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AI-Powered Smart FIR Filing System with Crime Analytics and Emergency Support

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Abstract

In the modern digital era, Traditional ways of filing FIRs are slow, ineffective, and lack transparency, which discourage citizens from lodging reports of crime incidents. This paper proposes an AI-powered Smart FIR Filing System with Crime Analytics and Emergency Services to solve the above problems. The proposed method aims at streamlining the crime filing procedure using a convenient and safe web platform.

This new approach allows citizens to submit their reports to the police electronically either by writing or speaking through artificial intelligence (AI). The use of advanced AI techniques is applied in the classification of complaints filed through the web portal. Additionally, real-time FIR status updates, emergency services, and crime analytics are provided to support citizens' needs and facilitate effective communication with authorities.

Keywords

Aritificial Intelligence, Smart FIR Submission, Crime Analytics, Emergency Response System, Online Crime Reporting, FIR Status Tracking, Web Application, AI-based Complaints Classification

1. Introduction

Crime reporting is essential for the maintenance of public safety and assistance in law enforcement. However, the traditional means used for filing an FIR are rather tedious, opaque, and manual in nature, thus discouraging individuals from making reports of any crime committed against them. The process of filing an FIR involves one going to the police station, which takes considerable time. In the face of emerging technologies such as Artificial Intelligence (AI), web technology can facilitate the improvement of crime-reporting processes. With AI, the complaint classification process will be automated and hence fast, requiring less work to be done manually. Moreover, the process of submitting complaints and filing FIRs should include features such as status monitoring and emergency support in case of need for immediate intervention.

In this regard, this paper seeks to introduce an innovative system that will make the process of filing FIRs easier, transparent, and convenient. It proposes an AI-powered smart FIR filing system with crime analytics and emergency support. The system will allow the submission of complaints to the police via text messages and voice calls using the web interface of the system. It will also use AI technologies in analyzing the reported crime and its associated data.

2. Literature Review

Many research papers have focused on applying AI, machine learning (ML), and NLP in criminal reporting and analysis systems. AI-driven models have been employed in categorizing complaints, analyzing voice or text-based input, and identifying crime patterns. Crime prediction and analysis have also used machine learning algorithms like Decision Trees, SVM, and Random Forests. Such approaches have enhanced predictive accuracy and decision-making for law enforcement agencies.

Many web-based criminal reporting applications include provisions for online submission and monitoring of FIRs. Nevertheless, many current systems have deficiencies, including a lack of intelligent automation, emergency assistance, and advanced crime analytics. Also, some of the systems demand significant computing capabilities, huge amounts of data, and complex implementation procedures that make them challenging to maintain and scale up.

In this regard, the suggested AI-driven Smart FIR Filing System integrates AI-driven complaint classification, emergency assistance, real-time tracking of FIR, and crime analytics.

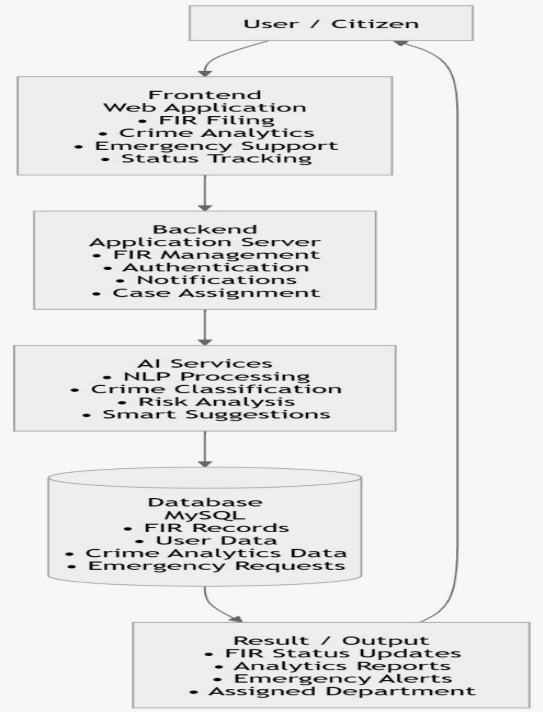
3. Problem Statement

The following issues can be highlighted regarding the current system of crime reporting. Firstly, the traditional method of filling FIRs is highly dependent on paper work and involves a lot of delays due to lack of automation. Citizens find it difficult to report crimes by visiting the police stations, while law enforcement agencies face problems in efficient management of their complaints.

The major weaknesses of the current system of crime reporting can be stated as follows:

- The lack of intelligent analysis and classification of complaints
- Lack of transparency in tracking FIRs
- No integration of emergency features into the system
- Poor data management capabilities

As a result of these shortcomings, people will have problems filing their complaints, whereas the police will face difficulties in investigating the matter. It is therefore essential to come up with a new and improved Smart FIR Filing System.



4.Proposed System

The proposed AI-Powered Smart FIR Filing System aims at making the conventional crime filing process more advanced, efficient, and secure through the development of an easy-to-use digital application that will allow citizens to report crimes online with text or voice command input. The application will be able to use Artificial Intelligence to classify and analyze complaints reported. Some other features include the ability to track FIRs online, emergency assistance, and crime analytics.

4.1 System Architecture

The AI-Powered Smart FIR Filing System uses a three-tiered architecture, which includes the following:

- **Frontend:** This will be built using React.js to create a dynamic user experience for complaint submission and tracking.
- **Backend:** This will be developed using Node.js for handling requests, AI-powered complaint analysis, and executing system logic.
- **Database:** A SQL-based database will be used for storage of FIR details, user data, and crime analytics.

This architecture ensures scalability, efficiency, and seamless user experience.

4.2 AI-based Complaint Analysis

The main element of the Smart FIR Filing System is the AI-based complaint analysis system. It involves analyzing the complaints provided by the user in text or audio format and assigning the relevant crime category.

Analysis is carried out taking into account various factors such as:

- Keywords and context in the complaint
- Type of case reported
- Converted text from audio
- Level of emergency
- Details about the incident provided by the user.

AI and NLP are employed for this purpose. After analyzing the complaint, it is assigned to the relevant department, and priority is given to emergency cases.

This automated process makes the entire process more efficient, less prone to errors, and faster.

4.3Complaint Classification

Depending upon the nature and seriousness of the incident, the complaints received through AI-based analysis will be classified in different categories. The emergencies can be identified by the system, and then the respective complaints are automatically processed.

The complaints can generally be classified into:

- **Normal Cases:** Normal complaints that need normal processing
- **Priority Cases:** Cases which must be attended to urgently and faster
- **Emergency Cases :** Such cases which activate emergency service systems

4.4 Modules of the System

The Smart FIR Filing System will consist of the following modules:

- **Home Module:** Gives brief information about the system and navigation services.
- **Smart FIR Filing Module:** Helps to file the complaints through text and voice entry.
- **AI Complaint Classification Module :** Will classify the complaint automatically through AI methods.
- **FIR Tracking Module:** Allows the tracking of the FIR status in real time.
- **Emergency Support Module:** Offers emergency support services for emergencies.
- **Crime Analytics Module:** Shows crime statistics and reports.
- **Authentication Module:** Helps in login, user authentication, and data security.

5. Implementation

In this section, we discuss the implementation process for our proposed AI-Powered Smart FIR Filing System. This innovative system has been implemented using modern web technologies, which ensures secure and efficient crime reporting. A user can lodge a FIR complaint via the web interface by submitting it via text or voice input.

For the frontend development, we have used React.js as it provides an engaging and responsive user experience. Our system backend has been created using Node.js, which facilitates request processing, AI-based FIR complaint categorization, and communication among system elements. For SQL database management, we will utilize our database management skills in managing FIR details, user information, emergency alerts, and crime analytics data.

Once a user lodges a complaint via the system, it gets processed using Artificial Intelligence and Natural Language Processing to categorize the complaint under a crime. In addition, based on the complaint, emergency support can also get activated by the system. Complaints status gets updated by the system, and it provides that information to the user through the dashboard.

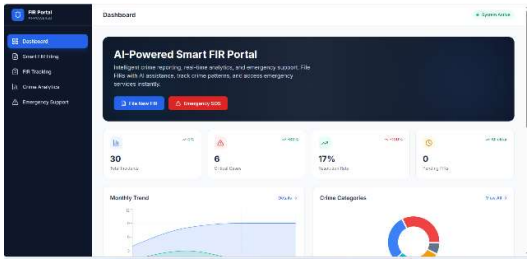
6. Results and Discussion

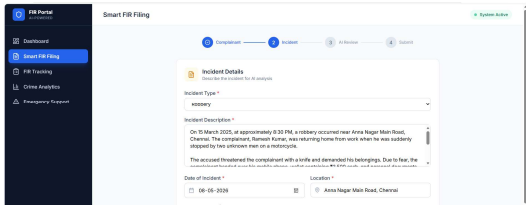
The findings reveal that the AI-Powered Smart FIR Filing System is an efficient way to make the existing crime reporting process more automated and intelligent.

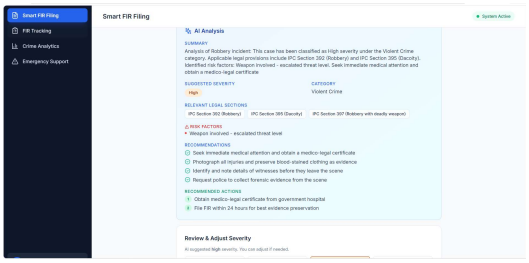
- **Effectiveness:** Eliminates the necessity to complete extensive paperwork streamlines registration and processing of complaints.
- Accurate Classification: Utilization of artificial intelligence in classifying the complaints.
- Transparency: Real-time tracking allows effective communication between individuals and authorities.
- Emergency Assistance: The system includes emergency alert functions for critical moments.
- Crime Analysis: Provides useful data for analyzing crime-related statistics.

In conclusion, the AI-Powered Smart FIR Filing System is a safe and efficient tool for online crime reporting. It increases the accessibility of the process and contributes to increasing its efficiency in general. Nevertheless, the effectiveness of the system relies on the correctness of input provided by users and reliable internet connection.

The system provides quick and reliable results, making it a practical solution for students. However, it relies on predefined rules, which may need updates to handle evolving scam techniques.







7. Conclusion

The AI-Powered Smart FIR Filing System is a robust mechanism for revolutionizing the legacy crime reporting process. With the integration of Artificial Intelligence, live tracking, emergency assistance, and crime analysis, the system ensures easy, transparent, and effective communication between the citizenry and the police departments.

The proposed system minimizes manual intervention, facilitates quick resolution of complaints, and enables easy filing of FIRs via an easy-to-use web portal. The system's capabilities in complaint classification using Artificial Intelligence and emergency assistance services make it a valuable tool for enhancing community security.

In summary, the proposed system represents a viable solution for digital crime management.

8. Future Work

The future improvements in the AI-Powered Smart FIR Filing System are:

- Use of AI and NLP methods to improve complaint categorization accuracy.
- Incorporation of real-time GPS location tracking for emergency cases and better response services.
- Creation of a mobile app version of the platform to enhance its usability.
- Inclusion of intelligent chatbots in the system for supporting users during the FIR filing process.
- Support for multiple languages for a larger user base.
- Data encryption technology and multi-factor authentication for enhanced data security.
- Integration with the databases of law enforcement authorities for effective case management.

These upgrades will enhance the performance of the system to a higher level.

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