

# Android Application Service Call Management System

Shabana Pathan<sup>1</sup>, Anjali Yadav<sup>2</sup>, Sanjana Damahe<sup>3</sup>, Sneha Borkar<sup>4</sup>, Tejaswini Shende<sup>5</sup>

<sup>1</sup>Assistant Professor, Department of Information Technology, SVPCET, Nagpur, India

<sup>2,3,4,5</sup>Student, Department of Information Technology, SVPCET, Nagpur, India

\*\*\*

**Abstract** - As technology is ruling the industrial world, manual activities and documentation are digitizing. Service call management system is an android application used for increasing the efficiency of the work by handling and maintaining the data digitally from client site and providing an excellent service to the customers. This application helps customers to register their problems, allows technicians to handle their allotted, pending and completed service calls and gives administrator the freedom to keep an eye on the entire workflow. In this paper we have thoroughly discussed the designing and implementation of the application.

**Key Words:** Service Calls, Android, Digitizing.

## 1. INTRODUCTION

Service call management system is an android application developed for providing services to the customer as per their service problem and maintaining its record in the database from client site. The platform used to develop this application is Android Studio and the database connected to the application are PostgreSQL and SQLite.

The users of the application are the customer, the technical person and the administrator, each playing their role through their respective dashboards. Whenever the customer faces any difficulty and requires help to resolve it, it is important that he accesses his dashboard and registers the call by filling in the details of the problem. A unique call registration number will be generated for each customer's call. A technical person will be assigned for each call whose job is to fix the problem by going to the client site. A call slip is designed for each call that must be filled in by the technical person once he reaches the client site and looks into the problem to resolve it. The status of the call will be changed according to the work done from allotted to pending to completed. The call slip contains certain details to be filled in and each data entered is consented by the technical person and the customer through their digital signatures.

The primary focus of the project is to send this data directly into the databases through this application from client site. The job of the administrator is to observe the technical person's work and keep track of him. The

programming language used in developing this application is Java and with the help of certain libraries, features such as pdf generation, location tracker, digital signature, sync, automatic generation of SMS and Email are added to it.

## 2. OBJECTIVE

Our main objective is to design and develop a user-friendly application that allows technical person to maintain and insert record of each customer's service call into the database after fixing the problem from client's site. The goal of the application is to overcome the limitation of data handling and digitalization.

## 3. LITERATURE SURVEY

In [1], Customer satisfaction is an important aspect to be fulfilled while setting up a system. A system is said to be reliable if it is able to provide efficient service. This can be achieved by building a transparent relationship between the users of the system. Transparency can help the customer know every exhaustive information that is ongoing within the system and thus can build loyalty. The author has also discussed about why knowledge management must be embedded within the system to save time and cost of both the customer and the technician.

In [2], the author has discussed about how the employee monitoring system is less effective than that of GPS location tracker and thus why there is a need to step up a little to track individual's location. Employee monitoring system, tracks the employee by setting tags to various locations and identify the actual position of the employee. But this system requires wireless LAN which can give access to the employee's location only to a certain distance. Thus, the more secure way is by using the GPS tracker.

In [3], the author has presented comparative study of algorithms such as RSA, DSA, ECDSA, GOST and El Gamal. The author has discussed four components of security: Confidentiality, Integrity, Authentication and Non-Repudiation. Anything on the internet cannot be considered as valid until it is being authenticated. Digital signatures do not allow any intruders to modify or alter the data after being sent by the sender. This keeps the document secure and

makes receiver believe that the document can be trusted. This paper dealt with mathematical modelling of digital signature algorithms describing its steps.

In [4], data can be processed in offline mode. This can be achieved by syncing the server-based data to that of mobile database. But syncing the data can be a crucial task as it can cause inconsistency in the data. In order to neglect this, synchronization architecture is implemented. In this architecture, the data on the server is duplicated on mobile databases. Between the server and the mobile databases there exists a sync server to do the synchronization. The data stored offline can be synchronized later when the network is available.

In [5], SMS is a direct mechanism of connection in a network. Through SMS it is possible that the organization can gain profit revenue. SMS are ubiquitous and cost effective than manual services. With the continuous use of offline text messaging it is possible that there can be a high increase in the rate of customer satisfaction. This can be achieved without getting into complex procedures and without making changes to core network.

In [6], the data must be handled systematically. This can be done when the data is brought into use and can be represented in a way which is understood by everyone. Retrieving reports from the databases can become an automated process. A very limited amount of knowledge of the database is required to generate a report if one is aware of its template. The author has described ways in which reports can be generated. One of them include the importing of template in the application. This imported file is then parsed with the text.

#### 4. PROPOSED SYSTEM

The proposed system will allow customer, technical person and administrator to monitor the status of the call and act accordingly. The application will show the list of calls that are allotted, pending and completed to the technical person as well as to the customer. The application will thoroughly insert and update the details of the calls from anytime and anywhere. The inserted data in the PostgreSQL database will be timely synchronized with SQLite. This synchronization will keep both the databases up to date and will cause less ambiguity. The application will be helpful generating errorless report with no duplication of data in the database. Also, most importantly, the designing of the application will allow transparent interaction between the customer, technical person and administrator. This more or less will enable sharing and collaboration within the users, which

indirectly will reduce the risk of miscommunication and allow smooth workflow.

#### 5. IMPLEMENTATION

The application is designed and implemented in a way that each user has its own separate dashboard. The dashboard can be accessed if and only if the user has successfully registered and has valid login credentials. The customer dashboard includes call registration, call slip, feedback and complaint activities. The customer can register call by filling in the details and submitting it. For each call, a unique call registration number is generated. Throughout the process this call registration number acts as a primary key against which data is collected. The proposed system contains two databases: PostgreSQL and SQLite. With the help of "PostgreSQL-9.2 jdbc driver", the application is connected to the database. Both the databases are replica of each other and contains same tables. The databases are timely synced with each other.

As soon as the call is registered, a technical person is assigned. The technical person will go through his dashboard check for the status of the call, whether it is allotted, pending or completed and act accordingly. After the problem will be resolved, a call slip is generated. This call slip contains fields related to the customer details, service details, machine and payment details. Before the call slip data is inserted in the database it is thoroughly validated. Certain validations are applied on each field to avoid ambiguity and maintain consistency. The data is first consented by the users, this is done by allowing both customer and technical to digitally sign on the call slip and approve each other's work. The digital signature is implemented with the help of canvas. After the successful insertion of data in the database, automatic SMS is generated with the help of API conveying submission of the record. The call slip can be printed as it can be generated as an e-receipt using itext5 library.



**Figure -1:** Customer Login



Figure -2: Customer Dashboard



Figure -3: Technical dashboard with sync



Figure -4: Call list

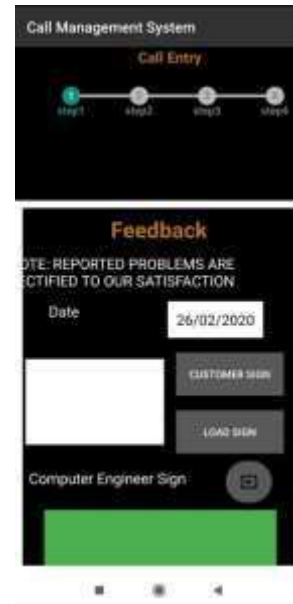


Figure -5: Fragment of call slip with digital signature

## 6. CONCLUSION

Service call management system is good for small business where organization want to keep the customer relationships intact. This can be achieved by providing services up to customer's satisfaction. The features that the application uses are user-friendly and provide transparency. In addition to this the application is efficient in generating reports and data handling.

## REFERENCES

- [1] Sarthika, Kurnali, Titan, "Customer service information System for a call centre", Research Article, International Journal of Computer Science & Computational Intelligence, 2015
- [2] Balaji.S, R.Raju, Sandosh K.S.P, Ramachandiran R, "Smart way tracking to identify individuals location using android systems with GPS", International Journal of Pure & Applied Mathematics, Volume119, 2018
- [3] A.Ghosh, S Karforma, "Authentication of Study Material in E-learning using Digital Signature Algorithms", International Journal of Computer Sciences and Engineering, Volume 7, Jan 2019

- [4] Abdullahi Abubakar Imam, Shuib Basri, Rohiza Ahmad, "Data Synchronisation between mobile devices and server-side databases: A systematic literature review", Journal of theoretical and applied information technology, Volume 81,20<sup>th</sup> Nov 2015.
- [5] Telecom Intelligence, "Assuring the feature of SMS", White paper, Feb 2013.
- [6] Dejan Gjorgjevikj, Gjorgji Madjarov, Ivan Chorbev, Martin Angelovski, Marjan Georgiev and Bojan Dikovski, "ASGRT-Automated Report Generation System".