International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 4 | Apr 2019 www.irjet.net p-ISSN: 2395-0072

Mapping Of Open Dumping Area Using GIS

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Abstract - *Solid waste dumping is a very big problem in urban as well as rural areas due to shortage of land for the purpose. The main objective of this study was to select the potential areas for proper dumping of solid waste for our city. GIS, RS is a powerful tool that can effectively be implemented during the planning phase of solid waste management to avoid adverse disasters in the future.*

We are developing an application in which the user will give us the location and a geo-tagged photo of the garbage around him. When we get the location and the photo, we will analyze the dump size , number of request from the same area and the likes on that post. Then, the requests will be shown to the nagar palika with the help of colors like most dumped and the area with maximum number of request was showed by red color, moderate by blue color , less dumped by green color.

We will not directly forward the request to Nagar palika. First we will ensure that the request is not fake.To ensure that Nagar palika does not get the fake news, we will pass that problem to higher authorities or Nagar Palika, when we get 20 to 30 request from the same location. After that the suitable actions will taken by the authorities.

Key Words: Geographic Information System , Java , Android Studio , php , postgresql

1. INTRODUCTION

City, township waste management system should be planned very carefully. It should be very effective and efficient. But in our country, we do not have such effective waste management system that can handle this growing waste. As the garbage production increases, open dumping is also increasing. Some suggestions have been given for this waste management, some of which have already been implemented, but they are not as effective

A GUI is developed to manage the garbage collection efficiently that monitors the desired information related to the garbage for different selected location. Level detector sensors are implanted in the dustbin to detect the garbage level. The different amount of garbage level is indicated by the four IR sensors. When dustbin fills up to the highest level, then the output of the Fourth sensor become active low. This system assures the cleaning of dustbin at appropriate time.

Like this system, many others system are also been implemented but none of them are proved to be very successful. Because, some of them does not have a good idea and some are very expensive.

So, to solve this waste management problem, we have taken a step forward to make our country clean. For this, we have started from a solution of a very basic problem i.e. open dumping. This problem can solve many issues related to the waste. As if we have to solve this issue then we have to put dustbins where open dumped garbage is present. And also the problem of cleaning of dustbin can be solved without using any sensor. As if dustbin is fully filled then open dumping starts, so if we try to reduce open dumping, then we have clean our dustbins regularly.

For example if a complain of open dumping comes from a particular location regularly then we have to implement dustbins and also if complains occur after that too, then we have to clean them regularly. Otherwise complain will not stop.

2. Objective

The main objective of mapping open dumping is to reduce illegal dumping and to make our nation clean. Due to these open dumping areas various diseases are born and people fall sick. It creates a very unhealthy environment around us. It also leads to the defertilization of the soil. So, by using our app people can easily walk out from this situation.

Through our application, peoples of different localities take a photo of dumped areas and send to us with the help of our app and we easily the select the most dumped areas first and send the location to the particular nagar nigam or nagar palika after that the nagar nigam people consider the situation and try to solve it as early as possible.

There are various objective to develop this application. Some of them are following :

- This application ensures the protection of environment through effective waste management system.
- This app will result in protection of health and well being of people by providing an affordable waste collection service.
- Contribution of waste sector will grow to GDP.
- No. of Jobs will increase in waste sector.
- We can reuse and recycle the waste.

3. Proposed Approaches

There are many proposed system for this waste management issue but very few of them focussed on this open dumping. Some focuses on dustbin cleaning and some focusses on collection of waste. But our approach is very different and better than all of these approaches.

Like there is a system of smart dustbin in which sensors are used. Level detector sensors are implanted in the dustbin to detect the garbage level. The different amount of garbage level is indicated by the four IR sensors. When dustbin fills up to the highest level, then the output of the

Fourth sensor become active low. This system assures the cleaning of dustbin at appropriate time. Some system uses Iot to make cities smart. Various surveys are taken on waste collection to collect information. But these things does not prove to be very successful and the main reason of their failure is that they do not involve local people for the solution of this big problem.

3.1 Comparison with previous work

Some of the features that makes our system better than all other are following:

- First of all , our idea makes aur system better than all other in which local people will play a very big role. Local people are fully involved in it. And they can keep their eyes on higher authorities. This will force the higher authorities o nagar palika to work better.
- Second , Implementation of other approaches is very difficult because they are using hardware like sensors whereas our system can be implement at a very low cost.
- Our application is very easy to handle. You can send your location on a single click. So, our application is very much User Friendly.
- Nagar palika can easily get information that at which place they have to take quick actions and which area need to be improved.
- Nagar palika can also keep their eyes on cleaners whether they have completed their job properly or not.

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4. Work Flow Chart Of Our Application

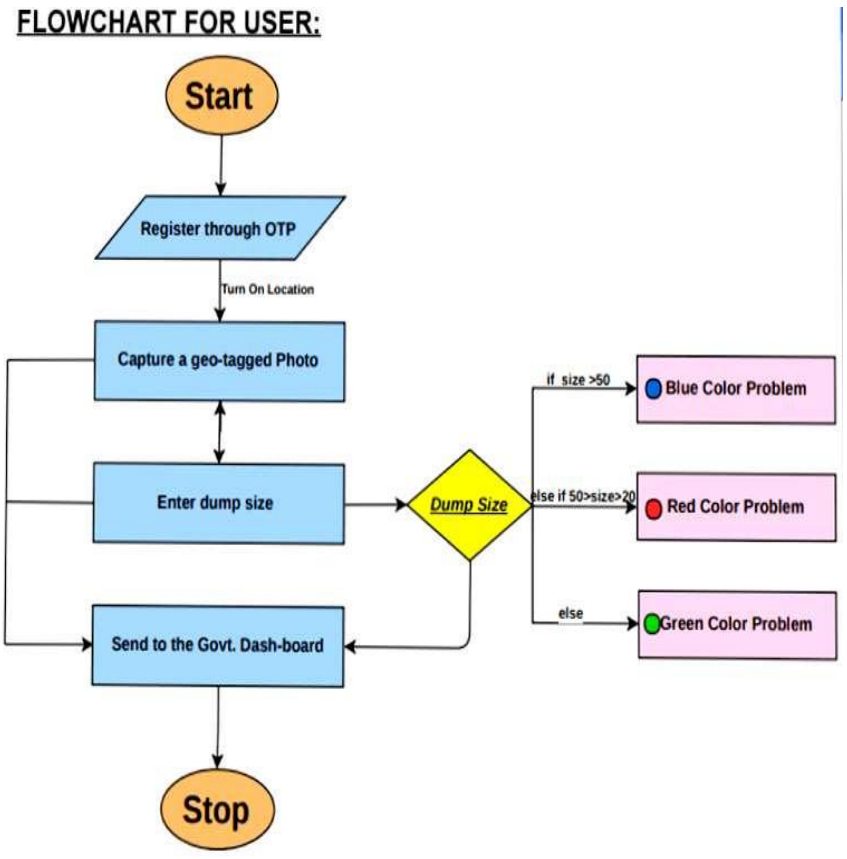

Fig-1 Work flow of User

5. Screenshots of our Work

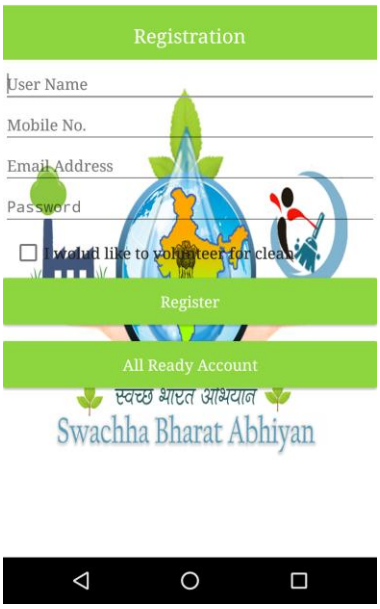

Fig-2 Registration Page

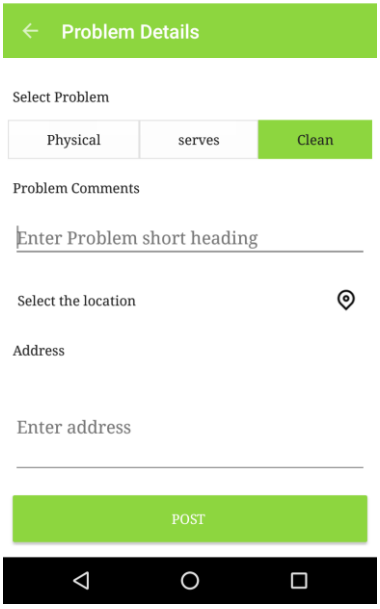

Fig-3 Problem Details page

Fig-4 Dashboard Page

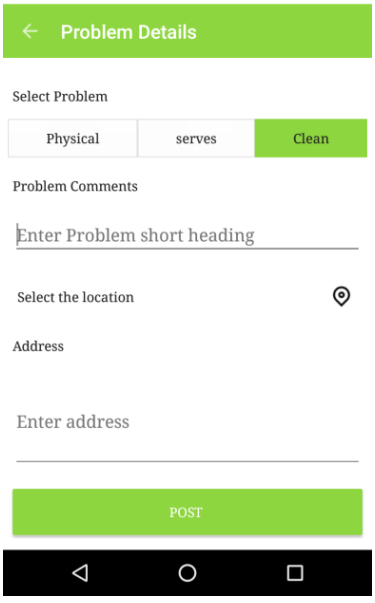

Fig-5 Problem Details page

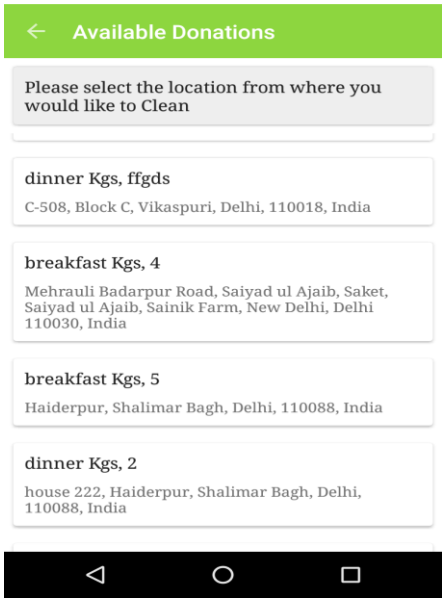

Fig-6 Location Selection Page

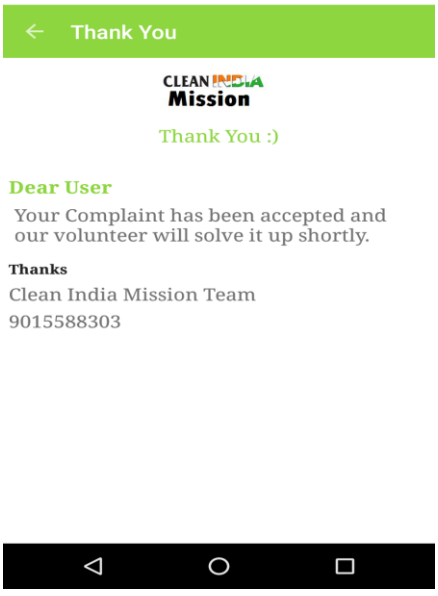

Fig-7 Thank You Page

6. CONCLUSIONS

To solve this big problem, we all have to join our hands together and work hand in hand. So, we develop an Application in which we all can give our contribution for the solution of this problem. In this app, the users give the location of openly dumped garbage that surrounds them. There is also an option to click a Geo-Tagged photo to raise more promising issue. After receiving the location and Geo-tagged photo, we will check the dump size of the garbage and categorise the dump. The images are show in dashboard with the help of colors like most dumped was showed by red color, moderate by blue color , less dumped by green color.

To avoid the pranks, what we are doing that we will not directly forward the request to Nagar palika. First we will ensure that the request is not fake.

To ensure that Nagar palika does not get the fake news, we will pass that problem to higher authorities or Nagar Palika, when we get 20 to 30 request from the same location. After that the suitable actions will taken by the authorities.

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