



AN OVERVIEW ON: RailSafe – Web and Application

**Prof. Madhuri Bhaisare¹, Vaibhavi Marbate², Saurabh Bhandarkar³,
Bhavika Wankhede⁴, Payal Thape⁵, Yogesh Rakhunde⁶**

Professor Department of Computer Science and Engineering, Nagarjuna Institute of Engineering Technology and Management, Nagpur, Maharashtra, India¹

UG Student, Department of Computer Science and Engineering, Nagarjuna Institute of Engineering Technology and Management, Nagpur, Maharashtra, India²⁻⁶

Abstract: Passenger security in railways is a critical concern, with increasing incidents of robberies and delays in FIR registration. To address these issues, we propose R-Help, an Android-based mobile application enabling passengers to register complaints effortlessly. The system uses a real-time database to store and manage complaint data, ensuring streamlined tracking and resolution. Passengers can lodge complaints with minimal inputs, upload supporting evidence, and receive a unique complaint ID. The application forwards complaints directly to Railway Police Force (RPF) officers for prompt action. It also provides real-time status updates, enhancing transparency and user convenience. Unlike existing systems, R-Help addresses delays in FIR registration, particularly in emergencies like accidents and assaults, where time is crucial. By digitizing the process, it eliminates manual intervention and minimizes inefficiencies, making complaint redressal faster and more reliable. This solution aims to improve passenger safety and accessibility through a tech-driven approach.

Keywords: Railway Security, complaint registration, Complaint tracking

I. INTRODUCTION

The traditional process of filing First Information Reports (FIRs) in railway incidents is often delayed and inefficient, requiring passengers to visit police stations. Online FIR registration systems provide a more accessible and efficient alternative, enabling passengers to file complaints via mobile apps or web portals, track their status in real-time, and upload evidence. Our proposed system, RailSafe, is an Android-based application developed in Java with Firebase for real-time data management. It streamlines the FIR process through three modules: passenger complaint registration, complaint management by Railway Protection Force (RPF), and status tracking. By improving accessibility, transparency, and response times, RailSafe modernizes complaint handling and enhances passenger safety. Challenges such as digital literacy and connectivity will be addressed through training and continuous system improvements.

II. METHODOLOGY

The project combines HTML, CSS3, JavaScript, and Bootstrap for responsive web design, with AJAX for real-time interactions. ASP.NET and SQL Server handle secure backend operations and data management. For mobile, Android Studio integrates XML, Java, and Firebase to provide real-time authentication, data sync, and a seamless user experience.

This process is divided into key phases:

Planning Phase

The planning phase begins with analyzing software requirements and defining system functionalities like complaint registration, tracking, and updates. The system architecture is designed to integrate web and mobile platforms seamlessly. Key technologies, including ASP.NET, Java, and Firebase, are finalized to ensure efficient and scalable development.

Web and Application Design Phase

Web Design includes responsive interfaces using HTML, CSS3, and Bootstrap, with dynamic behavior powered by JavaScript and AJAX. Secure backend APIs built with ASP.NET communicate seamlessly with the SQL Server database. Application Design involves creating intuitive mobile interfaces with XML layouts in Android Studio. Core functionalities, such as complaint registration and status tracking, are implemented in Java with real-time updates supported by Firebase Authentication and Realtime Database.



III. MODELING AND ANALYSIS

The proposed system focuses on enhancing passenger security by enabling efficient complaint registration through an Android application. The model comprises three key components: Passenger Interface, RPF Management System, and Real-Time Database. Passengers can easily lodge complaints with minimal inputs, attach proofs such as images, and receive a unique ID for tracking. The complaint is directly sent to the Railway Police Force (RPF), who verify the details and proceed with the case. Both passengers and RPF officers can update and track complaint statuses, ensuring transparency. This system addresses delays in FIR registration, minimizes manual intervention, and provides real-time feedback, significantly improving passenger safety and operational efficiency.

IV. RESULTS AND DISCUSSION

The RailSafe system has significantly improved passenger security and operational efficiency by enabling online FIR registration. The system enhances ease of use, increases incident reporting, and provides real-time updates on FIR statuses, which boosts transparency and reduces anxiety. Centralizing data improves crime analysis and coordination between law enforcement agencies, resulting in faster responses. However, challenges include the need for robust technological infrastructure, addressing cybersecurity concerns, and ensuring accessibility for passengers in rural areas. Additionally, proper training for railway and law enforcement personnel, along with legal adaptations to accept digital complaints, are crucial for the system's success. Integrating the system across various regions and with existing platforms remains a key hurdle.

V. CONCLUSION

RailSafe enhances passenger safety by digitizing the FIR registration process, improving accessibility, efficiency, and transparency. Passengers can report incidents from anywhere, reducing the need for physical visits and speeding up response times. The user-friendly interface ensures easy navigation and real-time updates, benefiting both passengers and law enforcement. Data analytics provide insights for better security management, fostering a safer railway environment and greater public trust. Future improvements may include mobile app integration and advanced features to further enhance user experience and system efficiency.

REFERENCES

- [1]. Patel, N. & Singh, M. Improving Public Safety through “Online Reporting Systems”: A Case Study of Indian Railways (2022).
- [2]. Gupta, V. & Kaur, A. Technology-driven Crime Reporting: Analyzing the “Effectiveness of E-FIRs” in India’s Railway Sector (2021).
- [3]. Singh, A. Legislative Changes Needed for E-Governance in Railway Law Enforcement (2021).
- [4]. Roy, P., & Chakraborty, S. Evaluating the Success of “Online Crime Reporting” in Indian Railways (2020).
- [5]. Prof. Preeti Karmore, R - Help: An Application for Online FIR Registration System for Railways (2019).
- [6]. Shri Piyush Goyal launches “Rail Madad”, 11 June 2018.
- [7]. Suresh Prabhu. CRIS (Centre for Railway Information System), “Rail SAARTHI” (2016-2017)..
- [8]. Dr. Ayesha Butalia, “E-Police System” Department of Computer Engineering, PGMCOE, Wagholi, Pune, Maharashtra, India, International Journal of Innovative and Emerging Research in Engineering e-ISSN: 2394 – 3343 online at Volume 4, Issue 6, 2017.
- [9]. Prof. Anindita Khade, Online FIR Registration and SOS System, Computer Engineering SIES Graduate School of Technology, Navi Mumbai, India. International Journal of Engineering and Computer Science ISSN:2319-7242 (IJECS), Vol.05 Issue.04, April- 2016.
- [10]. Archana Iyer, “E-Police System”, Department of Information Technology, YCCE, Wanadongri, Nagpur, India, International Research Journal of Engineering and Mobile Technology (IRJET), Vol.03 Issue.02, February- 2016.