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DEPARTMENT OF JUSTICE COMPLAINT MANAGEMENT SYSTEM WITH AI CHATBOT

[1]Dr. A. Tirupatiah,[2]B. Pavithra Lakshmi,[3]D. Rajesh Kumar,[4]A. Sunil

[1]Associate Professor, Dept of Computer Science and Engineering, St. Ann's College of Engineering and Technology, Chirala-523187, India.

[2,3,4]U. G Student, Dept of Computer Science and Engineering, St. Ann's College of Engineering and Technology, Chirala-523187, India.

ABSTRACT- ***The Department of Justice Complaint Management System with Dual AI Chatbot is an intelligent web-based application developed to simplify the complaint registration and management process. The system enables users to register, log in, submit complaints, and monitor their complaint records through a secure interface. To improve user assistance, two AI chatbots based on Google Gemini and Groq AI are integrated to provide instant responses to justice-related queries. The system is developed using Flask as the backend framework, SQLite as the database, HTML, CSS, and JavaScript for the frontend, and Generative AI APIs for chatbot functionality. The proposed system reduces manual effort, improves accessibility, and delivers accurate guidance through AI-powered interactions. It offers a secure, user-friendly, and efficient platform for digital complaint management within the Department of Justice.***

KEYWORDS: ***Department of Justice, Complaint Management System, Artificial Intelligence (AI), Google Gemini, Groq AI, Dual AI Chatbot, Flask, SQLite, Complaint Registration, Natural Language Processing (NLP).***

INTRODUCTION

Complaint management is an essential function of every justice department. Traditional complaint systems rely heavily on manual processes, resulting in delays, paperwork, and inefficient communication between citizens and authorities. With the rapid growth of Artificial Intelligence and web technologies, complaint management systems can now provide faster services and better user experiences.

This project presents a Department of Justice Complaint Management System integrated with Dual AI Chatbots. The

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application allows users to register, authenticate, submit complaints, and view complaint history. Additionally, Google Gemini AI and Groq AI chatbots provide instant responses to justice-related questions, enabling users to receive legal guidance without waiting for human assistance. The proposed system improves efficiency, transparency, and accessibility while reducing administrative workload.

LITERATURE SURVEY

Existing research shows that AI-powered chatbots significantly improve complaint management and legal assistance systems by providing instant responses, reducing manual work, and enhancing user experience. However, most existing systems use only a single AI model. The proposed Department of Justice Complaint Management System with Dual AI Chatbot integrates both Google Gemini and Groq AI, allowing users to compare responses from two different AI models. This approach improves response reliability, provides better legal guidance, and enhances the overall effectiveness of the complaint management system.

RELATED WORK

Several researchers have developed AI-based complaint management and legal assistance systems to improve citizen services and access to justice. Earlier systems primarily focused on online complaint registration and tracking using traditional web technologies, with limited automation and user support. Recent studies have integrated Artificial Intelligence and Natural Language Processing (NLP) into legal and complaint management applications, enabling chatbots to provide instant responses to user queries and legal guidance. These intelligent systems improve complaint handling efficiency, reduce response time, enhance transparency, and offer better user experiences. However, most existing solutions rely on a single AI model. The proposed Department of Justice Complaint Management System with Dual AI Chatbot integrates both Google Gemini and Groq AI to provide comparative AI-generated responses, improving the reliability, accuracy, and effectiveness of justice-related assistance.

EXISTING SYSTEM

The existing complaint management systems are primarily manual or semi-digital, requiring citizens to visit government offices or use basic online portals to register complaints. These systems mainly focus on complaint

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submission and tracking but provide limited support for user interaction and legal guidance. Most existing platforms do not incorporate Artificial Intelligence, resulting in delayed responses, increased manual effort, and limited accessibility. Furthermore, users often need to wait for officials to respond to their queries, which reduces the overall efficiency of the complaint resolution process.

PROPOSED SYSTEM

The proposed system is a web-based application developed using the Flask framework with SQLite as the backend database. Users can register, log in, submit complaints, and view complaint history. Two AI chatbots, Google Gemini and Groq AI, are integrated into the system to answer justice-related queries. Both chatbots generate independent responses, allowing users to compare answers and obtain reliable information. The system ensures secure data storage and provides an easy-to-use interface for complaint management.

SYSTEM ARCHITECTURE

The proposed Department of Justice Complaint Management System with Dual AI Chatbot is a web-based application developed using the Flask framework. The system consists of four major components: the User Interface, Application Server, SQLite Database, and AI Chatbot Services (Google Gemini and Groq AI).

Initially, users register and log in through the web interface. After successful authentication, users can file complaints, view complaint history, and interact with the AI chatbots. The Flask application processes user requests and communicates with the SQLite database to store and retrieve user and complaint information. When a user submits a justice-related query, the application sends the request to both Google Gemini AI and Groq AI. The responses generated by the two AI models are displayed to the user, allowing comparison and improving the reliability of the information provided. The overall architecture ensures secure user authentication, efficient complaint management, and intelligent AI-based assistance.

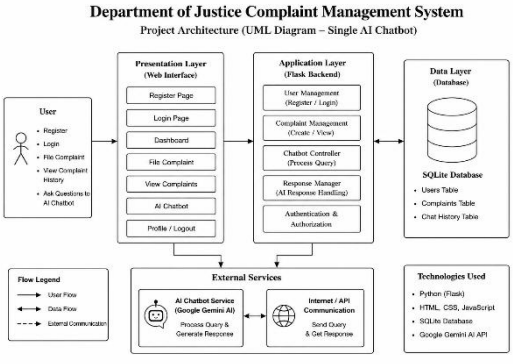


Fig 1: System Architecture

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METHODLOGY DESCRIPTION

The methodology of the Department of Justice Complaint Management System with Dual AI Chatbot is designed to provide a secure, efficient, and intelligent platform for complaint registration, management, and justice-related assistance. The system follows a structured process that includes user registration, authentication, complaint submission, complaint storage, complaint retrieval, and AI-powered query handling. Users can register and log in securely to access the system. After authentication, they can submit complaints, which are stored in the SQLite database for future reference. Users can also view their complaint history at any time. For justice-related queries, the system integrates Google Gemini AI and Groq AI chatbots to generate intelligent responses. Both AI models provide independent answers, allowing users to compare responses and obtain reliable information. This methodology ensures secure data management, improves complaint handling efficiency, reduces manual effort, and enhances user experience through AI-powered assistance.

RESULTS AND DISCUSSION

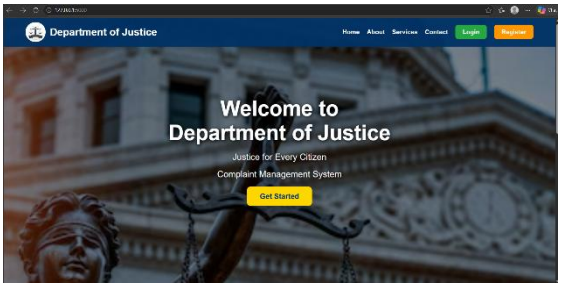


Fig2: Home page of department of justice complaint system

The home page provides a simple and user-friendly interface that introduces the Department of justice complaint management System and its healthcare services. It allows users to register or log in to access AI-based disease prediction and justice complaints features.

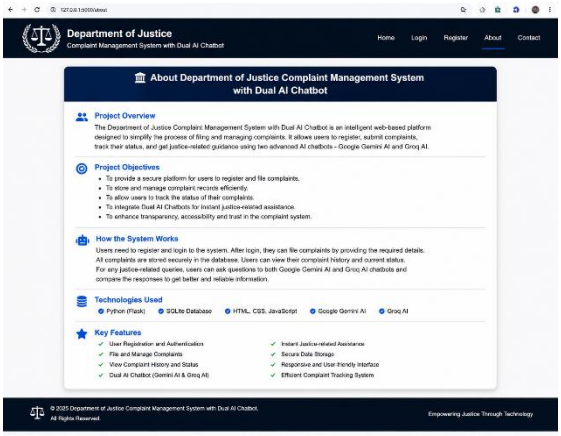


Fig 3: About Module

The **Department of Justice Complaint Management System with Dual AI Chatbot** is an intelligent web-based application developed to simplify the complaint registration and management

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process. The system enables citizens to register, log in, submit complaints, and view complaint history through a secure platform. It also integrates **Google Gemini AI** and **Groq AI** chatbots to provide instant justice-related guidance and support. The proposed system improves transparency, reduces manual effort, and enhances access to justice through Artificial Intelligence.

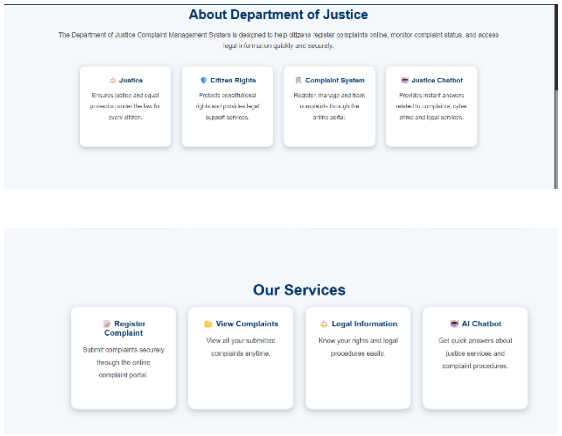


Fig 4: About Page

The Dashboard serves as the main interface of the Department of Justice Complaint Management System, providing quick access to all major features after user login. It allows users to submit and track complaints, view complaint history, receive case status updates, manage their profile, access important notifications, and learn more about the system. The dashboard is designed to provide an efficient, secure, and user-friendly experience for both citizens and authorized personnel

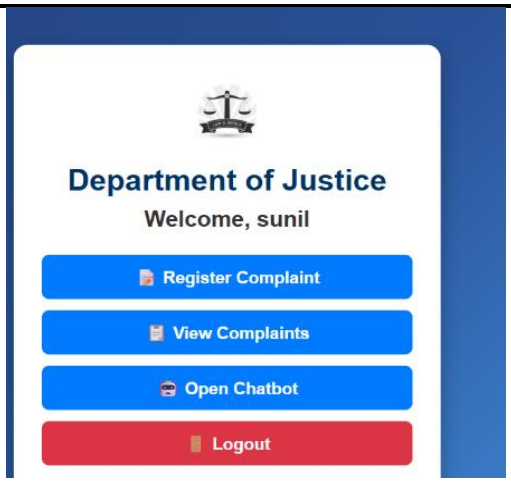


Fig 5: complaint status of report

The Complaint Status Report page displays the current status and progress of complaints submitted by users. It provides detailed information such as the complaint reference number, submission date, assigned department, current stage of processing, and any updates or actions taken. This enables users to monitor the progress of their complaints efficiently and stay informed throughout the resolution process.

CONCLUSION

The Department of Justice Complaint Management System is designed to improve the efficiency, transparency, and accessibility of complaint handling. It provides a secure platform for users to submit complaints, track their status, receive timely updates, and manage their profiles. By digitizing the complaint

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management process, the system reduces paperwork, enhances communication between users and the Department of Justice, and ensures that complaints are processed in a more organized and accountable manner. Overall, the system contributes to faster service delivery, improved record management, and greater public trust in the complaint resolution process.

FUTURE SCOPE

The Department of Justice Complaint Management System can be further enhanced by integrating advanced features to improve its functionality and user experience. Future developments may include a mobile application for easier access, real-time notifications through SMS and email, AI-powered complaint categorization and prioritization, multilingual support to serve users from different regions, and integration with other government databases for faster verification and processing. Additional features such as analytics dashboards, document verification, online hearing scheduling, and secure digital signatures can further streamline complaint management. These enhancements will make the system more efficient, transparent, and accessible while supporting the evolving needs of the Department of Justice and the public.

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