Online Public Reform Android Application

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Abstract— **The population of India is currently 1.38 billion people; as the population grows, so do the number of complaints; nevertheless, the regular people do not have a sufficient platform to lodge their complaints. We experience various challenges in our daily lives, and we believe that there should be a government-recognized platform where we may voice and lodge our problems of any kind. We presently have several apps, but they are only for a specific topic, such as road difficulties or customer support, and they are not very user pleasant. They accept grievances according to the customary system. There is no universally recognized government platform for filing all forms of concerns, nor is there a reliable communication relationship between individuals and their locally elected representatives or the government personnel. As a result, we've developed a creative application that allows users to file complaints in text format while also providing their location information. These concerns are handled in a user-friendly manner that can assist people in resolving their difficulties in their community.**

Keywords— government-recognized-platform, grievances, users, complaints.

I. INTRODUCTION

Customer complaints and grievances are increasing rapidly with population expansion. The most crucial aspect of any administration is the process for resolving complaints. However, India's existing grievance system maintains the same old grievance filing procedure that is visiting the Government Office directly to register the complaints. The main goal of our proposed application is to create a system that makes filing a complaint more interactive and user friendly, as well as to sort out different problems in a single application and to bring the issues to the attention of the local government, making the grievance handling system more efficient and simpler. There is a user module in this application that allows each individual to establish their own profile with basic information and a valid government ID evidence. For example, everyone possesses an Aadhar card, which serves as government identification. Thus, the user who created this profile can file a complaint from his neighbourhood or any other location, and the location can be tagged along with the complaint.[1] The other registered users can also see the different problems faced by the people in their neighbourhood or the other locality.

II. RELATED WORK

A) SMART E-GRIEVANCE SYSTEM FOR EFFECTIVE COMMUNICATION IN SMART CITIES:

The user must first create and register an account before logging in to his or her account. The user must then enter his or her location manually or allow the application to track the user's location automatically. Following this stage, the user can upload his or her complaint or grievance in any format, including photographs, text, or video. The person can song the fame of his or her criticism after it's been uploaded. After logging in with their password and id, the local authority in charge of grievance redressal would be able to see the complaints in a sorted order, with different patterns identified by the analysis completed.[1]

The Serve India Model is a model that Citizens interested in volunteering for various government awareness and goodwill programmes can register on the portal and indicate their preferences for which types of programmes they would like to volunteer for. After this registration process, the government authority will conduct an analysis and assign volunteers to various programmes based on their location, preferences, and timings.[1]After that, the volunteer will receive a notification regarding the programme to which they have been assigned; if the volunteer responds yes, he or she will receive a digital id with a confirmation; if the volunteer responds no, the volunteer's activity will be checked; if he or

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she has not been inactive for the previous year, they will be scratched from the database and will have to register again; otherwise, they will be notified for other programmes.[1]

B) INTEGRATED MUNICIPAL SERVICE APPLICATION:

Citizens can use this programme to record their complaints by sending complaint details, photos, and a GPS-detected location. To do so, the user must first register with the application. After registering, the person should login after which publish his or her complaints. Once a complaint is registered, an administrator searches the database for it and confirms whether the complaint is genuine or not. If the complaint is repeated, the administrator rejects it. If the complaint is approved, it is transferred to the appropriate municipal department by an administrator. The administrator has the authority to accept or reject a complaint and display the applicant's current status.[5] People who have filed a complaint with the municipality can use the services of Problem Solver. People can find out how their complaints are currently being handled. People's complaints are assigned to several departments based on the type of complaint. • All complaints as well as individual department complaints are visible to the administrator.[5]

C) AN ANALYSIS OF ONLINE CUSTOMER COMPLAINTS: IMPLICATIONS FOR WEB COMPLAINT MANAGEMENT:

Electronic customer relationship management is important for e-business managers looking to improve repeat business and customer retention (e-CRM). While e-marketers and researchers are committed to the importance of customer satisfaction and customer retention, consumer dissatisfaction and dissatisfaction in the web environment has received little attention. Online customer proceedings recognize the origin and motivation of online consumer dissatisfaction as a form of web-enabled market feedback. Online consumer practices can show how electronic organizations manage consumer practices and how important their customers are to them. E-business managers looking to improve repeat business and customer loyalty are looking for electronic customer relationship management (e-CRM). Despite the fact that electronic marketers and researchers are discussing the importance of customer satisfaction and retention, consumer dissatisfaction and dissatisfaction in the web environment has received little attention. As a form of web-enabled market feedback, online consumer complaints shed light on the causes and causes of online customer dissatisfaction. Complaints from online customers provide insights into how e-business companies handle customer complaints and reflect how important their customers are to them. [18]

Customer loyalty must be maintained, and complaint handling data must be used to fix problems and handle issues expressed by customers, according to a solid and consistent plan. i) maximizing customer satisfaction/minimizing customer unhappiness; ii) enhancing customer loyalty; iii) improving product/service quality; and iv) resolving customer complaints are the important e-CRM components to be explored in this paper.[18]

D) ONLINE COMPLAINT MANAGEMENT SYSTEMINTEGRATED MUNICIPAL SERVICE APPLICATION:

The main purpose of this complaint management system is to focus on issues related to the internal system.

Complaint management systems are platform-independent applications and are often accessible from anywhere in the system. This is often to reduce communication costs between employees and provide effective services to their employees. The system must use the information it collects to service users who access this technology, and this technology must collect call registrations regarding the difficulty of providing the service. This technique has the potential to improve the efficiency and accuracy of a company's day-to-day operations. Once decided, it should be assigned to a service technician and renewed as soon as possible after registration by staff / users. [14]

It will be data that is both fast and dynamic. Customers' and recipients' information will be managed in a secured manner. The assignment of complaints to various staff will be done carefully so that no complaints are repeated. It will build a platform where any consumer or complaint information will never be lost. Within one to two days, the complaint will receive an automatic response and answer. If an employee fails to complete their assignment, disciplinary action will be taken.[14]

E) COMPLAINT MANAGEMENT SYSTEM

The system is a client-server programme that was created with the numerous operations conducted at the internal complaint management system in mind. Staff must report their calls for day-to-day hardware and software concerns in this system, as well as their clients. This web service employs both a web server and an application server to provide various services to customers. The server gets multiple requests from the client and is responsible for responding to those requests.[9]

III. PROPOSED SYSTEM

A) OVERVIEW:

Our application is divided into three sections, each of which aids in the better resolution of problems. The user module is the first. It is divided into three phases. The first section involves building a new user profile with basic information and a government id proof for verification. The forgot password module is the second module, and it allows users to update their password if they forget it. The final component is the login portion; if the application is to be used by a registered user, he or she can log in using their username and password. Fig. 1.

Figure 1. Overall System Architecture

Together, the second module administrator and the third module government official form a single unit. Government officials' email addresses from the power board, garbage collection unit, metro water unit, sewage unit, and fire dept

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unit have been collected. Using these email addresses, the administrator creates a profile for each and every government employee. When users make a complaint, government officials investigate it and provide a complaint report.
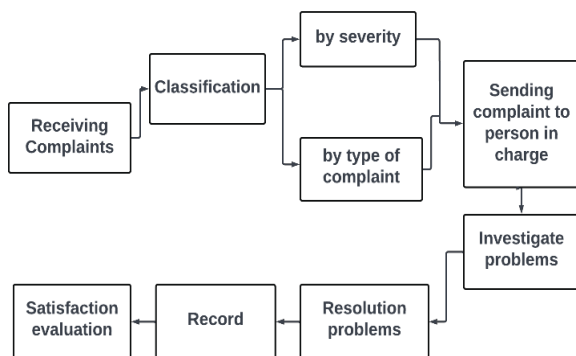

Figure 2. Complaint Management Process

Individuals can use the programme to check the status of their complaint. If another individual has the same problem, he or she can examine the complaint and leave comments, which may speed up the resolution process.

B) SYSTEM BACKGROUND:

This app was built with Android Studio and Firebase - Realtime Database. Android studio is the most popular tool for developing Android apps, and Firebase serves as storage as shown in fig. 3.

Figure 3 Android Studio VS Firebase

❖ *Android-Studio:*

Build automation, dependency management, and customised build configurations are all available in Android Studio. You can define build variations that include various code and resources, as well as apply alternate code reducing and app signing options to your project. Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA. Android Studio complements IntelliJ's powerful code editor and developer tools with a flexible Gradle-based build system, a fast and feature-rich emulator, a unified environment where you can develop for all Android devices, apply changes to push code and resource changes to your running app without restarting it, code templates, and GitHub integration to help you build common app features. Lint tools are used to identify performance, usability, version compatibility, and other issues. Google Cloud Messaging integration is

straightforward thanks to built-in support for Google Cloud Platform and App Engine.

❖ *Fire Base – RealTime Database:*

- Google Firebase is an app development platform powered by Google that allows developers to create apps for iOS, Android, and the web. Firebase offers analytics tracking, reporting, and app bug fixes, as well as marketing and product testing..

- The Firebase Realtime Database is a cloud-hosted NoSQL database that allows users to sync and store data in real time. When an app goes offline, the data is synced in real time across all clients and is still accessible. fig. 4.
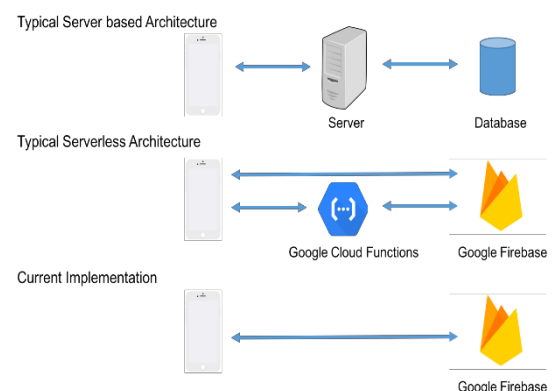

Figure 4. Fire Base Implementation

With Firebase Hosting, you can easily create a single-page, mobile landing page, web page, or progressive web page. It also aids in the speedy delivery of content to any location. CDN allows developers to distribute both web apps and static content (Content Delivery Network).fig. 5.

Figure 5. Application Overview

With its 18 services, Firebase is a software development platform that aids in the development of web and mobile applications. Four beta products and purposeful APIs are

among the 18 services offered by this BaaS solution. It may also be used with Android, web, iOS, and Unity installations.

Firebase's Cloud Firestore is another benefit. This NoSQL database makes it easy for programmers to transfer and store data for front-end and back-end development. Real-time updates, configurable data models, offline support, and rapid data queries are all features of this cloud database.. Cloud Firestore, on the other hand, integrates seamlessly with Google Cloud and other Firebase solutions. With these solutions, you can get a lot of data for your app development initiative. To address coder security concerns, Cloud Firestore employs Identity and Access Management (IAM) and strict privacy standards.

C) SYSTEM IMPLEMENTATION:

Citizens can use the complaint redressal system to lodge their complaints about various issues in their city and get them resolved. Users can use the offered interface to fill out the complaint details and submit the description and location of the issue. Registered complaints will be forwarded to the appropriate government department based on the user's location, and officials will investigate the situation. The status of the complaint to the complainer should be updated by department personnel on a daily basis. fig.6. is the welcome page of the application.

Figure 6. Welcome page of the app

When the complaint is reviewed by the officials, if the complaint is justifiable then the complaint is accepted, otherwise the complaint is dismissed. The authenticity of the claim is checked against the location of the claim and the description of the claim, as shown in the figure. 8.
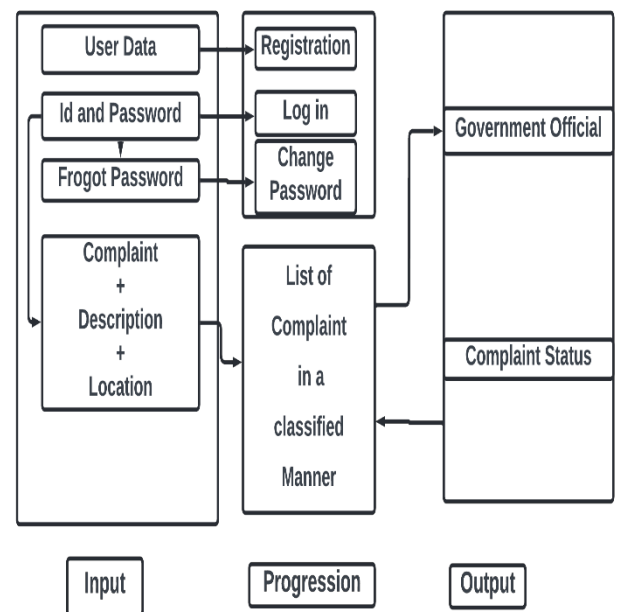

Figure 8. System architectural diagram Overview

❖ THE ARCHITECTURE OF A PROPOSED SYSTEM:

In the issue details section, there are different types of issues; After selecting one, the user can label the location and write a description of the problem. Government employees confirm these issues, then they are accepted or rejected. If the question is accepted, the government official must contact his subordinates and find a solution. As part of the complaint registration, staff from the relevant department manage the problem-solving process. The user is notified of the progress of the claim via email and posted as a comment in application.fig. 9.
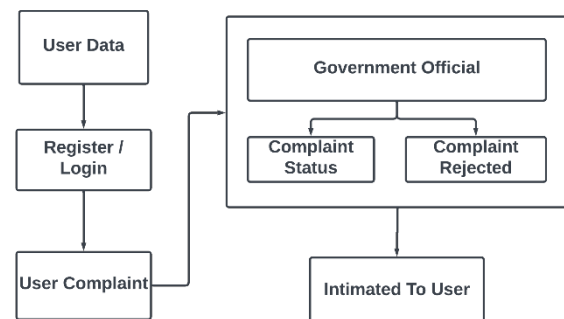

Figure. 9. Flowchart of The System

Admin, User and Government official module. As shown in fig 10.

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Figure 10. Modules in the app

1) Admin module:

The admin page is password-protected (as shown in fig. 11.), and the administrator can create a profile for government authorities (as shown in fig. 12.) and access the entire application to verify the status of complaints.

Figure 11. Admin Password page

Figure 12. Government Official Profile creation

Administrators enter information for government officials. There are two levels of government officials: L2 and L3; L2 refers to subordinates and L3 refers to superior authority. L2 authorities investigate complaints in advance. If the issue is not resolved, the user has the option of moving it to L3, which is the top level of authority.

2) User module:

To maintain transparency, all customers of the software can view the court cases filed by different customers. In addition, any consumer can address an existing complaint to increase its priority, allowing it to be resolved faster and thus reducing claim redundancy, even when customers The other customer is not aware of the details of the claim owner record. (Figure 13.) The user can use the complaint registration form to file a complaint. Consumers can investigate a complaint's reputation after it has been filed, as shown in Figure. 14.

Special Issue - 2022

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GovernmentServiceApp

Issue Details

Issue Title:Garbage has not been collected in our area for the past 3 days. Address: No 7, Valliammai Nagar , Ponniamman Medu,Chennai 600110.

Department Name:Garbage Collection

Comments

Your Comment

SUBMIT

CLOSE THE ISSUE

ESCALATE THE ISSUE

Figure 13. Complaint Details
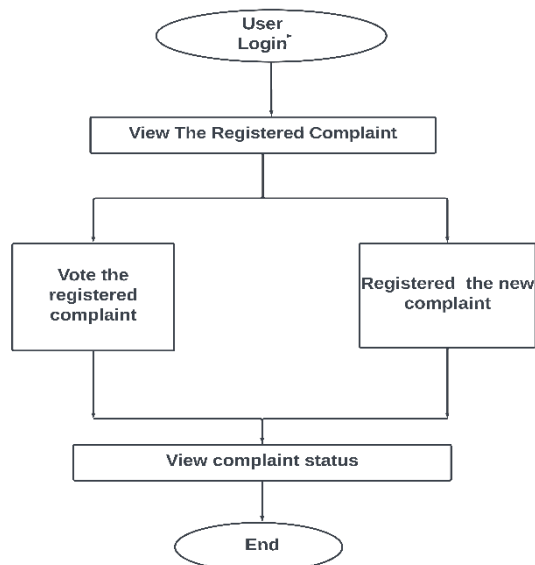

Fig. 14. Flow diagram for User activities

3) Government Officers module:
Officials should log in to the application through the Government Officers module. The officers accept the user's complaint if the complaint

is real; otherwise, the complaint is refused, and the status of the complaint is updated as illustrated in Fig. 15.
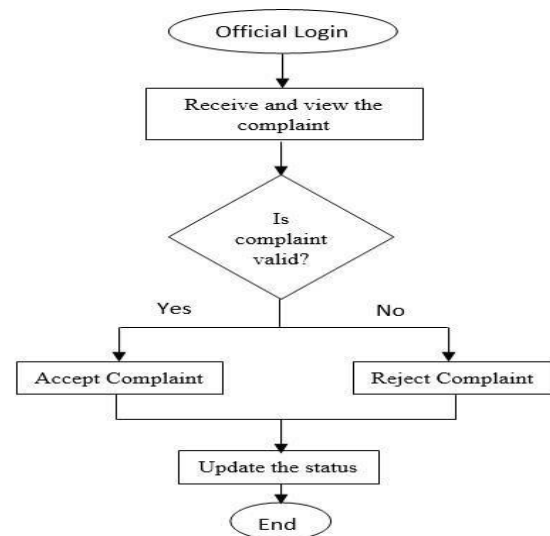

Fig. 15. Flow diagram of Official activities

In the proposed system, a user needs to enter the active mobile number in order to register a complaint. The change password module is directly connected with the real time database which helps in changing the password incase if the user has forgotten it. fig. 16

GovernmentServiceApp

Enter User Name

Enter New Password

SUBMIT

Figure 16. Forgot Password Module

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IV RESULT DISCUSSION

Users will be taken to the home page after logging into the program. Users can see their own complaints as well as problems that have been agreed upon (i.e., complaints that are similar to their complaints). The complaint number, date and time, location, and details are all included in each complaint. On the bottom right button, consumers can see the complaint status as pending. Users can monitor the status of their complaint on the complaint status page, which is updated by the responsible person. The government personnel are in charge of resolving the issues. Any issue that arises as a result of the resolved problem can be filed as a complaint and resolved or forwarded to higher authorities. The location where the complaint was lodged will be attached to the complaint. As a result, the precise location of the problem can be pinpointed and resolved as soon as feasible. To prevent fraudulent content from being featured in the app, each user must sign a digital agreement promising not to break the law by posting false information. User details are authenticated and verified to protect application security. Making it tough to create false accounts by implementing user verification measures. The output is gathered from the system output indicated above using Android Studio and Firebase as shown in the figure. 17.

Figure 17. The issue description

Every individual user's mobile phone is confirmed through SMS, so that the status of the complaint can be delivered via SMS if the user has not visited the application; the status of the complaint will be reported in the application as well. The email is also subjected to the same verification. The verification code is delivered and validated to the appropriate email address. These measures are used to ensure security and prevents the establishment of fraudulent profiles. The status of the user-submitted complaint, as well as the status of the issue, will be informed to the registered user through SMS and email. Fig. 18

Figure 18. The issues list

V CONCLUSION AND FUTURE ENHANCEMENT

The goal of this app is to provide an interactive platform for local residents to express their complaints and criticisms. This program will provide a new direction for India's whole grievance redressal system; we currently lack a

single grievance redressal platform; thus, it will bring all forms of complaints together into a single system. Users who have filed a complaint will receive SMS and email notifications. Fraudulent complaints can be eliminated by validating and verifying official IDs.

Complaints are usually settled within three days; however, they can be referred to higher authority if necessary. As complaints increase, the classification must be altered to keep up with the issues. This complaint technique can be used to address issues that the general public is concerned about in today's world. To guarantee good governance, the government should integrate with the system, which is always evolving. As a result, the suggested solution will address many of the current grievance system's flaws. The major goal is to resolve all queries on a single platform.

To make the project even better, government personnel' job descriptions and classifications might be detailed to make it more user friendly. The designations of Levels 2 and 3 can be improved further. A helpdesk or bot can be added to make the app more user-friendly.

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