Location Based Garbage Management Application

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Abstract— Smart cities integrate multiple mobile solution to make a comfortable human habitation. one in every of these solution is to supply an environmentally friendly, efficient and effective Location garbage management system. The present garbage pickup system includes routine based garbage trucks doing rounds daily or weekly, which is not only cover every zone of town but it's completely inefficient to use of the resources. This paper proposes an efficient mobile based system for the government to utilize the available resources of efficiently manage the overwhelming amounts of garbage collected in day after day, and also providing a much better solution for the inconvenience of a garbage disposer for the people. This can be done by a network of smart bins that integrates the cloud-based techniques to monitoring and analyzing the information that collected to supply a predictive routes to generated through admin for garbage trucks. A mobile based application is developed for the workforce and people, which primarily provides the generated routes for the workforce and to search out the closest available smart bins.
Keywords: Garbage management,location based garbage management,waste management

I. INTRODUCTION

Proper waste management could be a basic requirement in any quite an environment. Usually cleaning in these environments are wiped out the morning and also the afternoon. If the survey is based on an urban city like Colombo usually there are about 1,100,000 to 1,500,000 [1][2] employees heading workstations in every morning. For all the people, there are just not enough bins available. On the streets of urban cities, many people are passing the identical location around one minute. Around 95% [3] of individuals are carrying food covers, polythene bags, and plastic bottles. If they dispose all them without delay, the bins are going to be filled in several minutes. once they replenish people just litter their trash round the garbage bins because there's nowhere else to place them. the apparent solution to the current is for the cleaning staff to remain near garbage bins daily till they replenish to clean them. this is often not a good solution. It takes far more cleaning staff and costs lots of cash. So, it's impractical. the identical scenario is going on in workstations. as an example, a bank or a office cafeteria usually has about five to six garbage bins to serve many employees. This is often simply not enough. There are some notable negative effects when considering the bins always being full. one among the most effects is that the surrounding area commencing to smell and be very unpleasant. When the bins are full and all the people put their trash on sides of the bins. When this is often in deep trouble a while, first it starts to smell bad. So, others who come later tend to not go close and throw their trash within the direction of the garbage bins. If there're any leftover food items, throwing it causes them to spill that attracts animals like cats, dogs. And these animals spill them even more. Another negative effect is that the diseases that spread. it isn't just the garbage that spread them, but the animals can also be a source.

II. THE LITERATURE REVIEW

The Internet of Things (IoT), evidently infrastructure for envisioned concept of Smart City, brings new possibilities for city management[8]. IoT vision introduces promising and economical solutions for enormous data collection and its analysis which might be applied in many domains and then make them operating more efficiently. during this paper, we are discussing one among the foremost challenging issues - municipal waste-collection within the Smart City. To optimize the logistic procedure of a waste collection, use own genetic algorithm implementation. The presented solution provides calculation of the efficient garbage trucks routes[9]. As an output, we offer a collection of simulations focused on mentioned area. All our algorithms are implemented within the integrated simulation framework which is developed as an open source solution with relevance future modifications.

III. PROPOSED METHODOLOGY

The proposed system overview for this system. Solid waste management can be broadly categorized as segregation, collection, and transportation.The server will collect the information and store them only a database. This data are analyzed and displayed on two different dashboards that may be accessed by the workforce and clients.Using data analytics, reports are generated which might be monitored by the admins through the admin dashboard. Based on the information collected, garbage trucks will be given routes generated through various algorithms and google maps API to efficiently route through all necessary garbage bins and at last reach the dumping site.

A. Module specifications

By using garbage update information of worker, general public can communicate with administrator. Communication is possible among the drivers, users and administrator.

- ✧ Administrator

Administrator login with the registered username and password. Administrator can create and delete the bins and able to update the bins status.Besides administrator can create the driver and update the work report for all the works.

✧ User

User login the registered username and password and post a complaints to the admin.User can upload a picture of garbage bins with the complaints. User get a notification alert after cleaning of the garbage bins.

✧ Driver

Driver login with registered username and password and able to see the complaints from admin.Driver get a routes of the garbage bins with google map and driver can choose the best routes also to reach to the particular area.

IV. DESIGN METHODOLOGY

The design activities are of main importance during this phase, because during this activity, decisions ultimately affecting the success of the software implementation and its easy maintenance are made. These decisions have the ultimate bearing upon reliability and maintainability of the system. Design is that the only way to accurately translate the customer's requirements into finished software or a system.

A. *Block Diagram*

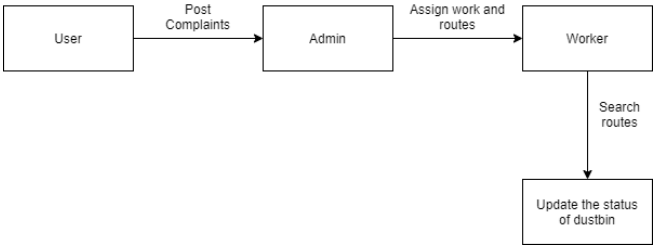

Figure 1:Block diagram of garbage management

The above block diagram(Figure 1) is defining that the user can post a complaints to admin and admin is assigning the work and routes to the driver or worker and worker searches for best routes to clean the garbage bins and worker upload the status of the garbage bins or dustbins.

B. *DFD Diagrams*

✧ *DFD(Level 0)*

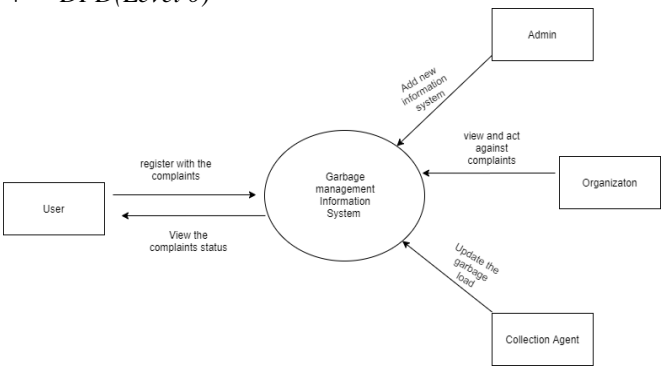

Figure 2:Data-flow Diagram of Garbage Management

The above diagram(Figure 2) is showing that the user is posting a complaints and getting the status of the complaints and admin can add the new information to the system and worker or collection agent is uploading the garbage load.

✧ *DFD(Level 1)*

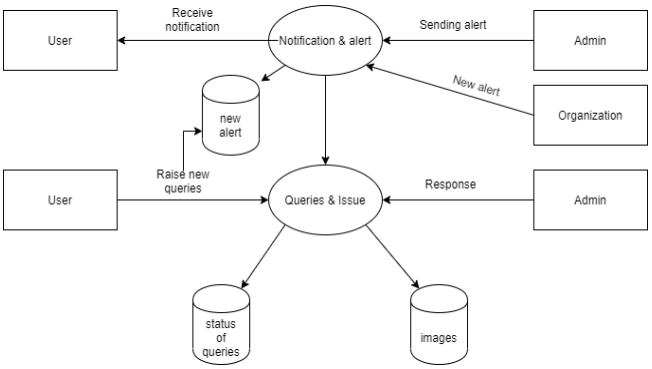

Figure 3:Data-Flow Diagram of Garbage Management

The above diagram(Figure 3) is showing that the user get a notification alert from the admin and user can raise queries for any issues and get the response from admin.

V. EXISTING SYSTEM

For all the people, there are not enough garbage bins available in the city. On the streets of urban cities, many people are passing the identical location around one minute.

The obvious solution to the current is for the cleaning staff to remain near garbage bins on a daily basis till they stock up to clean them. this can be not a true solution.There are some notable negative effects when considering the bins always being full. one in all the most

effects is that the surrounding area commencing to smell and be very unpleasant. When the bins are full people put their trash on sides of the bins.

VI. RESULT

Garbage management is extremely useful for smart cities in diverse aspects. We've got seen that, in cities there are dissimilar dustbins located in numerous areas and dustbins become over flown persistently. Our system is meant to crack this issue and people can offer complete details of the dustbins, located in numerous areas throughout town. The allocated authority can access the knowledge from anywhere and anytime to get the details. Accordingly they will revenue the choice on this immediately. Protection of the environment through effective garbage management measures. Protect the health and well being of people by providing an affordable garbage collection service. Reduce and reuse of waste and to create awareness among the people about the impact of waste.

Figure 4:Home page of the application

The above Figure(Figure 4) is the home page of the application which contents the user register and login,admin login,driver login.

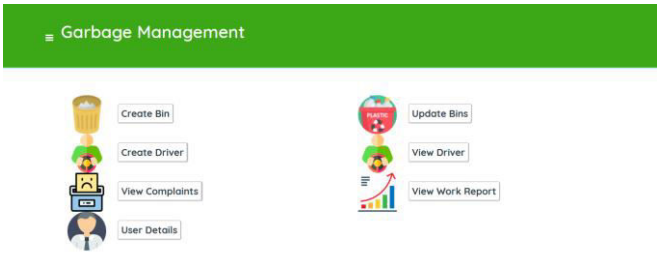

Figure 5:Admin page of the application

The above Figure(Figure 5) is the admin page of the application which has create bin,create driver,view complaints,user details,update bins,view driver and view work report.

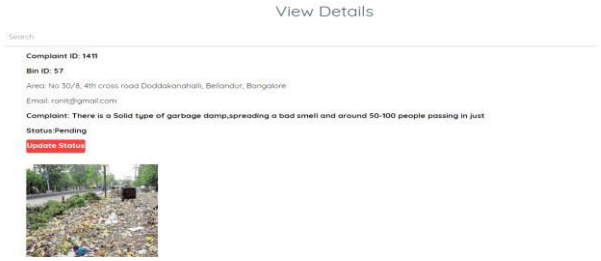

Figure 6:User complaints details

The above Figure(Figure 6) is the user complaints page where user can upload the photo and user can the complaints details.

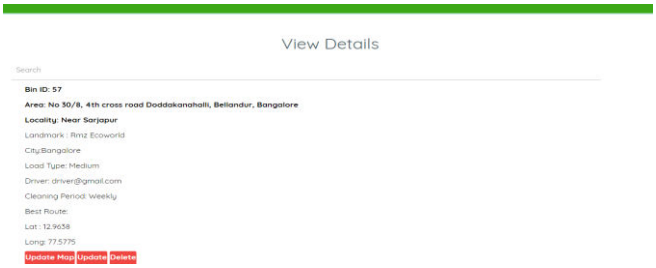

Figure 7:View complaints of Admin

The above Figure(Figure 7) is the view complaints page of admin.Admin update the map of the particular location to the driver.

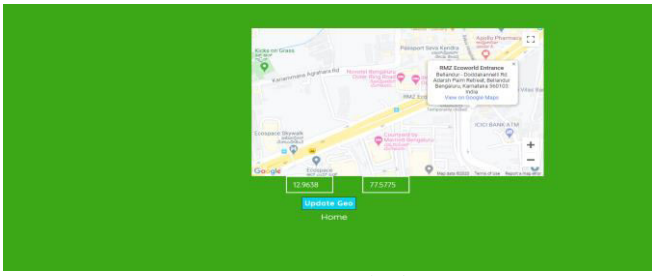

Figure 8:Map of the location

The above Figure(Figure 8) is the map of the particular location set by admin.Admin can able to change the location through latitude,longitude.

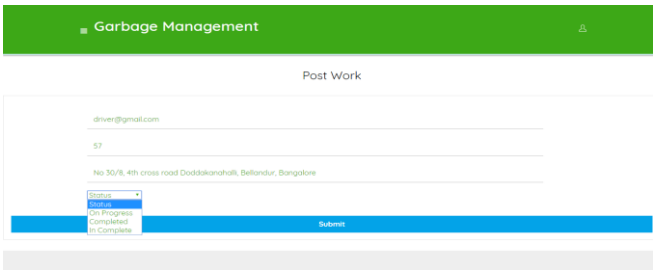

Figure 9:Driver post work

The above Figure(Figure 9) is the driver post work where driver update the status after cleaning the garbage bins or dustbins.

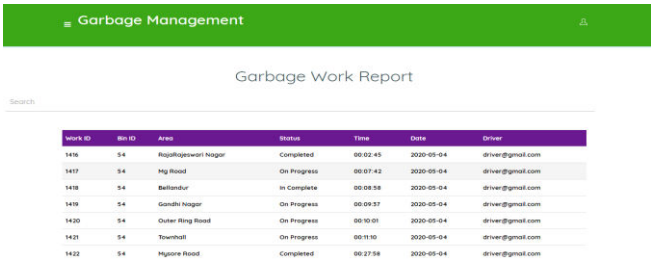

Figure 10:Garbage management work report

The above Figure(Figure 10) is the garbage management work report where the admin create a work report for all of the works.

CONCLUSION

Future work can include many areas. One area that can be improved on, but limited at this time due to trying to making this project low cost, is identifying types of garbage from the bin itself, thus removing human segregation. If this is implemented, in a single location instead of four bins for the four different types of garbage, one large bin can be placed which segments the garbage by itself. Another area that can be improved is instead of each bin connecting to an access point to communicate with the server, bins can communicate with each other and connect to an access point through the main hub. This methodology may reduce network costs and make the network process more efficient.

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