

# Android application of Garbage collector Tracker using Google Maps for Municipality office

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**ABSTRACT**—Nowadays wastage pollution increases at an alarming rate all over the world. It is the major cause of air pollution. The heart of a city depends on its pure Air, clean roads and highways and overall it's surrounding environment. People living in the city suffer from various causes if the condition disrupted. Different kinds of Diseases spread out. It becomes tougher to lead a healthy life for people. But, people can fight with this problem by building up a healthy city. Hence new a system is integrating by citizen and authority in a common platform. They can work together to make the city healthier. The system is an android based application where the common man take part to clean the city, notify volunteer to take part or can inform City Corporation. The system involved application design and coding for android apps garbage collector, system design, data collections and database structure on WAMPP. Android Studio is used as a platform for editor coding and interfacing. The services of this application are - it enhances the user to detect nearby dustbins location with path, helps to see available volunteer on the map and assists them to submit a report to

authorities if a problem arise.

**Index Terms**—Waste pollution; Garbage Collector; Mobile apps ;WAMPP; Android Studio

## I. INTRODUCTION

Waste management is the major issue facing by developing as well as developed country. Improper garbage collection arises many issues like health, environmental issue. Health issue contains severe diseases like malaria, respiratory disease and lead to arises different viruses which will impact our health. People always try to keep our surrounding clean but some people throw garbage in front of their house or neighbours house. Due to this our environment get contaminated and the atmosphere cycle get collapsed. Disturbance in atmosphere causes less rainfall, flood, high temperature. Modernization and urbanization makes people so lazy that, they always want to work less and get efficient result.

Nowadays, due to increasing population the waste management is also becoming challenging. Government also try

**Door to Door Garbage Collection In Salem To Be Done By Battery Operated Mini Waste Collection Vehicles**



their best for handling the garbage but some extinct garbage collection is not properly done.

This paper represent the idea of mobile application which includes the user and the government .In this application the municipality officers as admin add the driver for covering garbage from a specific route and user can enter his route to see which vehicle is associated in his route ,also with the help of GPS user can trace the path of driver. If the truck will get full on half route then the user get notified that the vehicle is full and it will not cover our route that day.this system is user friendly and efficient. User don't have to wait for the vehicle. We are using WAMPP server for storage of database, Android studio for mobile application, GPS(Global Positioning System) for real-time tracing of the vehicle. According to the amount of garbage collected,by applying clustering algorithm the vehicle is sent to the particular place.

**II. LITERATURE SURVEY**

- 1) AN IOT BASED WASTE MANAGEMENT SYSTEM Green IoT focuses on energy efficiency from all perspectives of iot development. There are some research works related to Smart waste management that are utilizing IoT technologies. This paper uses the

smart bin development using Arduino uno R3, the web application of waste management system is used via smartphone application. Hardware implementation is a critical challenge for proposed system.The main issue is the scarcity of diffey components.

- 2) SMART WASTE COLLECTION MONITORING AND ALERT SYSTEM VIA IOT Using an ultrasonic sensor connected to Arduino UNO as to keep checking waste bin garbage level. Waste bin depth level will be sent via Ubidots IOT cloud but it won't update immediately. It won't detect the gas and public won't know the status of Garbage level.
- 3) IOT BASED SMART WASTE BIN MANAGEMENT SYSTEM WITH AN OPTIMISED ROUTE

A method that uses many solutions to show the issues of spillages and unfit collection scheme is presented. They have used smart waste bins to detect and report the level of waste through SMS notification for further actions. The data collection is done through sensors then the data is analysed using KNN classifier. It uses too many algorithms and has calculations for surveys so it is a very complex process for solid waste management.

**III. PROPOSED SYSTEM**

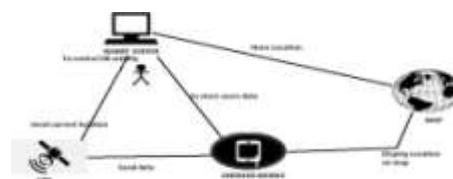


Fig. 1. Proposed System Flowchart.

We are developing the android application using android studio and WAMP server. In this system the main three modules such as following:- 1. User Module 2. Admin (Municipal Corporation) Module 3. Driver Module 1. User Module In this module user has to register in the android application. The field of registration is such as 1. Name 2. Password 3. Email ID 4. User Type This information will save in the database. After successful registration, user can login into the application. User has to enter route then user can view driver's location, Name of driver, level of garbage. 2. Admin (Municipal Corporation) In this module admin has all authority to add drivers into database and update or delete from database. Also admin can view everything like can view driver's location, Name of driver, level of garbage. 3. Driver: In this driver module, driver has to login into the application using valid ID and password. After successful login into application, driver can update garbage level so that user admin can view level of garbage like low, medium or full.

#### IV. METHODOLOGY

- 1) Google API key: To utilize the Maps JavaScript API you should have an API key. For the tracking we have used Google API key.
- 2) K-means Clustering Method K-Means Algorithm in proposed application: In proposed application, k will be fixed locations which is already specified by admin. Partition of locations into k non-empty subsets. We will compare user's selected location to every location which is already predefined by admin. Then we will calculate distance and which cluster matches or near by then we will add that particular user to that cluster Here, we are making clusters area or location wise. So, input for k-means algorithm will be all the user locations all locations which are specified by admin. We will apply k-means algorithm on all locations then after processing we will get output of all clustered user's location or area wise.

#### V. RESULT AND ANALYSIS

The result shows the success of developed system on the android application interface for this mobile application. Since the project is mobile application, the application is called swacchh bharat app.

On the main page when user click on the "REGISTER" button the register menu should pop up, same for the "LOGIN" when the user click on this button login menu should pop up. User must enter the valid email-id and password, if the

Emailid or password either one is invalid then user can not use application until both are correct. Admin should enter the correct route for the driver. User should also enter route for his house and can see the scheduling of the vehicle for his area and trace the location of the driver. When the driver update the level i.e full or empty. The people will get benefited by this technique. When there is large no of people then the vehicle associated is also big. It can be effectively done using K-means clustering algorithm.

Fig2 and Fig3 shows login and registration page respectively. User needs to register first to use this application by filling the name, email, password and user type. Then user can sign in by filling the email and password if the email and password both are wrong then user cannot access application until filling correct email and password.

In Fig4, tracking we are entering source and destination address. If one of them is wrong then tracking is not possible on that way. Driver must add route which we want to track. In the tracking we can see the current location of driver and the level of garbage whether it is full or empty.

In Fig5, we can see where driver is assigned to a particular location and whether he/she covering that location or not. In



Fig. 2. Login Page

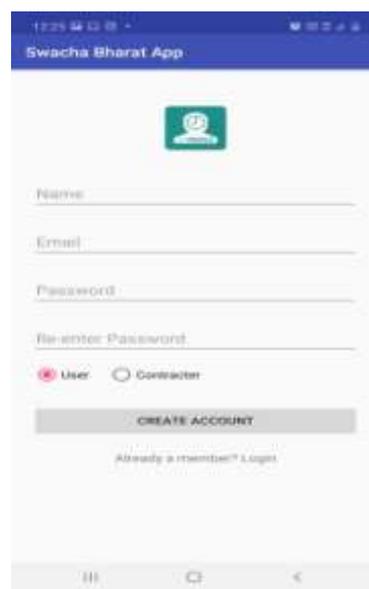


Fig. 3. Registration Page

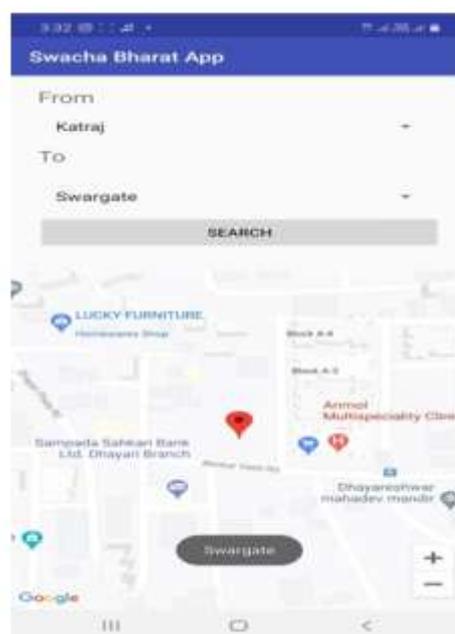


Fig. 4. Tracking



Fig. 5. Admin Home Page

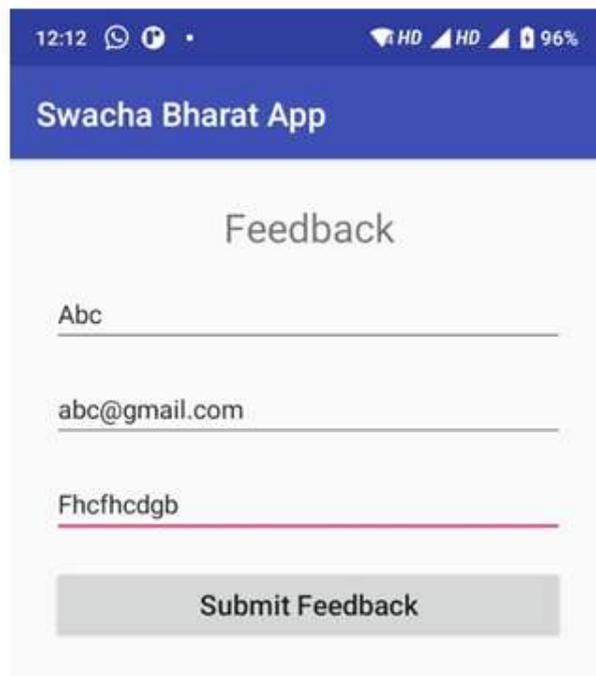


Fig. 6. Feedback

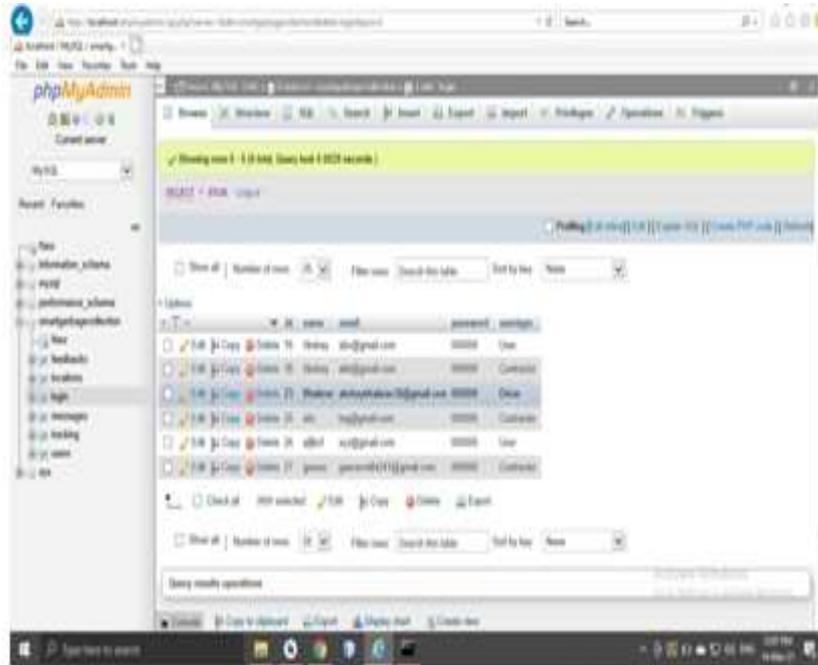
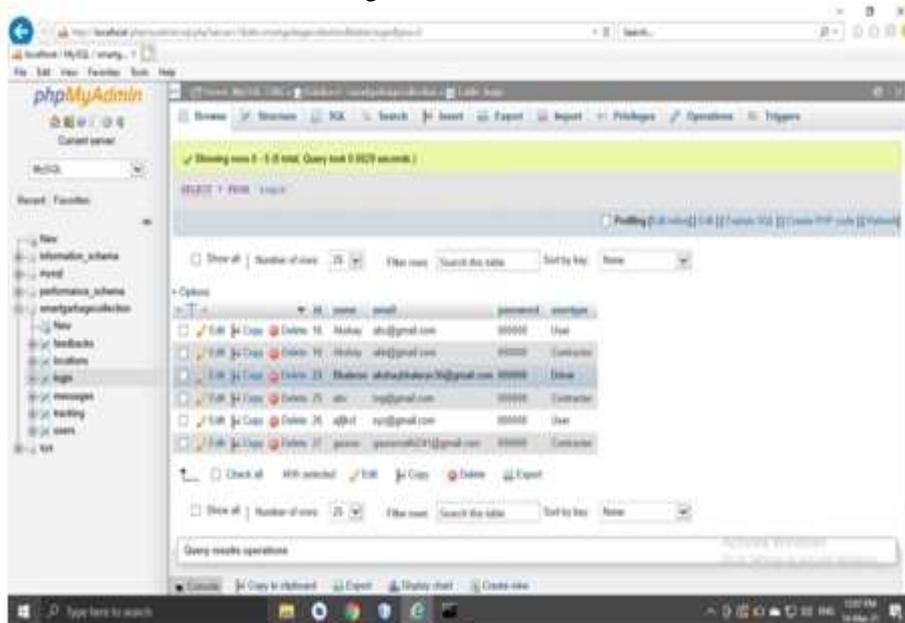


Fig. 7. User Database



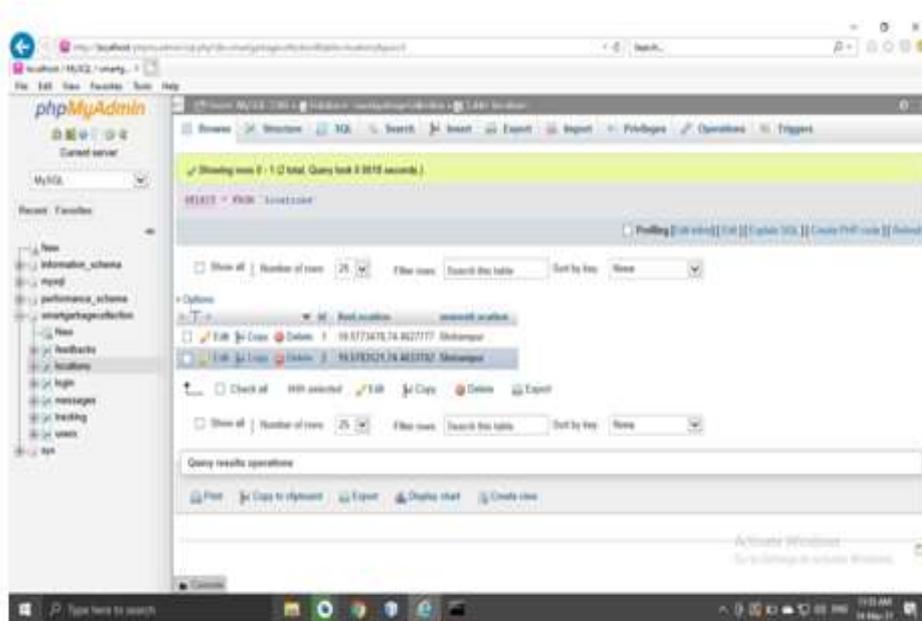


Fig. 9. Clustering

Fig6, if user have any complaint regarding driver or scheduling of vehicle then user can make complaint so that can see and try to resolve that problem.

In Fig7, it shows the interface of the database of user after the user register the account , all the data is save in database. The data of real time location also saved into the database. The data is automatically saved in database. We are using Wamp server for storing data in the database.

In Fig8, it shows the interface of the database of admin when admin add the driver , drivers current location and assigned source and destination is also saved in the database. After adding driver for particular location we cannot add another driver for same location.

In Fig9, k will be fixed locations which is already specified by admin. Partition of locations into k non-empty subsets. We will compare user's selected location to every location which is already predefined by admin. Then we will calculate distance and which cluster matches or near by then we will add that particular user to that cluster. Here, we are making clusters area or location wise. So, input for k- means algorithm will be all the user locations amp; all locations which are specified by admin. We will apply k-means algorithm on all locations then after processing we will get output of all clustered user's location or area wise.

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## VII. CONCLUSION

The proposed application is implemented for all users (people) to track the location of garbage vehicle and level bin. Admin take continuously updates of the driver. The technologies used in this system are designed in such a way that operators and citizens both will find it user-friendly to keep an eye on the garbage information from different places. According to the amount of garbage collected in particular area the vehicle will be associated. This concept is based on software project is used to have great service to the

world and make it a better place to live in.

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