

# Crime Reporting and Tracking System Using Web Technologies

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## Abstract

In modern society, efficient crime reporting and tracking play a crucial role in maintaining law and order. Traditional crime reporting systems are often manual, time-consuming, and lack transparency, which leads to delays in response and inefficient handling of cases. This paper presents the design and development of a web-based Crime Reporting and Tracking System that provides a digital platform for users to report crimes, track their complaints, and send emergency alerts.

The proposed system integrates user-friendly interfaces with real-time data handling, enabling citizens to easily register complaints and monitor their progress. The system includes an admin dashboard that allows authorities to manage reports, update case statuses, and analyze data through graphical representations. Additionally, a location-based tracking feature using map integration enhances the system's usability by providing geographical insights.

The system is developed using HTML, CSS, JavaScript for the frontend, Node.js for backend processing, and MySQL for database management. The implementation demonstrates improved efficiency, accessibility, and reliability compared to traditional methods. This research highlights how web technologies can be effectively utilized to enhance public safety systems and streamline communication between citizens and authorities.

## Keywords

Crime Reporting, Tracking System, Web Application, Dashboard, SOS Alert, Public Safety, Database Management

## 1. Introduction

Crime reporting is a fundamental aspect of law enforcement that ensures safety and justice in society. However, traditional systems rely heavily on manual processes such as visiting police stations, filing written complaints, and waiting for updates, which often results in inefficiencies and lack of transparency.

With the advancement of digital technologies, there is a growing need to modernize these systems. A web-based solution can significantly improve accessibility and efficiency by allowing users to report crimes from anywhere at any time.

The main objective of this project is to develop a centralized system that:

- Simplifies crime reporting
- Enables real-time tracking of complaints
- Provides emergency assistance through SOS alerts
- Offers administrative control through dashboards

This system aims to bridge the gap between citizens and authorities, ensuring faster communication and improved response times.

## 2. Review of Literature

Several research works have been conducted in the domain of crime reporting systems:

Paper 1: Online Crime Reporting System

This system allows users to file complaints online. However, it lacks tracking capabilities and real-time updates, making it less effective for users who want to monitor their complaints.

Paper 2: Mobile-Based Crime Reporting Application

This system provides mobility and accessibility but does not include advanced features such as dashboards, analytics, or administrative control.

Limitations of Existing Systems

- Lack of real-time tracking
- No proper dashboard for analysis
- Limited emergency support features
- Poor user interface

Proposed Solution

The proposed system overcomes these limitations by integrating:

- Real-time tracking
- Admin dashboard with charts
- SOS emergency feature

- Map-based location tracking

### 3. Theory, Methodology and Algorithm

## 3.1 System Architecture

The system follows a **three-tier architecture**:

#### 1. Presentation Layer (Frontend)

- Developed using HTML, CSS, JavaScript
- Handles user interaction

#### 2. Application Layer (Backend)

- Developed using Node.js
- Processes user requests and business logic

#### 3. Data Layer (Database)

- MySQL database
- Stores user data, reports, tracking information

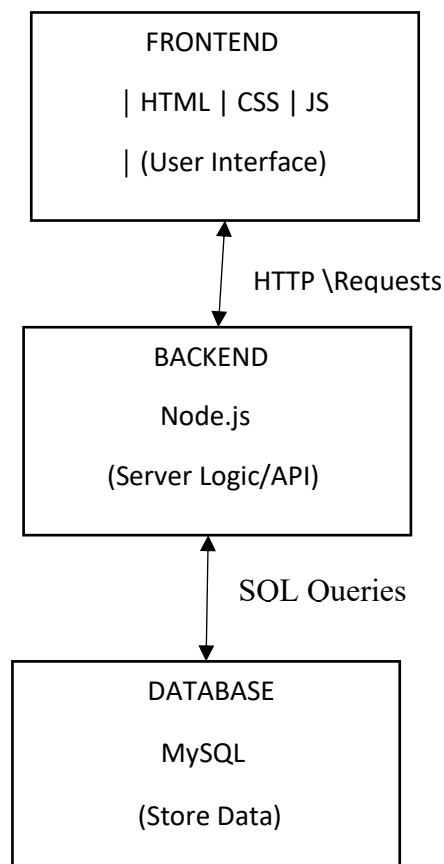


Figure 1: System Architecture of Crime Reporting System

## 3.2 Methodology

The development process includes:

1. Requirement Analysis
2. System Design
3. Implementation
4. Testing
5. Deployment

## 3.3 Algorithm (Working Flow)

1. User registers and logs into the system
2. User submits crime report
3. Data is stored in the database
4. Admin reviews the report
5. Admin updates the status (Pending/Resolved)
6. User tracks report status
7. In emergency, user sends SOS alert
8. System logs SOS data and triggers emergency call

## 4. System Design

### 4.1 ER Diagram

Entities:

- User
- Crime Report
- Tracking
- SOS Logs

Relationships:

- User submits reports
- Admin manages reports
- Reports linked to tracking

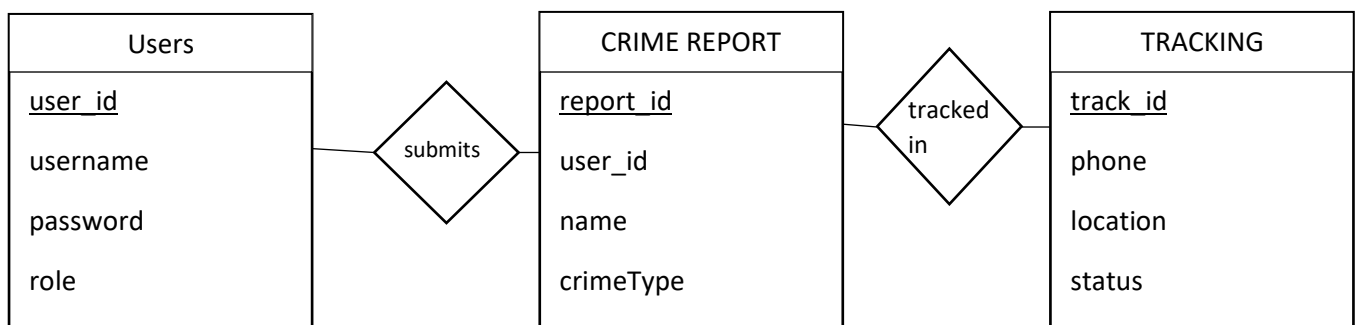


Figure 2: ER Diagram of the System

## 4.2 Use Case Diagram

Actors:

- User
- Admin

User actions:

- Register/Login
- Report crime
- Track report
- Send SOS

Admin actions:

- View reports
- Update status
- Delete records
- View Reports View dashboard

## 4.3 Flowchart

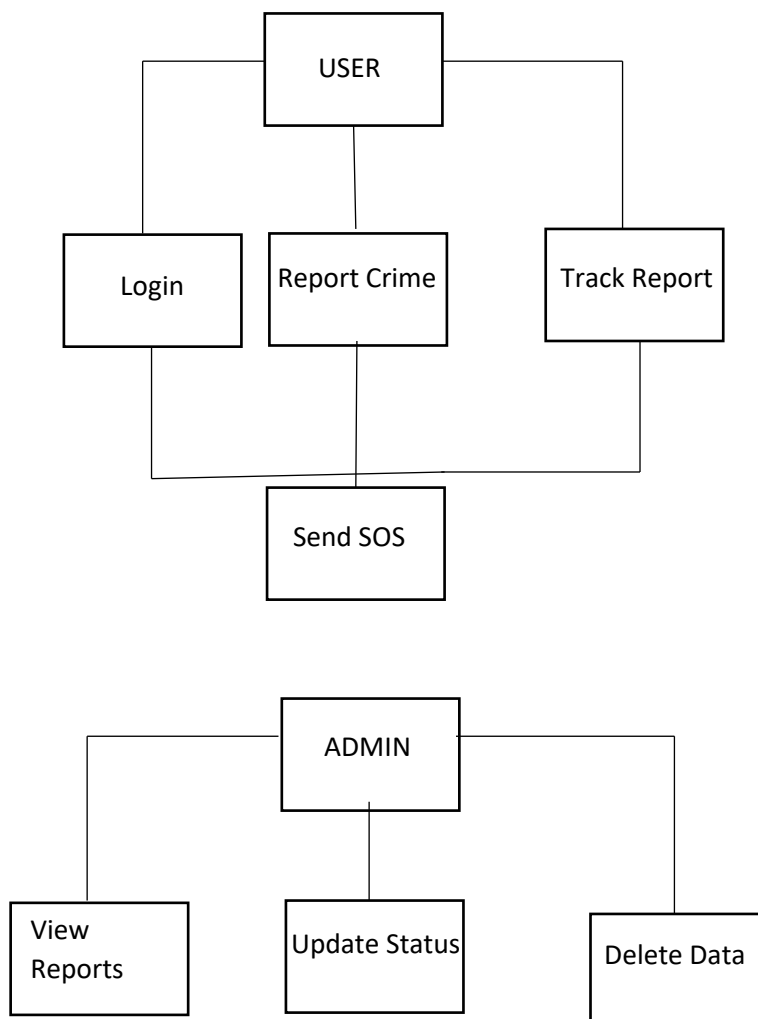


Figure 3: Use Case Diagram

Login → Dashboard → Report/Track → Admin Action → Status Update

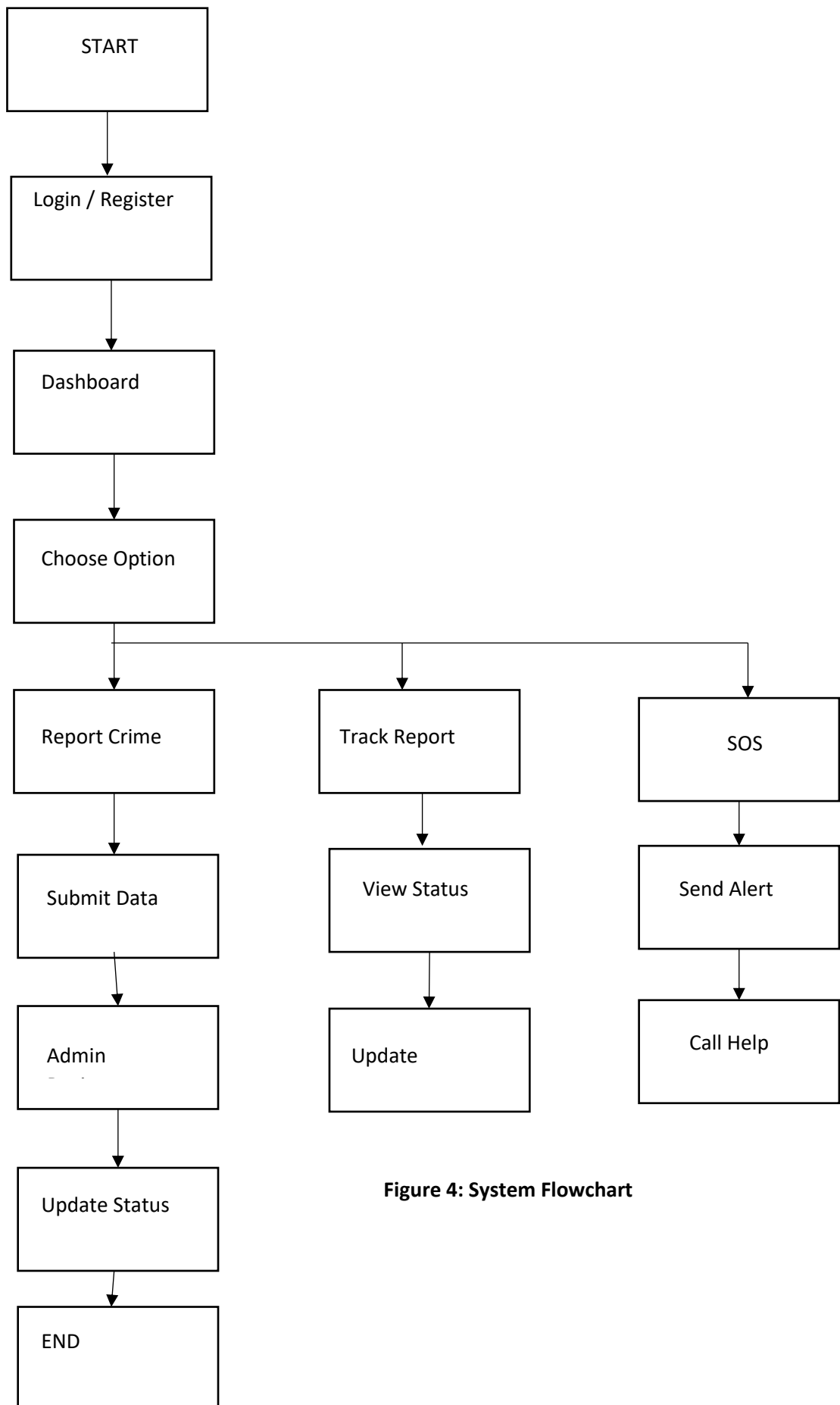


Figure 4: System Flowchart

## 5. Implementation

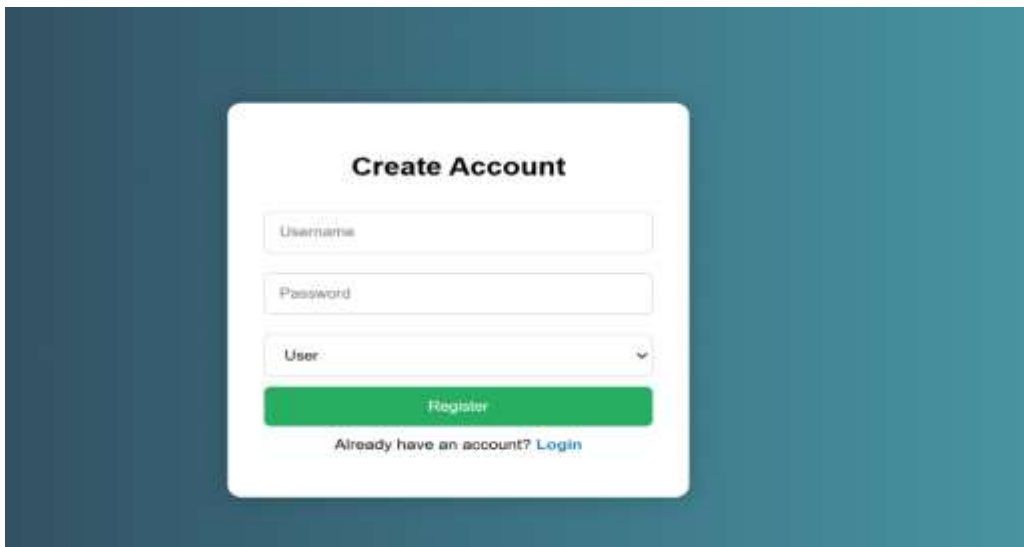
### Technologies Used

- Frontend: HTML, CSS, JavaScript
- Backend: Node.js
- Database: MySQL
- Map Integration: Leaflet.js
- Charts: Chart.js

### Modules Implemented

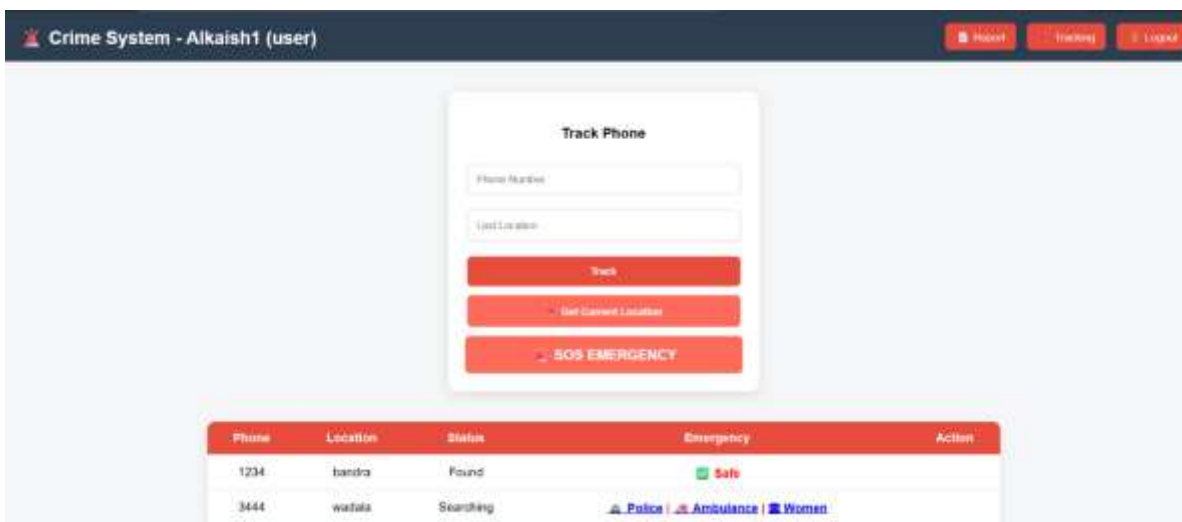
#### 1. User Authentication

- Registration and login system
- Role-based access (Admin/User)



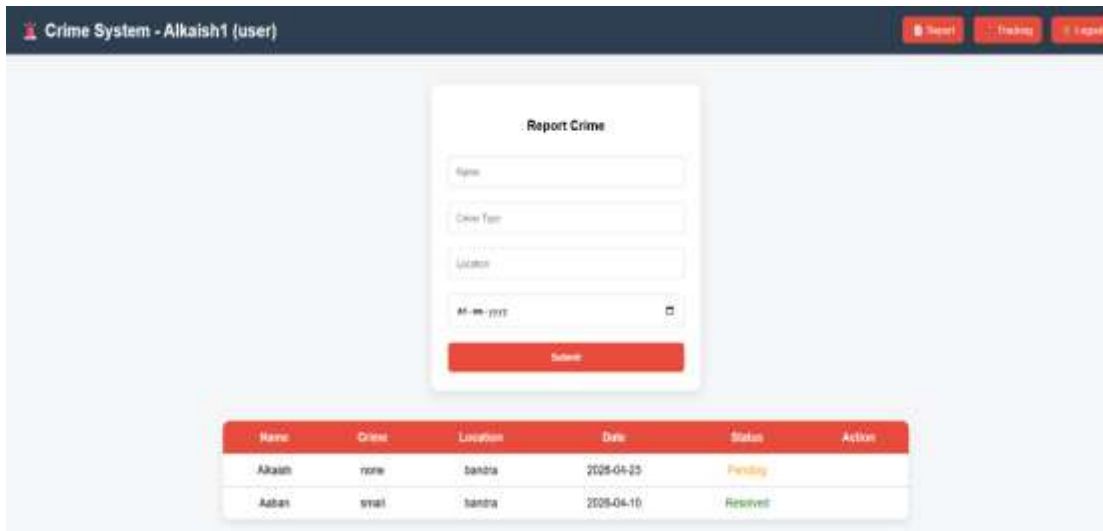
#### 2. Crime Reporting

- Form submission
- Data storage in database



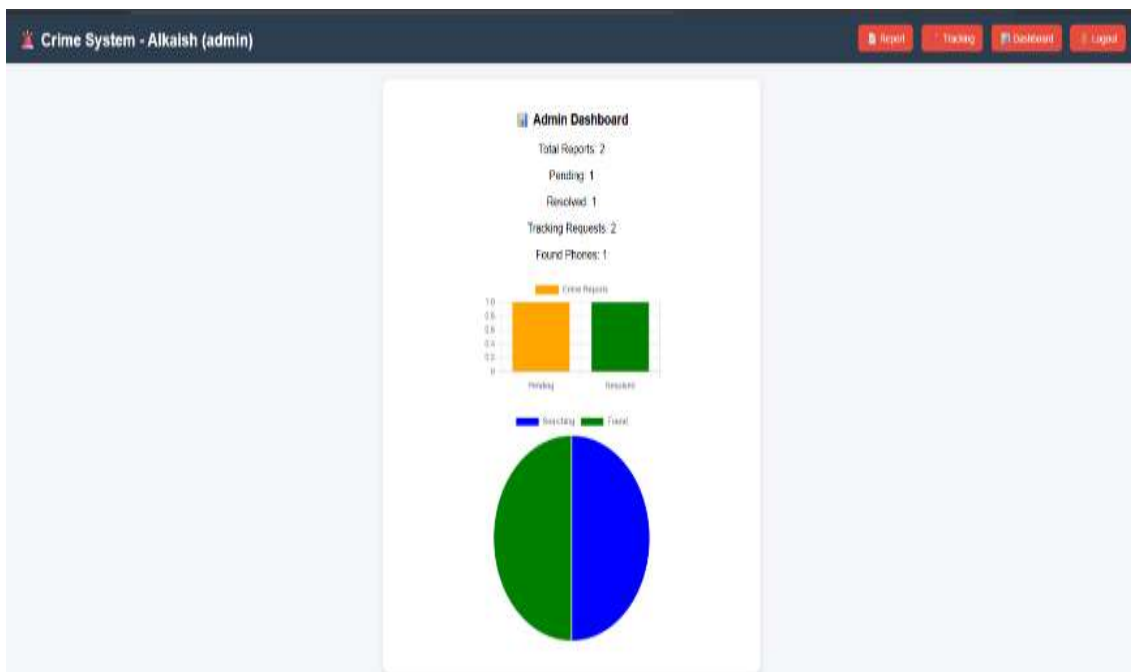
### 3. Tracking System

- Displays report status
- Allows admin updates



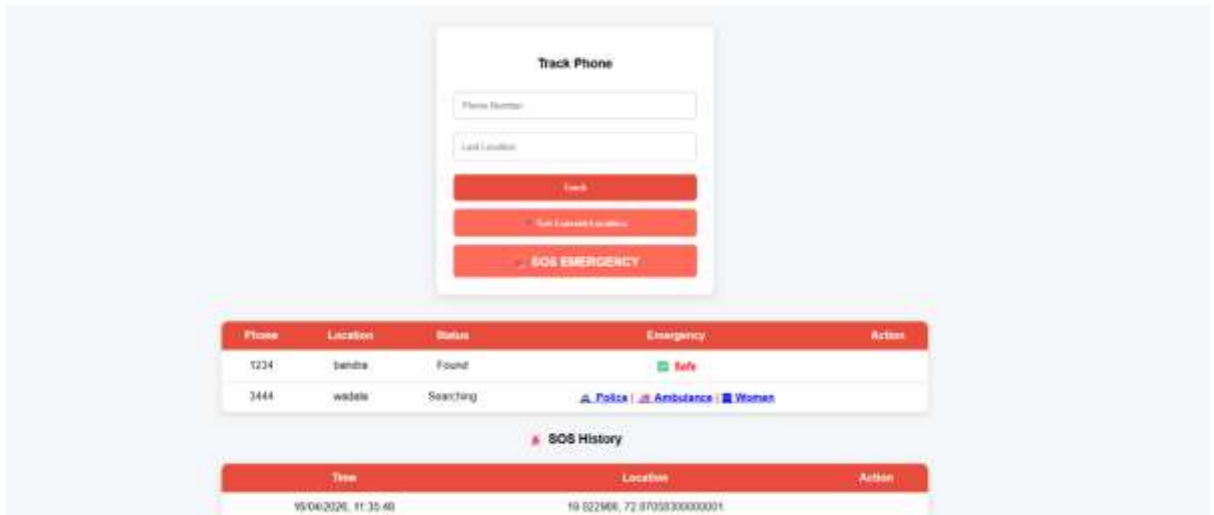
### 4. Dashboard

- Displays statistics
- Graphical representation using charts



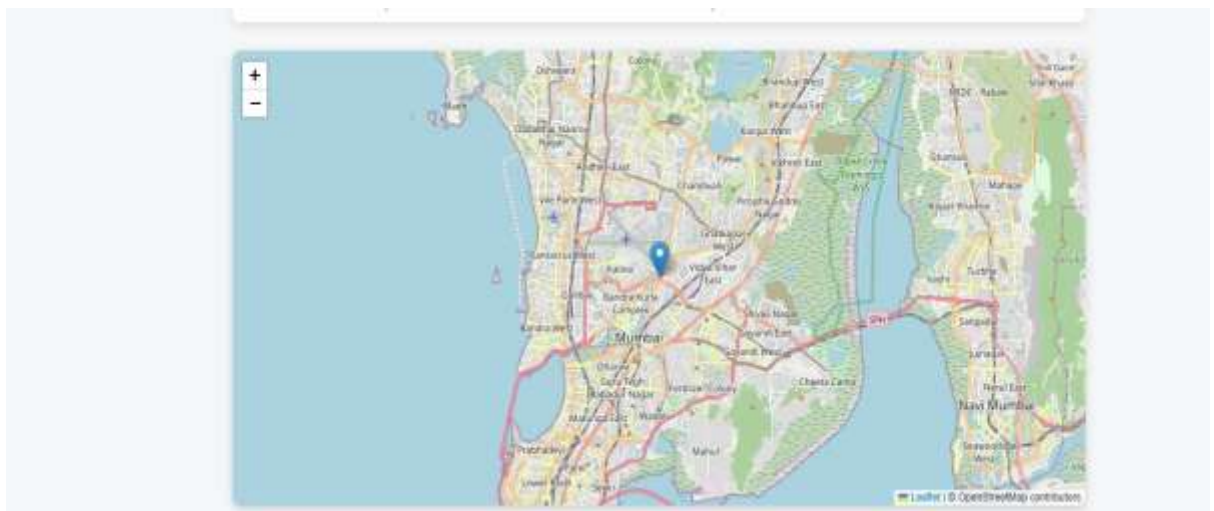
### 5. SOS Emergency System

- Sends emergency alert
- Stores location and time
- Provides direct call options



### 6. Map Integration

- Displays user location
- Helps in tracking incidents



## 6. Results and Discussion

The system was tested under various scenarios and produced the following results:

### Observations

- Users can easily submit reports
- Real-time tracking improves transparency
- Dashboard provides clear analytics
- SOS feature works effectively in emergencies

### Advantages

- Reduces manual work
- Saves time
- Improves communication
- Easy to use

### Limitations

- Requires internet connection
- Limited to web platform

## 7. Conclusion

The Crime Reporting and Tracking System successfully demonstrates how digital solutions can improve traditional crime management processes. The system enhances efficiency, accessibility, and transparency, making it a valuable tool for both users and administrators.

## Future Scope

- Mobile application development
- Integration with government systems
- AI-based crime analysis
- Real-time notifications and alerts

## 8. References

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