

Voice of Citizen-Location based Android Application for Complaint Tracking

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Abstract—The role of this paper is to help the people to raise their voice against the difficulties faced by them in day to day life, through the app. The issue may be related to water leakage, sewage, road or street light maintenance etc. Whenever an issue mentioned above is faced by person living in their area, they register the complaint through the app by providing the necessary information. The user is provided with an option to capture the photo of issue faced by them in their locality and also get the location using GPS module of the smartphone. The complaint is then forwarded to higher authorities of municipality or village panchayat. Once the higher authorities know about an issue, they send the information to concerned people for further action. Through the app, the complaint status will be tracked by the registered people. Once the issue has been solved completely, the concerned person will update the status of the issue, with the acknowledgement to the people and higher authorities. The same status will be updated in the app and complaint will be cleared. Through the app people are able to register the complaint related to the issues mentioned above and get the solution.

Keywords—Android stack, xml, sdk, java, android studio, integrated development environment

I. INTRODUCTION

The village panchayat is the basic local government unit in rural India. Though panchayat's have been in existence for a long period of time, the present system clearly marks off from the past in respect of powers, functions and financial resources. Panchayath plays a major role as instruments of rural reconstruction and development. They have been given wider powers and financial resources not only because they are institutions of political participation but institutions of social and economic development. Sometimes, it becomes the joint responsibility of the central, state and local governments to perform certain important functions. It becomes necessary to combine national conception with local execution for implementing certain programmes. Thus every panchayat has its contribution not only to the development of the particular area under its jurisdiction but also to the whole nation. The android application is mobile oriented software which works efficiently in the mobile phones enabling the user to

handle comfortably. The android mobile users will find the proposed app very useful for the society in revealing the mischief's happening around. This app has lots of features each of which works efficiently, when a user wants to give some information regarding the inappropriate facilities available to them in their surroundings to the concerned authorities using image and the location feature in the android application.

II. REVIEWING EXISTING SOLUTION

A. TriTHEApp

Bhuvana Sekar and Jiang B.Liu, [1] proposed Location Based Mobile Apps Development on Android Platform. TriTHEApp android application was designed to serve as a location based time saving and safety ensuring application. In other words TriTHEApp is a location based service, with three features, 1) Tool to announce arrival, 2) Handset theft monitoring and 3) Emergency call feature integrated in it. Tool to announce arrival service is designed to make client's uncertain waiting time known. Waiting is frustrating, demoralizing, agonizing, aggravating, annoying, time consuming and incredibly expensive. To address this problem, the TriTHEApp application developed included a "Tool to announce arrival" feature, which is a modified implementation of GPS tracing to aid the clients to know about the absolute wait time/wait time closer to absolute, by tracking the whereabouts of the service provider (person with whom the appointment has been made) and calculating the time required for them to reach the meeting location based on their current location. The app included a scheduler to make note of the appointment details – date, time and any comment about the meeting, Google maps API and GPS receiver to trace the location. A location based application requires GPS (Global Positioning System) of the device to be turned on and the application using GPS tracing to be started to locate the device. There may be situations where an irresponsible service provider may forget to start the application or voluntarily avoid starting the application to share the location with the client, when traveling to fulfill the appointment, in which case the

application is rendered useless. To address the usability concern, the feature is required to be auto-started as a service at the time pre-set by the user before the appointment time, so that GPS tracing can be done to provide client the required information without requiring the service provider to start the application manually. An SMS "appointment on wait" is sent to the service provider at the fixed time, which triggers the GPS tracing to start in the service provider's android device to provide client the required information.

B. GPS Based Complaint Redressal System

Vishesh K. Kandhari and Keertika D Mohinani [2] proposed GPS based Complaint Redressal System. With advancements in technology, the complaint registration systems have evolved in different ways to simplify the task of registering as well as addressing the complaints. The architecture of a GPS based Complaint Redressal System (GPSCRS) has been already developed. The complaint is registered via a mobile application. Global Positioning System (GPS) sensor present in smart mobile devices is used to determine the exact location of the complaint. The area of the complaint is automatically detected, and the complaint information is sent over the internet to a central server. The complaints are then plotted on a map in the web interface. Aditi Mhapsekar, Uma Nagarseka, Priyanka Kulkarni and Dhananjay R. Kalbande have developed an architecture for Voice enabled Android application for vehicular complaint system using GPS and GSM-SMS technology. This application uses speech to text functionality to describe the complaint. It obtains the GPS coordinates, appends it at the end of the complaint information and sends the information as an SMS message to an SMS server over the GSM network. The server fetches this information and stores it in the database. The web interface then plots this information on a map.

C. Android Application for Complaining Social Issues

Sivaranjani.E [3] proposed Android application for complaining against the social issues. This app paves path for being updated in current affairs, not only in knowing the news but also in letting others know the news. The proposed android app enables the user highlight the current social issues such as improper maintenance of toilets and infrastructure at schools and hospitals, bribing etc. The user might feel comfortable in interacting with its enhanced features. Videos or images captured will be uploaded directly in order to avoid the fraudulent, one who uploads the sensitive items might not be worried of the security of privacy issues because all the personal information of that particular user will be hidden from the third party, so their details will not be leaked. The android mobile users will find the proposed app very useful for the society in revealing the mischief's happening around. The app has lots of features each of which works efficiently, when a user wants to let some of the issues to be known to the higher authority he can immediately access the camera feature in the app to shoot a video or to capture a picture this will be directly uploaded. Once after done with this user can choose the respective department under which the particular issues has taken place such as the police, health care, municipality etc. and can send the captured footage to

that department in that case the personnel of the department will be notified with this if they didn't take any action within 24 hours the indication will directly move on to the higher authorities. So, the people working in respective departments will be very careful and would immediately take the needed action to solve the issues. It is an integrated platform of audio, video, etc. It was long thought as the future revolution in computing era, until the mid-90's it was uncommon due to expensive hardware requirement. But then with it increasing price rate, it became indeed on all new mobile gadgets. Using the proposed android application the user can post their complaints as text, image and videos. The Swachata application helps in directing the municipality; it may also sometimes go wrong in specifying the location. The GPS feature used in this system takes only the location which the user pings. The system supports only in operating with the environmental issues. People using this app may also do some pranks by uploading the irrelevant images or by uploading the images which was taken long back, all such activates may lead to some unnecessary issues.

D. Real Time Interactive Application Development Model

Zhilong Yang [4] proposed Real-time Interactive Application Development Model on the Android Platform that uses persistent socket connection mechanism to establish the connection of clients and servers and protocol buffers as the transmission medium. In order to maintain the smooth connection with the server in the communication process, clients send ping packages to servers at regular time interval. In addition, this model adds retransmission mechanism and reconnection mechanism to ensure the correctness of the packages and the robustness of the system. This module has a good performance in network data consumption, power saving and the correctness of the packages etc. The real-time interactive android application is drawing more and more attention from users because of its real-time and interactivity. This kind of communication mechanism can avoid the errors caused by the delay of message. The real-time interactive application running in android platform should have the following characteristics (1) power saving, (2) less network data consumption, (3) high speed to process the data from server and send data to server, (4) validity of the packages.

E. Performance Evaluation of Instant Messenger in Android OS

Siti Umami Masruroh [5] proposed Performance Evaluation of Instant Messenger in Android Operating System. Instant messenger, is one type of communication service that allows person to have a conversation privately with others via the internet. Within the calls and messaging on Android systems, they both have an equal value in the term of innovation and performance. In this work, focus on evaluate the performance of the instant messenger application on android systems used several criteria; delay, packet size, and throughput. The evaluation of instant messenger is balanced by the development of smartphone, which forcing the instant messenger to deliver better performance in sending and receiving messages in instant

messenger applications installed on android operating system, due to messages can be sent to the recipient with the best performance.

III. OBJECTIVE

The objective of voice of citizen application is to allow citizens to complain regarding the day to day problems like street light, road etc, to the panchayath. Using this system the citizen can just complain wherever the problem is instead of going to panchayath and registering complaint. The panchayath authorities can directly login and access the complaints from citizen and update status. The application also includes various features such as while registering complaint, the citizen can take a picture and upload location of the place where there is a problem instead of uploading from the gallery.

IV. METHODOLOGY

Android is an operating system and programming platform developed by Google for smartphones and other mobile devices (such as tablets). It can run on many different devices from many different manufacturers. Android includes a software development kit for writing original code and assembling software modules to create apps for Android users. It also provides a marketplace to distribute apps. All together, Android represents an ecosystem for mobile apps. Android provides a touch-screen user interface (UI) for interacting with apps. In addition to the keyboard, there's a customizable virtual keyboard for text input. Android can also play multimedia content such as music, animation, and video. Android is designed to provide immediate response to user input. Besides a fluid touch interface, the vibration capabilities of an Android device can provide haptic feedback. The Android platform, based on the Linux kernel, is designed primarily for touch screen mobile devices such as smartphones and tablets. Since Android devices are usually battery powered, Android is designed to manage processes to keep power consumption at a minimum, providing longer battery use.

The SDK includes a comprehensive set of development tools including a debugger, software libraries of prewritten code, a device emulator, documentation, sample code, and tutorials. To develop apps using the SDK, we use the Java programming language for developing the app and Extensible Markup Language (XML) files for describing data resources. By writing the code in Java and creating a single app binary, we have an app that can run on both phone and tablet form factors. It is possible to declare the UI in lightweight sets of XML resources, one set for parts of the UI that are common to all form factors and other sets for features specific to phones or tablets. At runtime, Android applies the correct resource sets based on its screen size, density, locale, and so on. To help developer develop the apps efficiently, Google offers a full Java Integrated Development Environment (IDE) called Android Studio, with advanced features for developing, debugging, and packaging Android apps.

A. Android Stack

Android provides a rich development architecture. There is no need to know much about the components of this

architecture, but it is useful to know what is available in the system for the app to use.

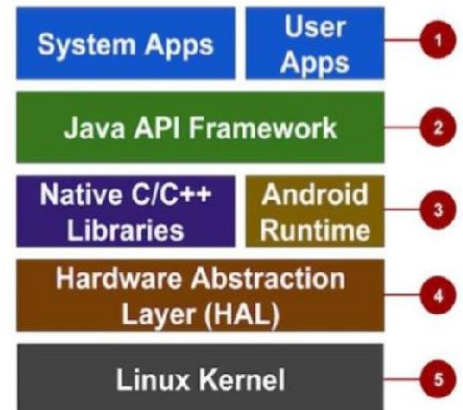


Fig 3.1 Overview of Android Stack

- 1) Apps: User developed apps live at this level, along with core system apps for Email, SMS messaging, Calendars, Internet browsing, or Contacts.
- 2) Java API Framework: All features of Android are available to developers through application programming interfaces (APIs) written in the Java language.
- 3) Libraries and Android Runtime: Each app runs in its own process and with its own instance of the Android Runtime, which enables multiple virtual machines on low memory devices. Many core Android system components and services are built from native code that requires native libraries written in C and C++. These native libraries are available to apps through the Java API framework.
- 4) HAL: The HAL consists of multiple library modules, each of which implements an interface for a specific type of hardware component, such as the camera or bluetooth module. The layer provides a standard interface that exposes devices hardware capabilities to the higher-level Java API framework.
- 5) Linux Kernel: The foundation of the Android platform is the Linux kernel. The above layers rely on the Linux kernel for underlying functionalities such as threading and low-level memory management.

B. Development Process

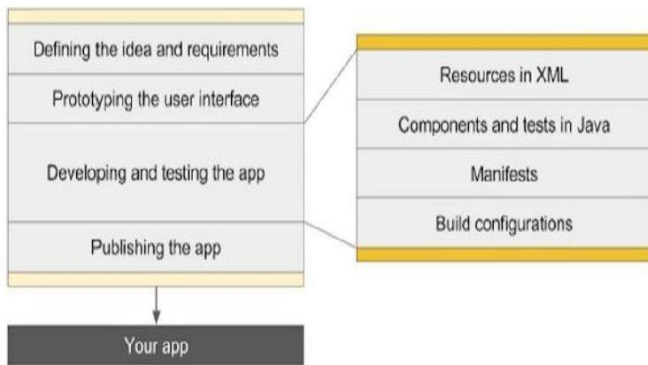


Fig 3.2 App Development Process

- Prototyping the user interface: we use drawings, mockups and prototypes to show how the user interface would look like, and how it would work.
- Developing and testing the app: An app consists of one or more activities. For each activity we can use Android Studio to do the following, in no particular order:
 - i. Create the layout: Place UI elements on the screen in a layout, and assign string resources and menu items, using the Extensible Markup Language(XML).
 - ii. Write the Java code: Create source code for components and tests, and use testing and debugging tools.
 - iii. Register the activity: Declare the activity in the manifest file.
 - iv. Define the build: Use the default build configuration or create custom builds for different versions of the app
- Publishing the app: Assemble the final APK (package file) and distribute it through channels such as the Google Play.

C. Workflow

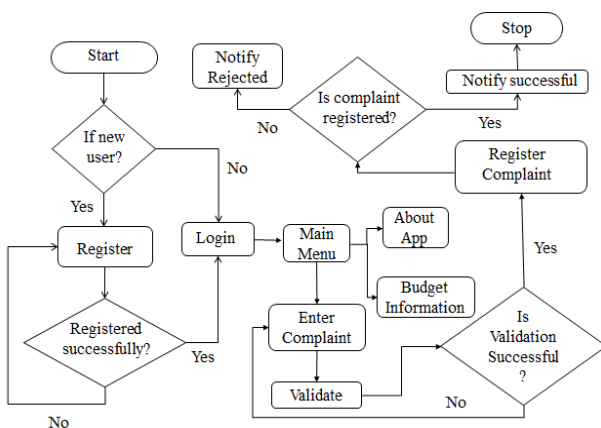


Fig 3.3 Flowchart

Fig 3.3 shows the flow chart for voice of citizen application. In this application, if user is not registered, then user has to register. The register is successful, then user can login through the login button. Then enter the complaint information and validate the complaint. If complaint is

validated successfully, then register the complaint. If the complaint is registered successfully, then user will get the notification that successfully registered. Otherwise, rejected.

D. Architectural Specification

Fig 3.4 shows the architecture for the voice of citizen application. In this architecture we open the application at the beginning.

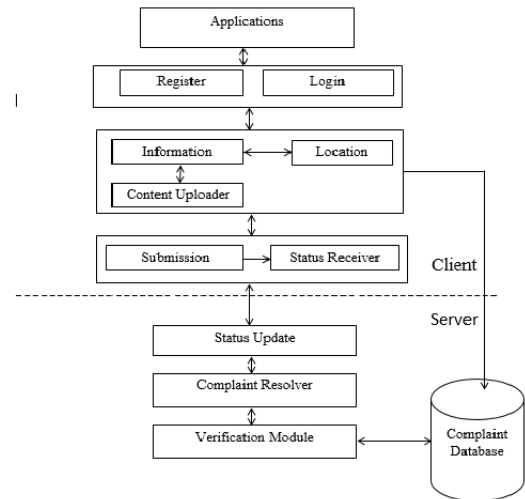


Fig 3.4 Architecture of the app

After opening the application login page will be displayed in which the citizen can login if already registered, if not, should register in order to raise complaint about the issue. After logging in, the citizen should take the picture which will be related to water-leakage, sewage, road or street-light maintenance. The picture should be uploaded with the information related to that problem and it will be stored in the complaint database. All the uploading things will be done in the client side. In server side, the complaint that is stored in the database is verified by the grampanchayat authorities to take further actions to resolve the problem. After resolving the problem by the panchayat, the status of complaint will be updated to the client.

V. RESULT AND DISCUSSION

The application helps people to raise their voice against the difficulties faced by them in day to day life. Whenever an issue is faced by person living in their area, they register the complaint through the app by providing the necessary information. The user is provided with an option to upload the photo of issue faced by them in their locality and also get the location from the GPS module. The complaint is then forwarded to higher authorities of municipality or village panchayat. Once the higher authorities know about an issue, they send the information to concerned people for further action. With the help of the app, the complaint status will be tracked by the registered people. The features of the proposed solution are:

- i. The proposed mobile app automatically specifies the exact location and there is no need for user involvement.
- ii. The photos picked from the gallery or google photos could not be uploaded in the application because its image uploading feature enables the user to send only the snap shot which was captured on the spot.

VI. CONCLUSION

These days technologies grow enormously. By this rapid development, lots of good things could be sowed which in return yields positive changes to the society one such try is this application which enables in destroying the evil things and making minor positives impacts on society. It is not possible for anyone to change the society in a day or by using these kinds of mobile applications, all the mischief's or illegal activities could only be solved by one's own inner self. Each and every person in the society should analyze the things they are doing, they should just get into it and has to properly analyze whether the things they do are right or wrong. Even the law and order need to be changed to a lot that's because only when punishments become sever the things happening against law could be controlled. Thus this proposed application helps the people to control such things to some extent.

REFERENCES

- [1] Bhuvana Sekar and Jiang B.Liu. "Location Based Mobile Apps Development on Android Platform". Proc of IEEE. 2014. pp 2148-2153.
- [2] Vishesh K. Kandhari and Keertika D. Mohinani. "GPS based Complaint Redressal System". Proc of IEEE. 2014. pp 51-56.
- [3] Vanathi.P, Ambika.N, Sivaranjani.E, Suruthipriyanga.R and Sailaja.L. "ANDROID APPLICATION FOR COMPLAINING AGAINST THE SOCIAL ISSUES". Proc of IEEE. 2017.
- [4] Zhilong Yang, Yong Wang, Yongquan Yang and Zhiqiang Wei. "Research and Design of a Real-time Interactive Application Development Model Based on the Android Platform". Proc of IEEE. 2013. pp 132-135.
- [5] Siti Ummi Masruroh, Ilham Saputra, Nurhayati. "Performance Evaluation of Instant Messenger in Android Operating System and iPhone Operating System". Proc of IEEE. 2016. pp 1-6.
- [6] Google Developer Training, "Android Developer Fundamentals Course Concept Reference", Google Developer Training Team, 2017.
- [7] Erik Hellman, "Android Programming – Pushing the Limits", 1st Edition, Wiley India Pvt Ltd, 2014.
- [8] Dawn Griffiths and David Griffiths, "Head First Android Development", 1st Edition, O'Reilly SPD Publishers, 2015.
- [9] J F DiMarzio, "Beginning Android Programming with Android Studio", 4th Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126565580.
- [10] AnubhavPradhan, Anil V Deshpande, " Composing Mobile Apps" using Android, Wiley 2014, ISBN: 978-81-265-4660-2.