Android Based Regulatory Complaint Service

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ABSTRACT

Placing complaints to any offline government bodies is a very tedious task. This is basically because locating the government office can be problematic. Direct complaint registration may be time consuming process. According to a survey, usage of Android based devices has increased drastically than other Mobile OS. Due to increased Android users, using mobile application to register complaint is easier and more effective. The complaint is registered with the help of the picture of the problem and sent through the internet with the presence of Cellular Data. The location is identified using GPS as it improves the accuracy of location identification and the complaint can be addressed in an effective manner.

Keywords: Android, Global Positioning System, Mobile OS, Mobile Internet.

I.   INTRODUCTION

The seriousness of any social problem is often not known by offline means. Even after reporting some of the unsocial activities they end up with the sketch of the accused based on the eye witness. A mechanism to accept complaints from citizens would be the expectation from both the citizens and the government bodies. With number of people using mobile phones is increasing, it has become a need for users to provide on their mobiles, all facilities one is been utilizing on the internet.

In this paper the user can take a snap-shot of the particular activity i.e.: water leakage, power cable hanging around, tree fall, unsocial activity etc. The application will augment the current position where the picture is taken. The above augmented picture is sent to the concerned authority. The map of Tamil Nadu is drawn. Here it is various marker flags respectively ward wise, depending upon the no. of complaints received in an area. Statistical information is maintained such as the no. of complaints received category wise. The users use the mobile phone and do not need to access the web portal interface directly to file their complaint. The user downloads this application onto his mobile phone.

This paper is basically created to help people solve the problem's which they see in their day-to-day life in their surroundings. It proposes a natural English enabled mobile interface which can be used to lodge complaints.

The essential idea is to provide an easy, cheap and quick mode of complaint registration around the clock. It is very easy because there is no long procedure of filling up of any forms or much details of self & hence saving our valuable time too. It doesn't require the citizen to remember any specific information to lodge their complaint. The mobile channel makes active citizen participation possible because of the higher penetration of mobile phones in India.

II. METHODS AND MATERIAL

2.1. RELATED WORKS

There are existing systems by which the complaints can be registered. Aditi Mhapsekar, developed GSM-SMS complaint system [1] in which a person can send the complaint to a response number as SMS. It may cost the person as per their network transaction charges.

There are other conventional means like making a direct call to that particular department and there are web portals for some government departments which can be accessed through internet connection through which users can register and login to fill in their complaint.

2.2. TECHNOLOGIES USED

In order to increase the efficiency and to provide user friendly environment for the application, some of the highly known and important technologies are utilized. Some of the technologies used are listed below.

2.2.1 Android OS

Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for tablets and smart-phones. The OS uses touch inputs that loosely correspond to real-world actions like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Due to this increased and varied existence of Android OS in almost all hand held devices, Android application becomes more available to almost all the end users who are in line to post a complaint on any organization.

2.2.2 GPS

GPS provides a precise and accurate co ordinate of the location from which a device accesses any service. This in turns helps identify the problem location easily so that the problem can be rectified as soon as possible.

A GPS tracking unit is a device that uses the GPS to determine the precise location of a vehicle, person, or other asset to which it is attached. This is also utilized in Android oriented applications.

2.2.3 Cellular Packet Data

It's was a wide-area mobile data service which used unused bandwidth normally used by AMPS mobile phones between 800 and 900 MHz to transfer data. The service was discontinued in conjunction with the retirement of the parent AMPS service. It has been functionally replaced by faster services such as UMTS/HSPA.

III. RESULTS AND DISCUSSION

Our Android application provides the users with an easy way to lodge complaints for all social based problems using one of the most frontal mobile devices which is available almost in most places. This is biggest advantage of utilizing Android based application due to the increased reach in the number of users.

3.1 User's Complaint Registration

The user can register the complaint using the android application in the first module where the user can describe his complaint and register his complaint based on the type of complaint. The user can also take a picture of the event in this module and send to the particular department.

Here, the GPS tracker in the mobile devices records the place where the complaint picture is taken and hence the location data is also sent to the administrator. Therefore the location can be plotted on the map and response team can be dispatched quickly. Now the actual complaint is registered before which the verification code is sent to the number which is provided by the user. This step is almost similar to the "2-Step" verification like in Gmail login. This is done in order to avoid any fake users from sending complaints by utilizing the numbers of any other users. This helps more secure usage of the application.

Figure 1.1: Complaint type Selection form on Mobile app

3.2 Complaint Transmission Mechanism

This module is responsible for carrying the complaint data through internet. The data is sent as HTTP request and is received as HTTP response between the complaint maker and administrator. The data between the web application and server is transmitted using JSON and REST.

The JSON and REST technologies are clearly highly efficient and provide the user with quick response from the application. JSON [6].
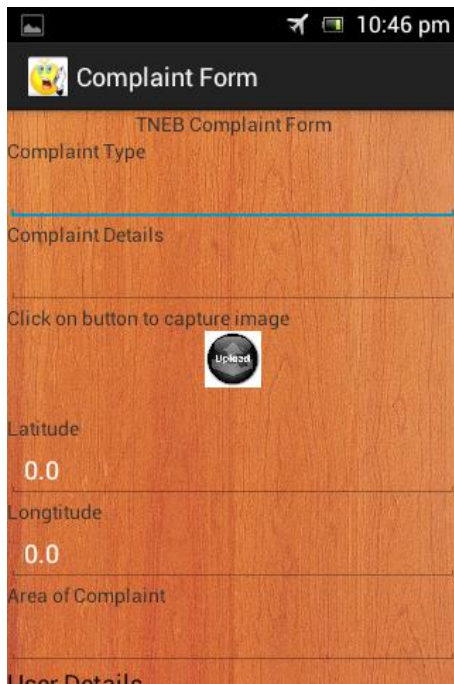
Figure 1.2: Complaint registration form on Mobile app

3.3 Complaint Reception: Admin Side

The registered complaints are viewed by the administrator in their system with the help of PHP pages as utilized in many web services. It improves the overall efficiency and also provides easy construction or coding methods for the developers

The Complaint is received in a list wise form as show below and the location of each complaint can be viewed through Google maps which serve as a global mechanism for locating any given data acquired from GPS

Complaint details

Sr.No.	Tel No.	Vehicle No.	Issue	Time Date	Latitude Longitude	Status	Location
1.	9967231231	MH 23 PW 3245	Overpricing	18:20 21.09.2012	19.22591 72.84342	Resolved	View
2.	9934356547	MH 99 AA 4563	Denial of Service	18:00 21.09.2012	19.12563 72.83568	Resolved	View
3.	7654839222	MH 21 LM 6745	Misbehaviour	17:40 21.09.2012	19.25634 72.85591	Resolved	View
4.	9834788389	MH 09 AA 8934	Denial of Service	17:10 21.09.2012	19.37821 72.83922	Pending	View
5.	3427878300	MH 02 AZ 3420	Denial of Service	16:30 21.09.2012	19.45327 72.86981	Pending	View

Figure 2: Sample Complaints: List View

Due to these advanced utilities provided for both the server and the client side, this application has an increased advantage when compared to the already existing GSM-SMS system which cannot be available for all users.

The users can also be easily given the status and the current whereabouts of the response team which is sent to take care of the particular problem.
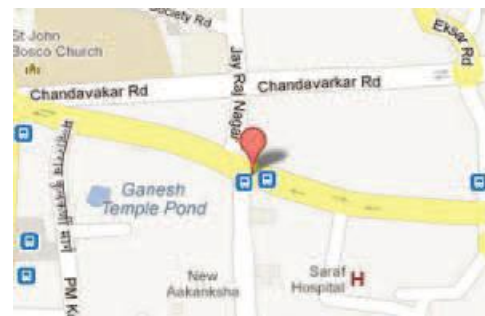

Figure 3: Sample Complaint location on Google maps

3.4 Architectural Description

This description explains the way in which the application works. Users can use this App to register complaint over a particular department from a particular locality. The GPS locates the place where the photo is taken and stores in the tracker.
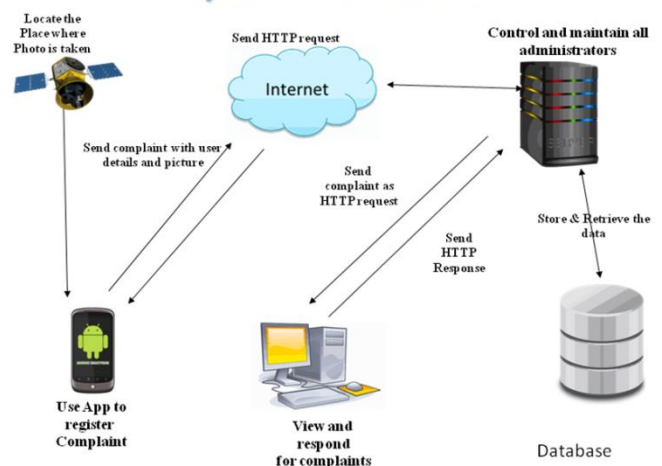

Figure 4: Simple Architecture for RCS system

Now the user sends the complaint with location details and picture and also the user details such as phone number, name. This complaint is sent as an HTTP request to the server which directs it to the appropriate administrator.

The Admin is entitled to view and respond to the complaints as per the needed viable solution to that particular problem. There is database which runs with MySQL service in order to store &retrieve the data.

3.5 User Acceptance Evaluation

In order to evaluate our solution in terms of user acceptance, a survey was conducted among the potential users who have smart phones by Gartner and IDC. The questionnaire used in the survey consists of two main

parts. The survey was for the utilization of android devices amongst the commoners

The secondary survey was to identify the actual growth in the usage of the android devices. Both in turn gave great results as almost 40% of the people use Android based devices.

This survey finally shows that the application can become a huge success on the proposed platform due to the extravagant increase in the number of users in 4 years.
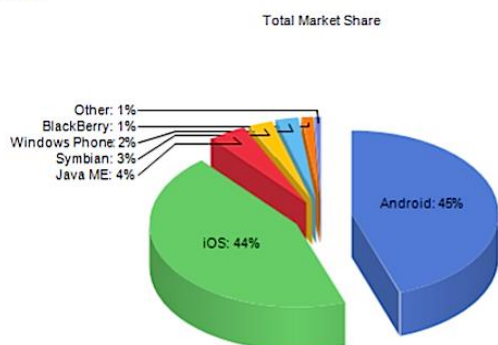

Figure 5: Smartphone Users based on OS

The figure 6 shows the increase in the usage of android over other mobile operating systems. It validates data since 2009 which is an indication of user acceptance towards android phones. This enables us to understand that android application has an increased advantage over other mobile based applications.
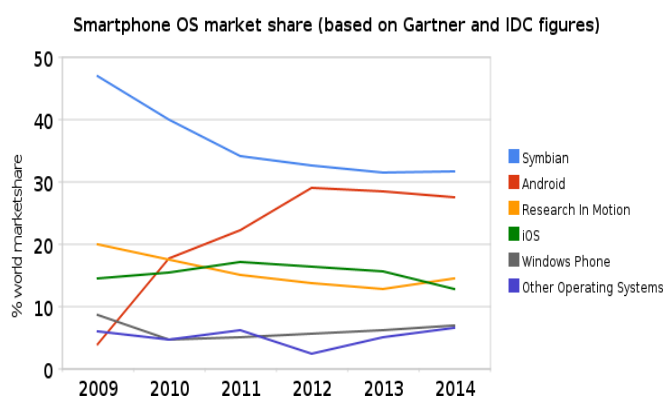

Figure 6: Mobile OS usage increase

IV. CONCLUSIONS AND FUTURE SCOPE

Though there a lot of advantages in the current proposed system, a centralized mechanism to manage the complaints addressed to every department is unavailable

As a future advancement, there can be a centralized managing unit which can use a large centralized database and system environment to view, manage, reply and work on the complaints acquired from all departments. Also this system can be extended to the remaining states as further advancement.

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VI. REFERENCES

[1]. AditiMhapsekar, Uma Nagarseka, Priyanka Kulkarni and Dhananjay R. Kalbande. "Voice enabled Android application for vehicular complaint system using GPS and GSM-SMS technology," in World Congress on Information and Communication Technologies, 2012, pp. 520-524.

[2]. Mohammad A. Tayebi, Patricia L. Brantingham "CRIMETRACER: Activity Space Based Crime Location Prediction" in 2014 IEEE/ACM International Conference

[3]. "Google Maps Javascript API v3." Internet:developers.google.com/maps/web/,

[4]. "Android developer/ Getting Started" developer.android.com/training/index.html

[5]. "Working with Xampp server on our own system" phpknowhow.com/basics/working-with-xampp/

[6]. "JSON: Basics and introduction" w3schools.com/json/json_intro.asp

[7]. "What is REST and how to use it for Android applications" restapitutorial.com /lessons/whatisrest.html