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Digital FIR Management System

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ABSTRACT: India is currently a developing nation, and increasingly new technologies are being implemented in our lives for our comfortable way of life. Technologies are used in educational, banking, business, etc. sectors. We experience a high population in our country compared to other countries, therefore public security is an important aspect of a security system in our country. The Indian police system is established and is meant for public security by the Indian government. If we use our technologies in the Indian police system, it will be very valuable to the society. FIR is a First Information Report, if we are in trouble we can write a complaint. FIR is first step, and after FIR police will start investigation process. When I was small this was all an offline system. A person has to visit the police station if he/she wants to write a complaint against someone else. If there is not a station close, and there are problems. This takes a lot of time as well. To address this problem we developed a online FIR or complaint registration system and even this can be done by relatives of the user or victim.

KEYWORDS: New technologies, Educational sector, Public security, Indian police system, FIR (First Information Report), Complaint registration, Police investigation, offline system, Digital FIR system, Digital complaint registration, Law enforcement, Crime management.

I. INTRODUCTION

In the modern age of digital information, the use of technology has become necessary in law enforcement in order to increase public security as well as management of crime. Historically, these types of filed reports - referred to as first information reports (FIRs) - have required manual paperwork and require the person being complained against or the victim, to actually go to the police station to begin the filing process which makes this a lengthy and troublesome process. In rural villages, access to a police station is not always readily available creating a significant delay in reporting a crime or even accessing justice. To overcome these barriers we have developed an online FIR management system to allow victims or other relatives to document their complaints using an online interface. This platform advances the ability of law enforcement agencies to collect, manage and track FIRs in a centralized database and apply attack data in real-time. As a result, it eliminates delay, and lessens the paper trail while providing transparency with police investigations. The proposed design will consist of three distinct user roles (Admin, Police Staff and users (Victims or Complainants)) and utilizes Django backend development, with a relational database (MySQL/PostgreSQL) for data management and security. Based on the identified functionality, this system proposes to advance the response time of law enforcement, ensure secured responses, and provide crime records for improved decision making. The interface deploys to a modern technology platform contributing to a more efficient, transparent, and accessible system for filing a crime report.

II. PROBLEM STATEMENT

The current crime management system is primarily manual, which can lead to inefficient crime reporting, investigation, and tracking cases. Victims are required to go to police stations to log complaints, which can be a complicated process, particularly for individuals in remote areas. The lack of a centralized digital system creates a number of complications, including delays in case registration processes, loss of data and records, and human error in documentation and processing cases. In addition, it can be a laborious process tracking the status of a complaint after it has been lodged, in particular keeping victims informed of their cases' progress. Another important issue is the poor coordination and sharing of information between differing agencies, affecting crime prevention and investigation. Many of the crime reporting platforms already in place are difficult to use and inefficient for victims of crime to report their crime(s) and for necessary officials to access and analyze the case data. Moreover, the system, as it stands, does not continue to allow agencies to seamlessly work together, making collaboration between agencies impossible. A solution to this problem is proposed through the introduction of an Digital FIR Management System, providing the ability to digitally register FIRs, track cases in real-time, and support improved data sharing for security agencies. The proposed system

will improve efficiency, accessibility, and transparency by automating processes, which will help improve public confidence in law enforcement.

III. LITERATURE SURVEY

1. In this paper titled “crime reporting and crime updates”, Mohammad Shahnawaz developed an application that applies to all police stations across the country and specifically looks in to the object of crime record management.

2. In this paper titled “Criminal report and management system”, Sourav Bhowmick developed a web based application that provides managing the data and various information about the criminals and their cases not only this but also provides the status updates.

3. In this paper titled “An analysis of online customer complaints :Implications for web comp Roxanne Hilz, Jerry Fjer Mestad developed an application that includes handling customer dissatisfaction accompanies web customer complaint management and e-CRM. It responds to customer complaints fast.

4. In this paper titled “Online complaint management system”, Osman Nassar, Enayat Alkhider developed an application that involves complaint management system is to make complaint easier to coordinate ,monitor, track and resolve and to provide company with an identify target problem areas, monitor complaints.

IV. METHODOLOGY

Existing Methodology:

In current system, most of the operations are done manually like people are going to police station to register their complaints. Slow registration of fir takes time consuming . In existence system data is maintain in the form of records, it is the chance to loss of information. The storing of crime data in the form of record which is time consuming process. Existing system for the following drawbacks:

1. To maintain a complaint book.
2. More time for processing.
3. Manual work is needed.
4. Everytime went to police station to register a complaint.
5. Loss of records.
6. Information about criminals and common people are not properly maintained.

If the complaint is against any reputed person then we face some violence. If there is no nearby police station then it is time consuming and loss of energy.

Proposed Methodology:

The manual system has some drawbacks which can be overcome by using our web based software “Digital FIR Management System”. Citizens need not go to the police station to file a complaint. Police need not have to maintain records manually since our software maintains all the records with centralized database.

Main objectives are

1. Reduced time consumption.
2. No paper work needed.
3. No loss of records.
4. Centralized database management.
5. Information about criminals and common people is properly maintained.
6. Reduce error scope.

V. CHALLENGES & CONSIDERATION

There are several challenges and issues that must be tackled when developing and operating an online FIR system so that it can operate properly.

Data Security and Privacy: As the system will contain sensitive information pertaining to reports of crimes, victims and criminals, security measures to protect this information must be put in place. Some solutions for how this data can be protected would include encrypting the reporting process and sensitive areas, implementing secure authentication processes using encryption, and establishing an access control policy to avoid data breaches and unauthorized access.

Authentication and Verification: To avoid false reports and abuse of the system, it will also be important to implement secure identity verification while still protecting user privacy. Two potential secure authentication processes could include using Aadhaar based authentication or OTP authentication.

Integration with Existing Police Systems: Police stations are reliant on conventional processes, and that would require integration with various existing databases and workflows. Necessary data integration and interoperability with other law enforcement agencies are a must.

Digital Literacy and Accessibility: Our citizens, specifically in rural regions, may not be familiar with an online platform, in which case a user-friendly portal must have multilingual capabilities and methods to register a complaint, if they are not digitally savvy

Addressing False Complaint and Abuse: An online FIR system would need to incorporate measures to filter out fake complaints, while allowing for a lack of burden of proof and for sexual assault victims to report crimes without barrier. An AI-based fraud detection system and or reviewing at a manual level system could help.

VI. MODULES

The FIR Management System is structured into several core modules, each serving a specific function to ensure efficient crime reporting, tracking, and management.

- **User Management:** Handles user registration, authentication, and role-based access control for citizens, police officers, and administrators.
- **FIR Registration:** Allows users to file FIRs online, providing essential details such as incident type, date, location, and description.
- **Case Management:** Enables police officers to update the status of cases, assign officers, and track case progress efficiently.
- **Search and Reports:** Provides advanced search functionality to retrieve FIR records based on filters like case number, complainant details, or crime type. Generates reports for better decision-making.
- **Notification:** Sends automated alerts and notifications to users regarding FIR updates, case progress, or requests for additional information.
- **Secure Data Storage:** Ensures that all FIR data is securely stored using encryption and authentication mechanisms to prevent unauthorized access.
- **Admin Dashboard Module:** Provides a centralized interface for administrators to manage users, view reports, and monitor system activities.

VII. SYSTEM DESIGN

Process Design:

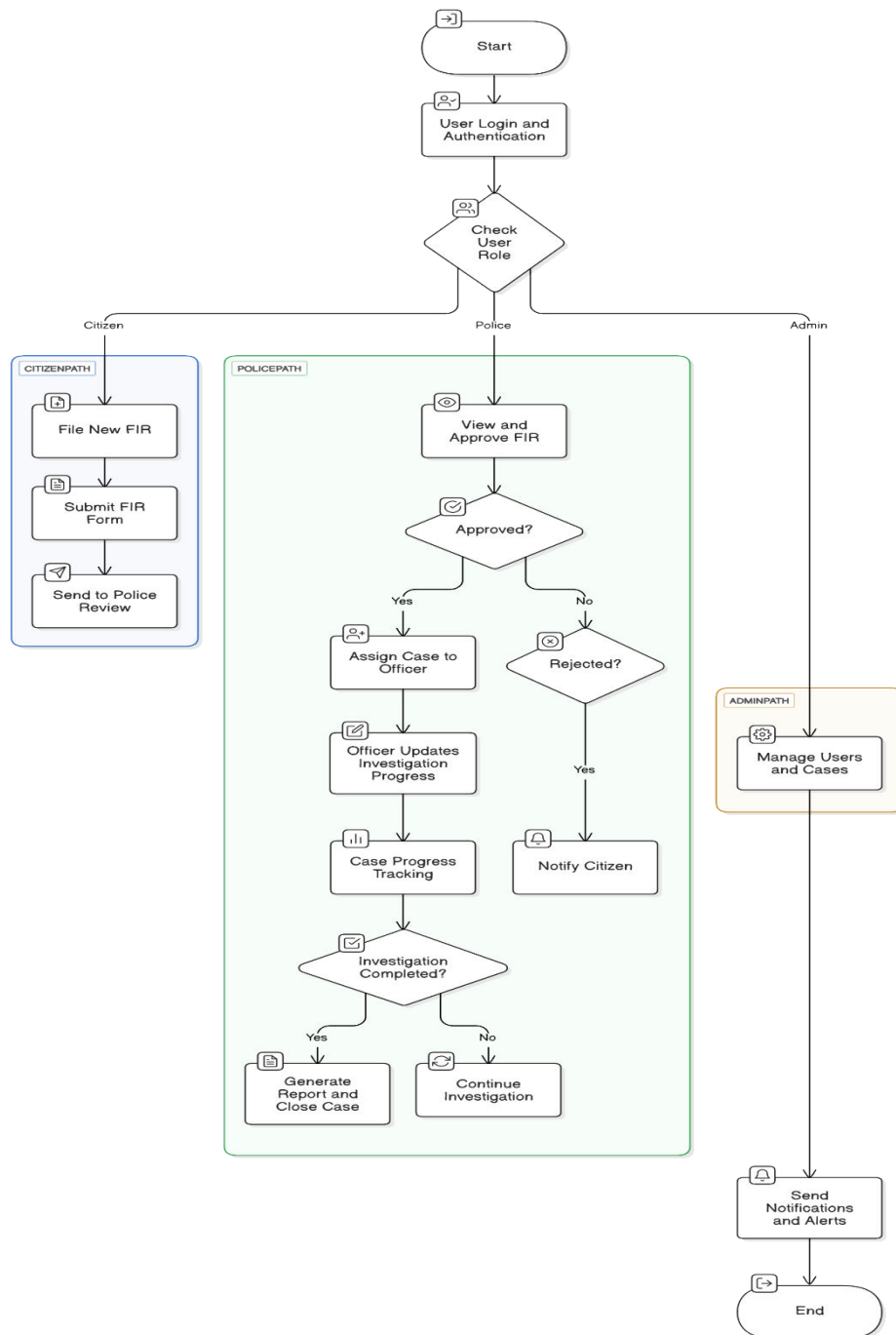


Fig.1 Flow Chart

The given flowchart represents an Digital FIR Management System, detailing how different users interact with the system to file, approve, investigate, and manage FIR cases. It involves three primary user roles: Citizen, Police, and Admin.

1. Start and User Authentication

- The process begins with a Start node.
- The user logs into the system through User Login and Authentication.
- After authentication, the system checks the User Role (Citizen, Police, or Admin) and directs them to the appropriate path.

2. Citizen (Filing an FIR)

If the user is a Citizen, they follow these steps:

1. File New FIR – The citizen initiates a new FIR request.
2. Submit FIR Form – The citizen fills in the required details and submits the form.
3. Send to Police Review – The FIR is forwarded for police review.

3. Police (FIR Review & Investigation)

If the user is Police, they handle FIR review, approval, and investigation:

1. View and Approve FIR – The police officer reviews the submitted FIR.
2. Approval Decision:
 - If approved, the FIR proceeds for investigation.
 - If rejected, the citizen is notified about the rejection.
3. Assign Case to Officer – If approved, a police officer is assigned to the case.
4. Officer Updates Investigation Progress – The assigned officer records updates about the investigation.
5. Case Progress Tracking – The system monitors the progress of the case.
6. Investigation Completed?:
 - If Yes, a Report is Generated, and the case is Closed.
 - If No, the investigation continues.

4. Admin (User & Case Management)

If the user is an Admin, they manage the system:

1. Manage Users and Cases – Admins can oversee users and handle case assignments.

5. Notifications & Alerts

- The system sends notifications and alerts to relevant users (e.g., FIR approval/rejection notifications).

Finally, the process ends.

VIII. IMPLEMENTATION**System Overview:****Admin Module:**

1. Dashboard: In this section, admin can briefly view the total number of criminals, total police and total category of crime.
2. Police Station: In this section, admin can manage police stations(add/update/delete).
3. Police: In this section, admin can manage police staff (add/update/delete).
4. Crime Category: In this section, admin can manage crime category (add/update / delete).
5. View Criminals: In this section, admin can view the detail of criminals which is added by police staff.
6. View FIR: In this section, admin can view the details of filled FIR by user and action which is taken by police staff.
7. Report: In this section, admin can view the number of criminals and how many FIR are registered in a particular periods.
8. Search: In this section, admin can search criminals and FIR details with the help of Criminal ID and FIR number respectively. Admin can also update his profile, change the password and recover the password.

Police Module:

1. Dashboard: In this section, police can briefly view the total number of new FIR, total approved FIR, Total Cancelled FIR, Total FIR Send for charge sheet, total completed charge sheet and total criminals.
2. Criminals: In this section, police can manage criminals (add/update/delete).
3. FIR: In this section, police received the FIR request which is sent by user and also have right to update the status of FIR according to current status.

4. Charge sheet: In this section, police generate the charge sheet of received FIR's.
5. Report: In this section, police can view the number of criminals and how many FIR are registered in a particular periods.
6. Search: In this section, police can search criminals and FIR details with the help of Criminal ID and FIR number respectively. Police can also update his profile, change the password and recover the password.

User Module:

1. Dashboard: It is a welcome page for users.
2. FIR Form: In this section, user can file the FIR.
3. FIR History: In this section, user can view the status of file FIR which is response by police station.
4. Charge Sheet: In this section, user can view the charge sheet of file FIR.
5. Search FIR: In this section, user can search the FIR with the help of FIR number.

Technology:

The web-based FIR system is designed to simplify the crime reporting process. The implementation adopts a modular framework for effective management and scalability.

1. System Architecture

The system has a three-tier architecture with:

- Frontend: Implemented using HTML, CSS, JavaScript, and Bootstrap for ease of use.
- Backend: Powered by Django (Python) or PHP, processing business logic and data.
- Database: Utilizes MySQL, MongoDB or PostgreSQL to save FIR records, user information, and case progress.

2. System Modules

- User Module: Citizens can register, login, and submit complaints online.
- Police Staff Module: Policemen can view, update, and monitor FIR cases.
- Admin Module: Administer users, supervise system activities, and implement compliance.

3. Major Functionalities

- Online FIR Registration: Users can register complaints with required information.
- Real-time Status Monitoring: Complainants can view updates on their cases.
- Document Upload: Supporting evidence such as images, videos, or documents may be uploaded.
- Automated Alerts: SMS/email notifications for status changes in FIR.
- Role-Based Access Control (RBAC): Provides restricted access based on the role of users.

4. Security Features

- Two-Factor Authentication (2FA): Improves login security.
- Data Encryption: Secures storage and transmission of sensitive information.
- Role-Based Access: Denies unauthorized access to data.
- Audit Logs: Monitors system activity for security compliance.

IX. ADVANTAGES

Efficient Complaint Registration: The online FIR system allows victims or their relatives to register complaints from anywhere, reducing the need for physical visits to police stations.

Time-Saving Process: The online system eliminates delays in registering an FIR, in contrast to the traditional way, resulting in rapid responses from law enforcement agencies.

Real-Time Status Tracking: Users can track the progress of their complaints in real time, promoting transparency and accountability in the investigation process.

Enhanced Accessibility: The system is accessible 24/7 from any location, overcoming geographical limitations where police stations may be far from the complainant.

Reduced Manual Errors: By digitizing FIR registration and record-keeping, human errors in data entry, loss of files, and mismanagement of records are minimized.

Improved Communication: The system facilitates better coordination between police departments and other law enforcement agencies, enabling faster exchange of crime-related information.

User-Friendly Interface: It is user friendly for technical and non-technical users. This makes it easier for complainants and law enforcement personnel to use.

Integration with Other Security Systems: The system can be integrated with national crime databases, CCTV systems, and biometric authentication systems to support crime detection and prevention.

X. CONCLUSION

The web-based FIR system updates the process of reporting crime by substituting the old manual method with a quick, efficient, and accessible digital one. By allowing users to lodge complaints online, monitor case status, and receive instant updates, the system enhances transparency and efficiency in law enforcement. Role-based access, secure document upload, and automated alerts add to security and usability. Moreover, the incorporation of data encryption and authentication features ensures privacy and system integrity. This system minimizes delays, overcomes geographical limitations, and streamlines police response time, bringing it as a major step towards public security digitalization. Its future improvements could involve AI-based crime analysis, automatic case prioritization, and more integrated access to national databases for improved crime prevention and management.

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