

ANDROID BASED WASTE MANAGEMENT APPLICATION

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Abstract:

Flowers used to decorate pilgrimages will be collected daily at the end of the day by transportation service providers affiliated with the company/government, as will coconuts and other items used by pilgrims, spoiled vegetables and fruits will be collected directly from farmers and market yards, and spoiled curries will be collected from homes, restaurants, and other establishments. Some of the trash will be sent to food processing facilities that create by-products, while the rest will be utilised in raw material preparation facilities or to produce biofuels and fertilisers. Beneficiaries include market yard committee members, restaurant owners, farmers, and members of the house who are responsible for maintaining pilgrimage sites.

1. Introduction:

As the world's second-largest nation, India has to overcome several challenges to its progress. The garbage situation in this nation is severe. It's a major setback since the nation is still developing. Inadequate waste management is a major contributor to a declining standard of living with regards to health and cleanliness. As the nation continues to urbanise rapidly, it will face significant waste management concerns. More than 377 million people call one of the world's 7,935 cities home. They produce about 62 million tonnes of MSW annually. By 2030, it is predicted that 165 million tonnes of trash would have been produced. The total quantity of solid trash is 43 million tonnes, of which only 11.9 million tones are cared for and recycled, while the other 31 million tonnes are not cared for and simply dumped. A close eye is required on the waste management system. Considering the fact that many advanced nations are hungry for tried-and-true waste management strategies, it's worth looking at prepackaged options. In present day India, garbage is collected on a regular schedule by a garbage body or agency. Overflowing garbage cans are becoming an unsightly issue, therefore this may not be an effective remedy. This is often a problem in crowded public spaces. Before the next scheduled collection, the garbage cans would overflow, and the area around them would become a dumping ground. As a solution, a novel strategy centred on intelligent garbage cans has been presented. The challenges people face on a daily basis may be conquered with the help of this high-tech garbage can. Potentially resolving this issue, the system equips each garbage can with a unique identifier and location and employs ultrasonic sensors as a level detector to identify when the can's contents have reached a certain threshold. In this case, a microcontroller acts as a bridge between the sensor network and the GSM module. A signal is then transmitted to an application

the authority must access with a login and password before they can see the trash can, its position, and whether or not it's full so they may clean it. Additionally, after the authority is through with the cleanup procedure, they must mark the task as complete in the application with the same access, and the trash can is prepared for the next repeat of the cycle. Waste management in the smart cities of the future may be completely transformed by this breakthrough. In the future, India aspires to be a "smart city," but no municipality can achieve that status until its garbage management is improved. It will take less time to finish the task at hand, and the authority will save time by not having to make as many trips all around town to empty garbage cans. This may also improve the effectiveness of the government's operations.

2. Literature Survey:

In-Depth Analysis of a Piece of Literature A number of scientists have collaborated on a system that includes an Arduino Uno, a GSM Module, a Servo Motor, a Gas Sensor, and Ultrasonic Sensors. When the amount of trash reaches a certain limit, as determined by the Gas Sensors, and when the amount of decomposition exceeds a certain limit, the Servo Motor will send a message to the proper authorities [1][2]. Similar goals were pursued by other researchers, who developed a smartphone app that can identify when trash cans have been full to a certain point, designate them as "cleaned" after they have been emptied, and restrict access to this information to those with proper authorization. Visual Studio IDE and Notepad++ were utilised during development of the system's underlying infrastructure, while Hypertext Pre-Processor language, with JavaScript, Cascading Style Sheets (CSS), etc., were used during the creation of the website. [3]. Some initiatives use level sensors to detect when a bin has reached a certain fullness level; the GPS system is then used to pinpoint the bin's precise position; and a short message service (SMS) is then sent to the relevant authorities to schedule a cleaning. In order to prevent garbage can fires, several researchers have used flame sensors into their study projects[7]. Some comparable ideas employ a WIFI Module in place of a GSM Module, communicate with the proper authorities through email, and have an LCD display to show the current can status[8]. Similar technologies, such as a WIFI Module and an Android app that displays the trash can's current condition, have been utilised in other projects as well[9]. RFID technology is employed as identification evidence by the authority that validates the identity of a person who has finished the cleaning procedure. Some researchers have employed Ultrasonic Sensors in their project to do double duty—detect when the dustbin is full and when the lid is opened and closed automatically by a Servo Motor, with all the sensors interfaced through a Raspberry Pi Zero W Development Board. In addition, they utilise the Google Maps API to facilitate the monitoring of garbage cans and the identification of the shortest paths to them, thereby reducing administrative burden [10]. Researchers have implemented the usage of storing such information using MySQL database as a backend tool and Java Netbeans as a frontend tool in the Database[11] in an effort to obtain access to accurate information like the bin ID, Bin address, its latitude and longitude, etc. Studies that are similar to the one presented here employ a WeMos D1 Mini to communicate with the sensors since it has built-in WIFI capabilities[12].

3. System Analysis

It is common knowledge that public garbage cans are never empty. It creates filthy conditions in the city and the present waste management system is not optimised to address the issue. In addition, the conventional method of keeping tabs on trash cans requires a lot of manpower and money.

Drawbacks:

- A difficult procedure
- Extra manpower is needed.
- Expensive

4. Proposed System

Our team creates a mobile app for efficient trash management.

This is the moment at which the user starts to work in a true fashion, from which we can start to gather data on how it is actually used. An individual who selects "DONOR" will be given the opportunity to describe the user responsible for the abandoned garbage. Once the user has expressed their thoughts, they will send them to the programme by clicking the "DONE" button.

This project includes the development of a mobile application since mobile communication technologies are spreading at a quicker rate than any other communication technology. These days, almost everyone has a smartphone of their own, which is convenient since smartphones are smaller and lighter than traditional computing devices. Moreover, smartphone performance is presently improving. Since this is the case, it makes sense to create a mobile app for the Smart Waste Management System.

Advantages

- Procedure that is simple to follow
- We can lessen the amount of work required of humans.
- Less expensive than current approaches

5. Implementation

Admin

Donors and users are both registered and authorised in this section so that they may exchange messages.

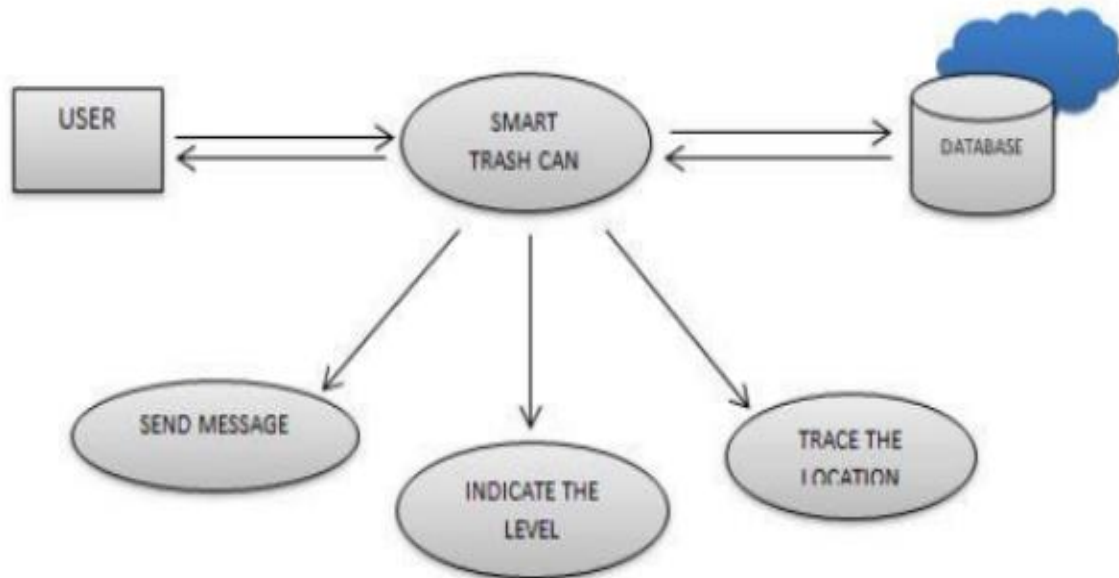
User

The garbage consumer will be able to see the specifics of the waste, including the waste kind and amount on hand from contributors.

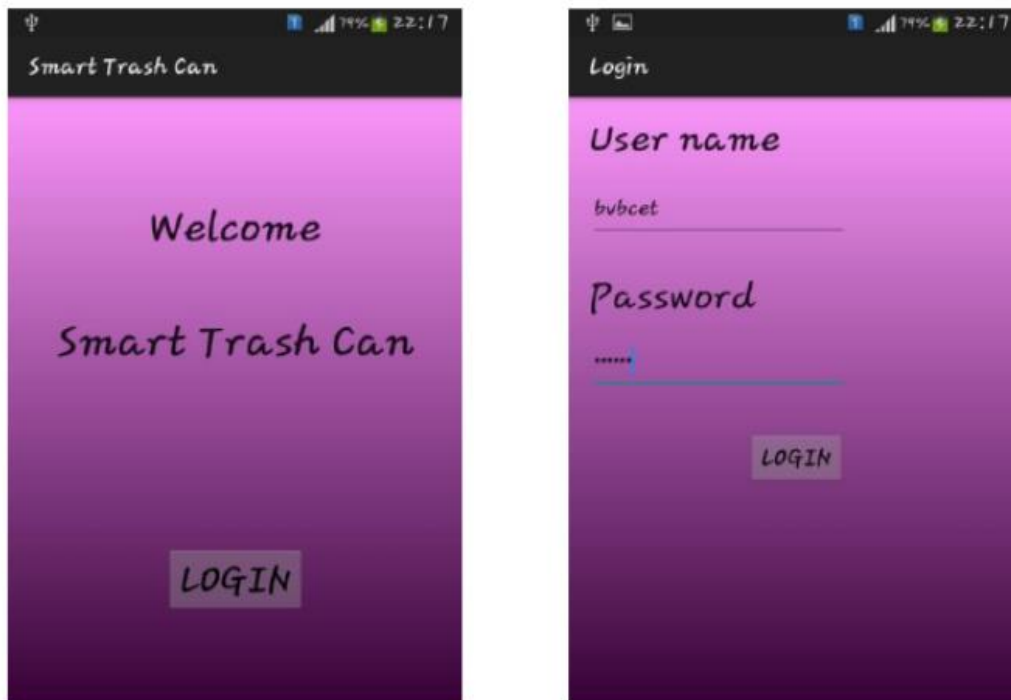
Donor

The user or business creating the garbage will provide the information about the rubbish, including the kind of waste, the amount of waste, and the location(s) to which it may be taken.

6. Dataflow diagram



7. Results



8. Conclusion

To the extent that waste is reduced, businesses will be able to salvage a significant quantity of valuable raw resources. A wide variety of jobs may be created by using this solution. For instance, the app's use indicates that different sorts of mandals/villages would emerge in a district, which in turn suggests that many people will find work in areas where rubbish is

generated often. Data and credentials entered into our online app are secure. Using this method and recycling useful waste, we can provide raw material for the production of a wide range of products. The last benefit is that the raw material costs for the by-products will be less than they were the year before.

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