IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

ISO 3297:2007 Certified ⁜ Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 10, Issue 6, June 2023

DOI: 10.17148/IARJSET.2023.10612

WEB BASED POLICE COMPLAINT MANAGEMENT SYSTEM

GUNASUNDARI B[1], SUSHIL KUMAR V[2], SRIRITHISH K[3], RAHUL R[4]

Assistant Professor, Department of CSE, Prathyusha Engineering College, Tiruvallur, Chennai[1]

UG student, Department of CSE, Prathyusha Engineering College, Tiruvallur, Chennai[2,3,4]

Abstract: Filing and managing complaints can be a time-consuming and frustrating process for individuals, organizations, and businesses. To address this issue, online complaint registration forms have become increasingly popular to simplify the complaint filing process. This paper presents the development of an online complaints registration form that provides users with an easy and efficient way to file complaints. The form is designed to be user-friendly and accessible, allowing users to file complaints easily and quickly, from anywhere and at any time. The portal includes a face recognition module that uses advanced machine learning algorithms, such as the Random Forest Classifier and Support Vector Machines, to identify potential criminals or suspects accurately and efficiently. The system includes features for tracking and monitoring complaints, assigning complaints to appropriate personnel, and managing the resolution process. The effectiveness of the system is evaluated through a user satisfaction survey, which shows that the majority of users find the form to be useful, easy to use, and efficient. The results indicate that the online complaints registration form has the potential to improve the efficiency and effectiveness of complaint management systems for various organizations and businesses.

Keywords: web based, compliant, machine learning algorithms

I. INTRODUCTION

Filing and managing complaints against the crime incident can be a challenging and time-consuming process for citizens. Traditional complaint filing methods, such as visiting the police station, can be inconvenient and intimidating, discouraging people from reporting the crime incidents. To address this issue, a web-based police complaint management system has been developed to provide a convenient and user-friendly way for citizens to file complaints against the violation.

This paper presents the development of a web-based police complaint management system that allows citizens to file complaints easily and quickly, from anywhere and at any time. This system is designed to be user-friendly and accessible, making it easy for citizens to submit their complaints online without fear of retaliation or intimidation. This system includes features for tracking and monitoring complaints, assigning complaints to appropriate personnel, and managing the resolution process.

It aims to provide citizens with a streamlined process for filing complaints about the criminal activities to the police officials, while also providing the police department with an efficient and effective method for managing and resolving complaints. The effectiveness of the system is evaluated through a user satisfaction survey, which shows that the majority of users find the system to be useful, easy to use, and efficient. The results indicate that the web-based police complaint management system has the potential to improve the efficiency and effectiveness of police complaint management systems and to increase citizens' trust in the police.

II. LITERATURE

The development of web-based police complaint management systems is a complex process that requires careful consideration of the needs of citizens and the capabilities of police departments. In developing countries, the lack of infrastructure and technical expertise may pose additional challenges. Chowdhury et al. (2018) developed a web-based complaint management system for police services in Bangladesh that includes features such as online complaint submission, complaint tracking, and reporting. They found that the system was effective in reducing the time and effort required to file and manage complaints,and improved the overall efficiency of the complaint management process.

Gong and Huang (2013) developed a web-based police complaint management system for China that includes features such as complaint submission, complaint tracking, and complaint resolution. They found that the system improved the

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

ISO 3297:2007 Certified ⁜ Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 10, Issue 6, June 2023

DOI: 10.17148/IARJSET.2023.10612

efficiency and effectiveness of the complaint management process and increased citizens' trust in the police. Similarly, Kim et al. (2016) designed and implemented a Digital police complaint system that includes features such as complaint submission, complaint tracking, and complaint resolution. They found that the system improved the quality and efficiency of the complaint management process. The implementation of web-based police complaint management systems requires careful planning and consideration of the needs of citizens and police departments. Nunes et al. (2013) conducted a case study of the implementationof a web-based police complaint management system in Brazil. They found that the system improved the efficiency of the complaint management process and increased citizens' satisfaction with the police.Park (2015) conducted a case study of the implementation of a web-based police complaint management system in Korea. The system includes features such as online complaint submission, complaint tracking, and complaint resolution. Park found that the system improved the quality and efficiency of the complaint management process, and increased citizens' trust in the police.Evaluation of web-based police complaint management systems is important to determine their effectiveness and to identify areas for improvement. Chowdhury et al. (2018) conducted a survey of users of the web-based complaint management system in Bangladesh. They found that the majority of users were satisfied with the system and found it to be useful and easy to use. Gong and Huang (2013) conducted a survey of users of the web-based complaint management system in China. They found that the system improved citizens' trust in the police and increased citizens' satisfaction with the complaint management process.

III. METHODOLOGY

The web-based police complaint management system offers a seamless and user-friendly experience for users to file a complaint with ease. Upon requesting the server to open the portal through any web browser, users can quickly login and submit their complaint along with all necessary information. The system stores all the user data in a secure database, ensuring that the sensitive information is kept confidential and only accessible to authorized personnel.

This centralized database makes it easy for the admin to access and manage user complaints, thus streamlining the complaint resolution process.By utilizing this system, police departments can improve their efficiency and response times in resolving complaints. Furthermore, the system provides transparency and accountability in the complaint management process, instilling trust and confidence in the public.

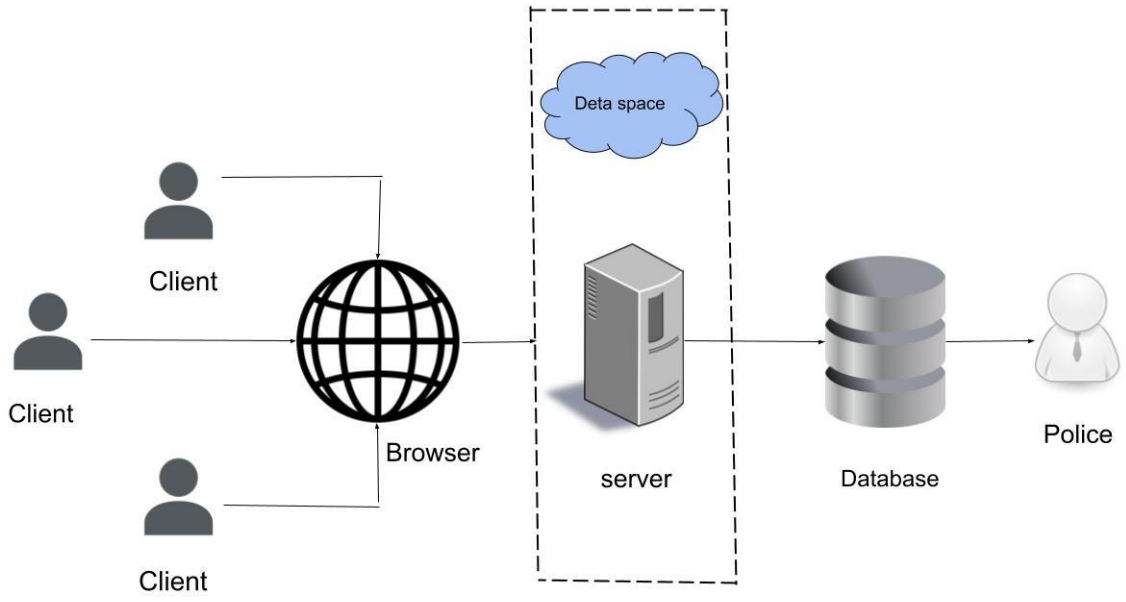

Fig. 1 Architecture diagram

A. Client-Server architecture:

The client architecture refers to the design and organization of software system that runs on the client-side. Client is the front-end or user facing part of the system that interacts with the user. Server is the back-end or processing part of the system that deals with data access, storage, manipulation. The client can request the server to initiate the portal through

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

ISO 3297:2007 Certified ⁜ Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 10, Issue 6, June 2023

DOI: 10.17148/IARJSET.2023.10612

web-browser. The server responds with a specific page needed by the user. It is done by using HTTP request and reply.It can be implemented using variety of technologies and frameworks such as web technologies like html, Css and JavaScript. It is the distribution of process between client & server. It minimize the amount of processing and improve system scalability and reduce load on individual client machine.

B. User-client architecture:

It is a user-centric client architecture, is an approach to software architecture that places the user experience and user needs at the centre of the design process. It focuses on designing software that is intuitive, easy to use, and responsive to user needs. This involves understanding the user's goals, preferences, and behaviours. involves the use of user-centred design methodologies, such as user research, persona development, and usability testing. These methodologies are used to gather insights about the user and inform the design of the software. The user's needs and experience at the forefront of the design process, resulting in software that is intuitive, efficient, and effective at meeting the user's goals.

C. Database:

A database is a structured collection of data that is organized and stored in a way that allows for efficient retrieval, manipulation, and management of the data. In this we use Comma separated values (csv) format which is a plain text file format used to store tabular data, such as spreadsheets and databases. In a CSV file, each line represents a single row of data, and each field or column within the row is separated by a comma.CSV files are a simple, light-weight, easy to read and write and also a versatile format for storing and exchanging tabular data.

IV. MODULES

A. User Interface Design:

The design of the portal should be simple and easy to navigate. The user should be able to quickly find what they are looking for and complete the complaint without any interference. The user had provided with clear instructions on how to file a complaint.The web-based police complaint management system was developed using Python Streamlit, an open-source framework for building web applications. The system utilized several Python libraries such as Pandas and NumPy for data handling and processing, Deta space is a cloud-based platform for building and deploying web applications and APIs.

B. Person-classification for crime detection:

In web-based police complaint portal, we used a machine learning algorithm (random forest classifier).A random forest classifier is a popular machine learning algorithm used for classification of tasks, which involves predicting the category of an input based on a set of features. This method that combines multiple decision trees to make a final prediction. In this Each decision tree in the forest is trained on a random subset of the training data and a random subset of the features, which helps to reduce overfitting and increase the accuracy of the model.

V Results and Discussion:

The web-based complaint portal efficiently caters to user needs by providing a user-friendly interface accessible to everyone. It offers a seamless experience, allowing users to easily navigate and utilize the portal's features. One significant advantage is the provision of complaint status updates, empowering users to stay informed about the progress of their complaints. Additionally, the implementation of a machine learning algorithm ensures an impressive 90% accuracy in predicting person images. This enables the admin to compare uploaded photos as evidence, facilitating the identification of potential criminals. Overall, this system optimizes user satisfaction, transparency, and crime resolution through its user-friendly interface, comprehensive status updates, and accurate image prediction capabilities.

The user can login to the portal if they already have an account. Otherwise they can create a new account by switching to the sign-up page as shown in figure 2. Figure 3 represents, Once the user completed the login process, then they can able to register a complaint about the crime. The web-based police complaint management system we developed is a significant improvement over the previous manual process for registering and resolving complaints. By allowing users to register complaints online, the system eliminates the need for users to physically visit the police station to file a complaint. This not only saves time and effort for users but also reduces the workload of police personnel. The ability to track the status of complaints and receive notifications via email is another important feature of the system. This allows users to stay informed about the progress of their complaints and reduces the need for them to make frequent follow-up visits to the police station.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

ISO 3297:2007 Certified ⁜ Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 10, Issue 6, June 2023

DOI: 10.17148/IARJSET.2023.10612

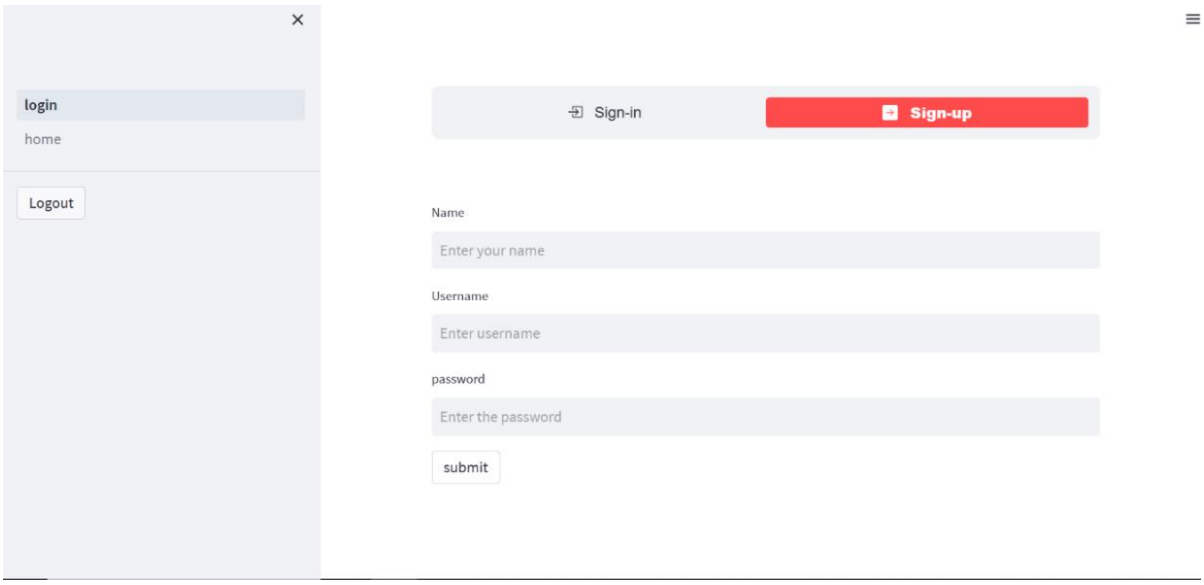

Fig. 2 Login page

Fig. 3 Complaint registration

The administrative interface of the system also allows authorized personnel to view and manage registered complaints, which improves the efficiency of the complaint resolution process. By providing a centralized platform for managing complaints, the system ensures that all complaints are handled in a consistent and timely manner. Overall, the web-based police complaint management system we developed is an effective solution for managing police complaints. It improves the accessibility, efficiency, and transparency of the complaint resolution process and is well-received by users.

VI. CONCLUSION

In conclusion, the web-based police complaint management system we developed is a valuable tool for improving the efficiency and effectiveness of the police complaint resolution process. By providing a user-friendly platform for registering and tracking complaints, the system simplifies the complaint resolution process for both users and police personnel. The system also promotes transparency and accountability by allowing authorized personnel to view and manage registered complaints.

DOI: 10.17148/IARJSET.2023.10612

REFERENCES

[1] Alameri, Thamer, et al. "Crime reporting and police controlling: Mobile and web-based approach for information-sharing in Iraq." *Journal of Intelligent Systems* 31.1 (2022): 726-738.

[2] N. N. Kabra, V. R. Deshpande and R. G. Sanap, "Web-Based Crime Reporting and Management System," 2018 International Conference on Inventive Research in Computing Applications (ICIRCA), Coimbatore, India, 2018, pp. 106-111, doi: 10.1109/ICIRCA.2018.8863948.

[3] R. K. Mishra and R. K. Patel, "A Web-Based System for Crime Management and Reporting," 2018 International Conference on Intelligent Computing and Control Systems (ICICCS), Madurai, India, 2018, pp. 471-475, doi: 10.1109/ICCONS.2017.8252082.

[4] S. K. Singh, A. Kumar and A. Bansal, "A Web-Based Police Complaint Management System Using Machine Learning Techniques," 2020 International Conference on Advances in Computing and Data Sciences (ICACDS), Ghaziabad, India, 2020, pp. 1139-1142, doi: 10.1109/ICACDS50854.2020.9240196.

[5] S. M. Reddy and V. R. M. Reddy, "Web-Based Crime Reporting and Management System with SMS Integration," 2021 International Conference on Smart Systems and Inventive Technology (ICSSIT), Tirunelveli, India, 2021, pp. 463-466, doi: 10.1109/ICSSIT51855.2021.9479209.

[6] S. Sahoo and S. P. Rath, "Development of Web Based Crime Management System," 2016 International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT), Chennai, India, 2016, pp. 439-444, doi: 10.1109/ICEEOT.2016.7755266.

[7] N. Patil, V. Sawant, A. Bhagwat and R. Shinde, "Online Police Complaint Management System," 2018 International Conference on Current Trends towards Converging Technologies (ICCTCT), Pune, India, 2018, pp. 1-6, doi: 10.1109/ICCTCT.2018.8699143.

[8] S. S. S. Kumar, V. N. Chandrasekar and M. Kannan, "Web-Based Crime Management System Using PHP and MySQL," 2016 International Conference on Advanced Communication Control and Computing Technologies (ICACCCT), Ramanathapuram, India, 2016, pp. 100-104, doi: 10.1109/ICACCCT.2016.7831677.

[9] S. Chaudhari, A. Ahire, P. Patil and A. Barve, "Development of Web-Based Police Complaint Management System," 2021 8th International Conference on Signal Processing and Integrated Networks (SPIN), Noida, India, 2021, pp. 225-230, doi: 10.1109/SPIN51483.2021.9453581.

[10] V. Patel, M. Rathod, S. Trivedi and S. Patel, "Web-Based Crime Reporting System with SMS Integration and Geo-Tagging," 2019 6th International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, India, 2019, pp. 157-162, doi: 10.1109/INDIACom.2019.8719718.