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Waste Management

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ABSTRACT: To start with you will first have to enter the height of the dustbin. This will help us generate the percentage of trash in the trashcan. We then have two criterias which needs to be satisfied to show that the particular bin needs to be emptied. The amount of trash, in other words let's say if your bin is half full you don't really need to empty it. Our thresh, or maximum amount that we permit of trash, is 75% of the bin. If supposing a particular trashcan fills up 20% and then for a week doesn't change, it comes into our second criteria, time. With time even the little amount will start rotting leading to a smelly surrounding. To avoid that our tolerance level is 2 days, so if a trashcan is less than 75% but it is two days old it then will also need to be emptied.

I. LITERATURE SURVEY

Nowadays, there are tons of flats and apartments which have been built in the rapid urbanization area. This is due to high housing demands which have been drastically risen as a result of migration from villages to cities to find works. In order to accommodate the growing population in the urban area, the government has built flats, apartments or condominiums, to provide shelter for them. Besides, flats become popular mainly in the United State, Europe and other developing countries [1, 2]. There are several issues faced by the inhabitants of the flats. One of them is the issue of the domestic solid waste disposal, which cause pollutions [3]. Unlike landed houses, the flats' waste disposal bins are shared among all residents which live in the same building, and thus, the bins tend to be filled very quickly. Thus, an unsystematic and inefficient disposal waste management may cause the bins to be always full with of garbage, and further littering from the residents will cause the garbage piles to be scattered outside the bins. Therefore, there will be a question of sanitary as those garbage piles may become the root cause of illness and diseases like dengue, diarrhea, and cholera. Besides, there are also problems regarding the attitudes of each inhabitant of the flats. There are cases where some irresponsible residents, who normally live at the higher levels of the building, littered or simply threw their domestic waste directly from the floor which they live into the bins. This may cause pollutions if the garbage thrown fell outside the bins or injuries to innocent people downstairs if they fell onto them. The waste disposal can be managed more properly and efficiently by constantly monitoring the bin status and the garbage level [4]. In addition, the municipality can be alerted when the bin is full or almost full, thus promoting dynamic scheduling and routing of the garbage collection. By comparing to the conventional static scheduling and routing, this dynamic scheduling and routing are said to allow operational cost reduction, by reducing the number of trucks, the manual labour cost and the transport mileage savings [5, 6, 7]. This paper presents an alternative in managing domestic waste especially in flat areas via a smart garbage monitoring system, which is developed based on Arduino Uno. This system will automatically monitor the garbage level

Project Scope:

- Mobile app will show the status of all dustbins in the city with percentage and locations.
- The smart, sensor based dustbin will judge the level of waste in it and send the messege directly to the municipal corporation.
- It can sense all the type of waste material either it is in the form of solid or liquid.
- According to the filled level of the dustbin, the Android app will show status of all the dustbin filled.

Problem Defination:

- Domestic waste collection services are often provided by local government authorities. Curbside collection is the most common method of disposal in most countries, in which waste is collected at regular intervals by specialised trucks. Waste collected is then transported to an appropriate disposal area.
- Nowadays, cities with developing economies experience exhausted waste collection services, inadequately managed and uncontrolled dumpsites and the problems are worsening.

Architectural model (project block diagram):



Hardware Requirement

Arduino
Base Shield
Arduino Wifi Shield 101
Ultrasonic Sensor - HC-SR04 (Generic)
Jumper wires (generic)
Slide Switch
LED (generic)

Software

Arduino IDE
Android Studio

Technology used: IOT and Mobile

Application of project:

1. Less time and fuel consumption as the trucks go only to the filled containers.
2. Decreased noise, traffic flow and air pollution as a result of less trucks on the roads.
3. Our smart operating system enable two way communication between the dustbin deployed in the city and service operator.
4. Therefore the focus is only on collection of route based fill level of the containers. The sensors installed in the containers provide real time information on the fill level.
5. This information helps determine when and where to prioritise collection.

II. CONCLUSION

By using this method the collection of waste in the city will become more easier. It helps in reducing air pollution, traffic flow, man power, time and money. With the help of proper technology (GPS & SOFTWARE APPLICATIONS) we can guide the trucks in selecting the proper dustbin for garbage collection. This project can add an edge to the cities aiming to get smart and people-friendly.

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