

Public Information and Welfare System

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Abstract – Public Information and Welfare System is an android application uniquely designed to improve the connectivity between the citizens and the emergency services like Police and Hospitals. This application specifically focuses on the law and order system, as well as the health care system of a city and helps the users locate the nearest police station, lodge a complaint or request for services like passport verification, job verification etc. Furthermore, users can locate the nearest hospitals, add reviews, give feedbacks and book an appointment swiftly. This is a smart city project aiming at simplifying the lives of citizens through technology.

Index Terms – Smart City, Android, Android Application, Police, Hospitals, Health Care, Reviews, Feedback, Locate.

1. INTRODUCTION

This paper reviews a smart city project based on two major categories- the health care and the law and order. With the technology increasing at a rapid rate with respect to time, it is the need of the hour to digitalise the day to day lives of the citizens in order to preserve time and energy. Health care and law and order are both entities of emergencies, as well as day to day necessities, therefore in order to avail these services one has to do a lot of manual hard work. Taking into account these issues, the blueprint of this application was created, architecture was built, and modules were identified and integrated. Thus, the Public information and welfare system was constructed.

The law and order module of the application requires user registration that includes Aadhar verification. Then, the user is given a choice between ‘lodge complaint’ or ‘request services’. The complaint type has to be selected from a drop down menu, which can be theft, women’s grievance issue, traffic related, misconduct or others. Similarly, the request services button takes us to a class with three buttons- ‘Permission’, ‘Recruitment request’, ‘Verification request’, since these are the services people generally require and need to go to the Police Station physically to do so, we designed this module to tackle that requirement.

The health care module is uniquely designed to provide comfort to the people in the field of medical requirements as necessity or as emergency. The user just has to select his/her location from a drop down menu, and all the health care centres in that area will be displayed on the screen as a list. Now, the user can select any hospital to view more details and he/she will then enter a page displaying images of the hospital, detailed description, a rating system and comments from other users. The user can then add a comment after registration or call for an appointment from the application. In the existing system, people rely on advertisements and/or personal contacts to know the experienced and trained medical practitioners in their area. Also, booking an appointment require searching for a specific doctor’s contact number and calling his/her receptionist. We designed this module to tackle these issues majorly. The project is a mobile application built on the platform of Android Studio and integrated with Firebase in order to connect with the database.

2. RELATED WORK

The project’s aim is to develop an android application on which people can use many features. So to reduce time and also help people solve their issues properly. The modules are represented to the users as two buttons named “Law and Order” and “Health Care”. The Google Map API was integrated with the android project to let the users locate the nearby hospitals on a Google Map. The LBS technology was studied thoroughly to understand location detection and other location related features offered by the mobile technology. The MVC pattern played a major role in helping integrate the front end with database using the model component. All the related study that was done in order to integrate the models and implement the design is given below:

- Location-based service
- MVC technology
- Android technology
- Google Map

2.1 LBS- location-based service (LBS)

LBS- location-based service (LBS) is a software-level service that uses location data to control features. As such LBS is an information service and has a number of uses in social networking today as information, in entertainment or security, which is accessible with mobile devices through the mobile network and which uses information on the geographical position of the mobile device.

LBS can be used in a variety of contexts, such as health, indoor object search, entertainment, work, personal life, etc.

LBS is critical to many businesses as well as government organizations to drive real insight from data tied to a specific location where activities take place. The spatial patterns that location-related data and services can provide is one of its most powerful and useful aspect where location is a common denominator in all of these activities and can be leveraged to better understand patterns and relationships.

LBS include services to identify a location of a person or object, such as discovering the nearest banking cash machine (ATM) or the whereabouts of a friend or employee. LBS include parcel tracking and vehicle tracking services. LBS can include mobile commerce when taking the form of coupons or advertising directed at customers based on their current location. They include personalized weather services and even location-based games. They are an example of telecommunication convergence.

This concept of location based systems is not compliant with the standardized concept of real-time locating systems (RTLS) and related local services, as noted in ISO/IEC 19762-5 and ISO/IEC 24730-1. While networked computing devices generally do very well to inform consumers of days old data, the computing devices themselves can also be tracked, even in real-time.

2.2 MVC Technology- Model-view-controller (MVC)

MVC Technology- Model-view-controller (MVC) is an architectural pattern commonly used for developing user interfaces that divides an application into three interconnected parts. This is done to separate internal representations of information from the ways information is presented to and accepted from the user. The MVC design pattern decouples these major components allowing for efficient code reuse and parallel development.

The model is the central component of the pattern. It expresses the application's behavior in terms of the problem domain, independent of the user interface. It directly manages the data, logic and rules of the application.

A view can be any output representation of information, such as a chart or a diagram. Multiple views of the same information

are possible, such as a bar chart for management and a tabular view for accountants.

- The third part or section, the controller, accepts input and converts it to commands for the model or view.

2.3 Android Technology- Android

Android Technology- Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Wear OS for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics.

Android's default user interface is mainly based on direct manipulation, using touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, along with a virtual keyboard. Game controllers and full-size physical keyboards are supported via Bluetooth or USB. The response to user input is designed to be immediate and provides a fluid touch interface, often using the vibration capabilities of the device to provide haptic feedback to the user. Internal hardware, such as accelerometers, gyroscopes and proximity sensors are used by some applications to respond to additional user actions, for example adjusting the screen from portrait to landscape depending on how the device is oriented, or allowing the user to steer a vehicle in a racing game by rotating the device, simulating control of a steering wheel.

Android devices boot to the home screen, the primary navigation and information "hub" on Android devices, analogous to the desktop found on personal computers. Android home screens are typically made up of app icons and widgets; app icons launch the associated app, whereas widgets display live, auto-updating content, such as a weather forecast, the user's email inbox, or a news ticker directly on the home screen. A home screen may be made up of several pages, between which the user can swipe back and forth. Third-party apps available on Google Play and other app stores can extensively re-theme the home screen, and even mimic the look of other operating systems, such as Windows Phone. Most manufacturers customize the look and features of their Android devices to differentiate themselves from their competitors.

Along the top of the screen is a status bar, showing information about the device and its connectivity. This status bar can be "pulled" down to reveal a notification screen where apps display important information or updates. Notifications are "short, timely, and relevant information about your app when it's not in use", and when tapped, users are directed to a screen inside the app relating to the notification. Beginning with

Android 4.1 "Jelly Bean", "expandable notifications" allow the user to tap an icon on the notification in order for it to expand and display more information and possible app actions right from the notification.

An All Apps screen lists all installed applications, with the ability for users to drag an app from the list onto the home screen. A Recent screen lets users switch between recently used apps.

2.4 Google Map technology-

Google Maps is a web mapping service developed by Google. It offers satellite imagery, street maps, 360° panoramic views of streets (Street View), real-time traffic conditions (Google Traffic), and route planning for traveling by foot, car, bicycle (in beta), or public transportation.

Google Maps' satellite view is a "top-down" or "birds eye" view; most of the high-resolution imagery of cities is aerial photography taken from aircraft flying at 800 to 1,500 feet (240 to 460 m), while most other imagery is from satellites. Much of the available satellite imagery is no more than three years old and is updated on a regular basis. Google Maps uses a close variant of the Mercator projection, and therefore cannot accurately show areas around the poles.

After the success of reverse-engineered mashups such as chicagocrime.org and housingmaps.com, Google launched the Google Maps API in June 2005 to allow developers to integrate Google Maps into their websites. It is a free service, and currently does not contain ads, but Google states in their terms of use that they reserve the right to display ads in the future.

3. PROPOSED MODELLING

In this paper, the use of android application is taken into consideration. This android application is uniquely designed to improvise the connectivity between the people and the emergency services like hospitals and police stations. This application specifically focuses on the law and order system, as well as the healthcare system of an area or a city. By using this web application people can easily locate any police station or a hospital nearby and can request for services like passport verification, job verification, give reviews for the hospitals.

The application will have portal to all the police stations and hospitals so people can easily locate them. People can lodge their complaints and also issue an FIR by not going to the police stations but online, just on a single application. The Passport related issues such as documentation and verification can also be done through the proposed system.

For issuing the driving license people don't have to stand in long queues and go on regular checks. They can do all these things on the proposed website in just some clicks. On the application, people will easily get to know about all the nearest hospitals in case of any emergency. Scheduling the

appointment of patient with doctors to make it convenient for both is another feature. People after reading the reviews about the concerned doctors and the hospitals can easily decide.

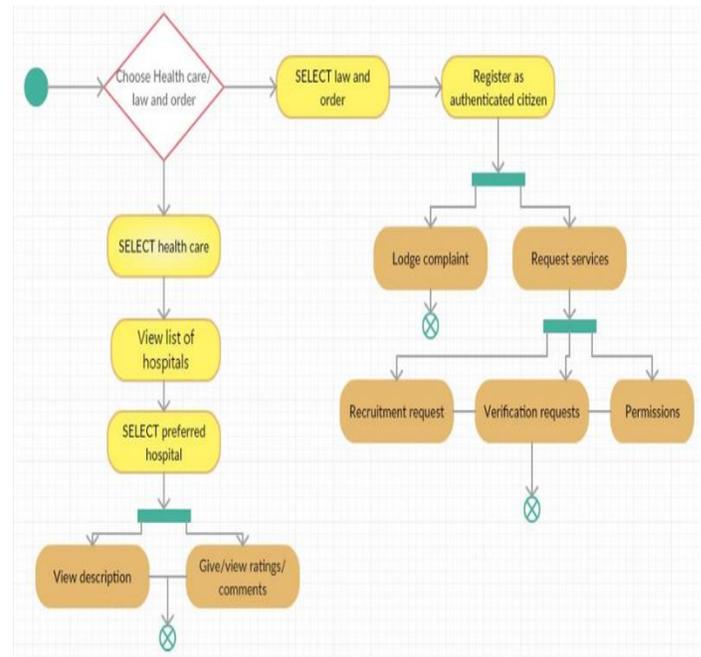


Figure 1 Flow Chart of the Proposed System

The user starts the system by opening the application. The first step in the application is to select a module among the two on which the project is based. The two modules are- Law and Order and Health Care. The next step is, if the user selects law and order, then he/she has to register in the application. When that is done successfully, the user has to select one feature among the two features of the module- Lodge Complaint or Request Services. If the user wishes to lodge a complaint, then he/she has to fill a form and exit from the application.

If the user wants to request a service, then he/she has to select a service and exit from the application. If the user selects health care in this step, then he/she will be provided with a list of health care centers according to the location. Then the user can select any hospital to view more details, view or give ratings and/or comments.

4. RESULTS AND DISCUSSIONS

The proposed model was designed and implemented with the help of the software tools- Android Studio and Firebase. On one hand, Android Studio had to be downloaded and installed along with all its components. And on the other hand, Firebase could be accessed just by logging in to their console.

Some of the screenshots of the application in the running state are given below-

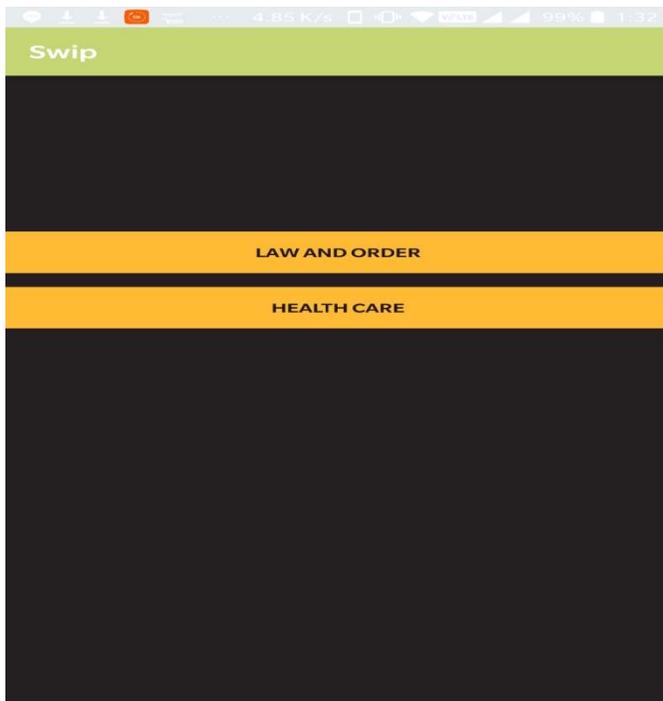


Figure 2 Main Activity view



Figure 4 Locate nearest hospital

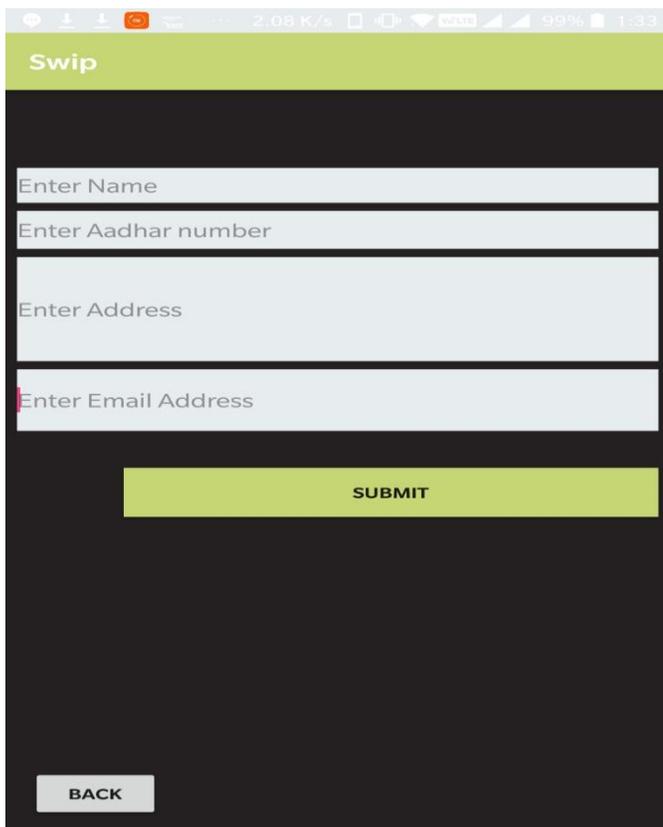


Figure 3 User Registration form

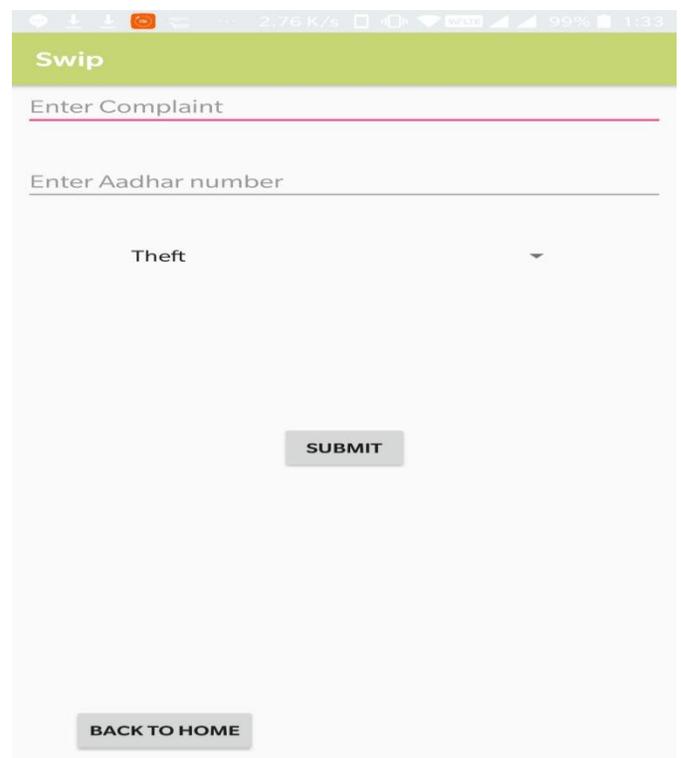


Figure 5 Complaint form

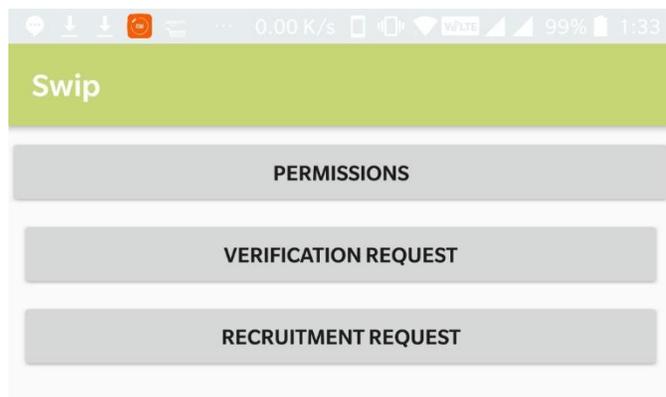


Figure 6 Request Service activity view



Figure 7 Database view

5. CONCLUSION

This report introduced user friendly design of an android application which will be helpful to the people in many aspects. The main idea of this project is to improve the connectivity of the citizens to the emergency services with the help of the latest technology. With the rising demand of technology people started to increasingly indulge on online stuff. This project will

help people to be in touch with the services 24/7 and get rid of their problems and they even don't have to go the emergency services for doing tasks like booking an appointment in a hospital or lodging a fir in the police station or even the passport verification. They can do all the above mentioned tasks and much more just by some clicks on their handsets and can easily communicate with the services from anywhere around. This is a smart city project and it aims at simplifying the lives of the citizens through technology.

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