

# “SMART CITY”: Municipal Corporation Services for Human Welfare

Akshay Abhyankar  
Bachelor of Engineering,  
Department of Computer Engineering  
VIVA Institute of Technology  
University of Mumbai

Ashwini Bhoir  
Bachelor of Engineering,  
Department of Computer Engineering  
VIVA Institute of Technology  
University of Mumbai

Harshit Damani  
Bachelor of Engineering,  
Department of Computer Engineering  
VIVA Institute of Technology  
University of Mumbai

Ashwini Save  
Head of Department  
Department of Computer Engineering  
VIVA Institute of Technology  
University of Mumbai

**Abstract** – In day to day life municipal corporation services are provided by visiting corporation offices physically or through visiting their web sites to some extent. Various facilities such as banking, e-commerce, booking etc. are provided using mobile application.

Use of mobile applications for distinct purpose is growing rapidly. People prefer to use mobile applications to carry out various daily activities. Hence there is a need to develop a mobile application which will help to provide municipal corporation services. The previous system used to serve citizens was based on website which was not so convenient. Thus we have developed new system i.e. Mobile Applications which is more convenient and efficient than the previous system [1].

This paper presents new and efficient method to provide various corporation services through mobile application which turns to be efficient in terms of time, cost and paper work.

**Keywords** – GCM – Google Cloud Messaging, HCI- Human Computer Interaction, TID - Transaction ID.

## 1. INTRODUCTION

People visit to a municipal corporation offices or visit their websites to access their services. Use of mobile has increased drastically. 91% of world population owns mobile phone, out of which 56% owns a smart phone. Mobile is the primary internet source for the 50% of the mobile users. It is also observed that user spent 80% of time inside applications [9][11].

This application resembles municipal corporation services. Various services are provided through this application. User can access these services from anywhere & anytime through mobile[12].

Observing the above stats, user prefers mobile applications to access essential day to day services. There are numerous municipal corporation services which are used by the citizens frequently, thus accessing this services through applications will be boon to a mankind.

## 2. RELATED WORK

Most astronomically immense corporation are in the six metropolitan cities of India viz. Delhi, Mumbai, Kolkata, Chennai, Bangalore and Hyderabad and among these Mumbai is the most populous and most immensely colossal metropolitan city of India[10].

Today municipal corporation services are provided in corporation offices. Therefore there is much need of a common man to visit corporation offices physically. It is not feasible for every person to visit corporation offices every time. There is another option provided by some municipal corporation i.e. websites. People can access any services online through this websites, but most of the time this sites are not available or dead.

Most researchers in human computer interaction take interest in developing incipient hardware contrivances, prototyping incipient software system and exploring incipient paradigm for interaction. Design in human computer interaction aim to engender utilizer interfaces which can be operated within facileness and efficiency [3].

## 3. PROPOSED SYSTEM

Application is based on Common Man interaction with Computational device along with the benefits of interaction with Municipal Corporation.

This application will be truly based on HCI Key points, i.e. User Friendliness, Color Combinations, and Ease of Language. It gives various functionalities as one touched operation for providing various facilities [6]. The Records generated will be logged in web server on the admin side. Providing TID for each operation and services available in Android based Application. Also Corporation can provide various notifications to all users regarding any required broadcast information during the time of epidemics and other various emergencies. User can also access to the municipal Services through one touch like Reporting to Fire nearest Fire station in the Corporation Boundaries. Fire Station will be reported the location of the user through Global Positioning System. Other services like Reporting Potholes, Complaints about specific departments, etc.

This Application represents customize notification according to the user given location filtered by the server admin. It will also inform user about the current corporation committee and available media and information about the historical and geographical context as an extended service.

### 3.1 Google Cloud Messaging for Android

Role of Google Cloud Messaging for Android (GCM) refer Fig. 1 in this application i.e. GCM Architecture is an accommodation that sanctions you to send data from your server to your users' Android-powered contrivance, and withal to receive messages from contrivances on the same connection. The GCM accommodation handles all aspects of queueing of messages and distribution to the target Android application running on the target contrivance. GCM is completely free no matter how immensely colossal your messaging needs are, and there are no quotas [14].

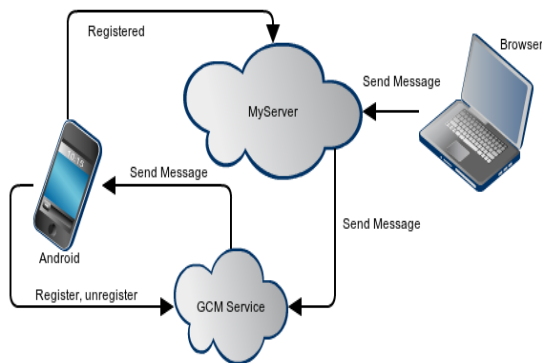


Fig 1: Working of GCM Architecture

Above figure 1. refers the working of google cloud messaging architecture by Google, used in this application. In context to this service, the web server sends the message the GCM server, which queue the message incase the registered device is not reachable or delivers the message to the registered device. Message is received in the form of Push Notification on the device.

### 3.2 Services offered in Application

An application offers many services. Some of the services are listed as follows:-

- Notifications
- Active Tenders
- Certificates & Online Forms
- Complaint & Feedback
- Taxes & Bills
- Emergency Toolkit
- Job Opportunity
- Elected Wing

For example Active Tenders will give information regarding all the Active Tenders that are announced by the municipal corporation.

### 3.3 Flow of Complaint Services in Application

There are various services available to user in application, among which one of the service is describe through a flowchart refer Fig. 2 below.

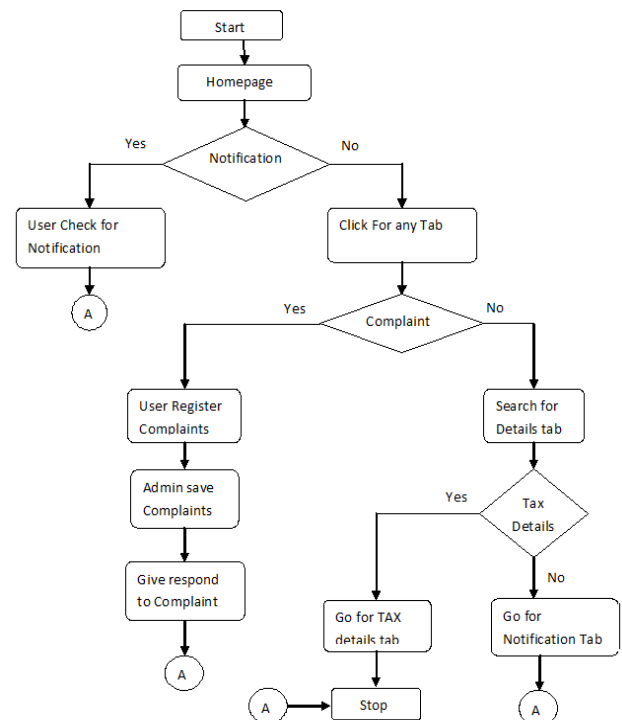


Fig 2: Flow of Complaint Services in Application

Above figure 2. shows the flow of Complaint Registration Service in our system, which refer to registration of various complaints regarding various issues of a common man in a society within the boundary of Municipal Corporation. For example issues regarding Drainage system, Irregular Water Supply, Waste Collection, etc. One can register complaint of such issues through this application.

## 4. RESULT AND ANALYSIS

Current system resembles to personally visiting the corporation office or visiting their websites. Very few websites are fully functioning. Thus this increases paper work, cost and time. This application provides better and fast result than current system. It provides services such as Notifications, Active Tenders, Certificates & Online Forms, Complaint & Feedback, Taxes & Bills, Emergency Toolkit, Job Opportunity, and Elected Wing.

Some advantages are listed below:

- a) User Friendly Interface.
- b) User friendly with transaction id generation on registration of complaint and various other features.
- c) Ease of accessing Municipal Corporation Services by using the Application developed [3][6].

GUI of the application will look similar refer Fig. 3 as such below:



Fig 3: GUI of Smart City

Above figure shows basic or first look of GUI of the Application. It consists of various services offered by the application. It also consist of language switch key to change language of the User Interface according to user convenience.. Language switch will offer languages like Hindi, English, Marathi, etc.

## 5. CONCLUSION

This paper results into advantageous and beneficial context to the current system of Municipal Corporation. The system has been developed with much care that it is free of errors and at the same time it is efficient and saves time. One of the important thing is that the application is robust in terms of data. Also provision is provided for future developments in the application. The entire working of the application is secured.

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