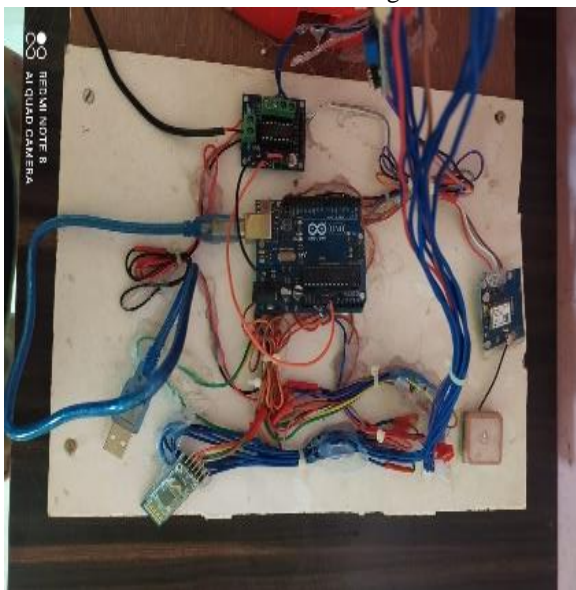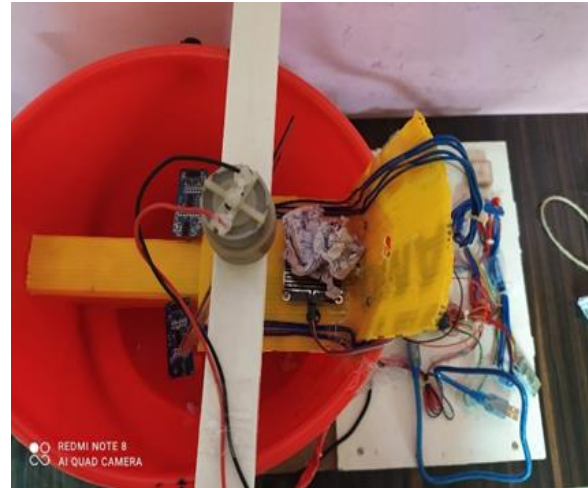

Fig. Garbage monitoring system using ardiuno.

VI. CONCLUSION

By creating an automated waste segregator at the local level, such as communities, educational institutions, etc., the burden on local governments can be reduced. Using these facilities can create a humane and reliable waste disposal system that involves very little human involvement. Segregating all of these wastes at the domestic level is also more efficient and effective by using a conveyor belt. This makes the system much more reliable, cost-effective, as well as easier to set up and run. We encountered several issues during the process of installing our system, such as changing inductive sensor sensing ranges, IR sensor ranges, and more. However, through some adjustments, we were able to make the system as stable and reliable as possible.

Implementation of this system at a local level like societies, educational institutes, etc. can reduce the burden on the local authorities. The automatic waste segregator is one small step towards building an efficient and economic waste collection system with a minimum amount of human intervention and also no hazard to human life. Using a conveyor belt makes the system far more accurate, cost-effective and also easier to install and use at a domestic level. Segregating all these wastes at a domestic level will also be time-saving. While implementing our system we came across many problems like the sensing range of inductive proximity sensor, the accuracy of the moisture sensor, adjusting the range of IR sensors and some more, but using some modifications we tried the make the system as reliable as possible but not completely perfect.

VII. ACKNOWLEDGMENT

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