AI-BASED SMART RED ZONE ALERT SYSTEM FOR WOMEN SAFETY IN BANGLADESH

A User-Centered Emergency Response System

PREDICT RISK | ALEAT EARLY | STAY SAFE

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01.ABSTRACT

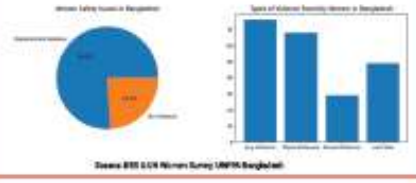
In Bangladesh, emergency services exist, but there is no dedicate system that warns users about dangerous locations before incidents occur. Most applications focus on response after an event rather than prevention.

This research proposes a Smart Red Zone Alert System that uses crime data, user reports, and location analysis to identify high-risk areas and provide real-time alerts.

The goal is to enhance proactive safety, especially for women, by enabling informed decision-making before entering risky zones.

02. PROBLEM STATEMENT

- No early warning system for dangerous areas
- Limited access to quick and simple emergency support
- Lack of data-driven safety solutions in Bangladesh
- Women face higher safety risks, especially at night



03. OBJECTIVES

- Detect high-risk locations using data analysis
- Provide real-time alerts to users
- Improve women's safety and awareness
- Enable faster emergency response

04 RESEARCH GAP

In Bangladesh there is no:

- Red zone alert system
- Crime-Based location prediction
- Women safety-focused smart alert
- Data-driven safety decision system

EXISTING SYSTEM (REACTION) Helps after an incident happens VS PROPOSED SYSTEM (PREVENTION) Warns before a risky situation.

05. METHODOLOGY

DATA SOURCES

Police Crime Reports	User Generated Reports	Time-Base Patterns	Location Data

PROCESS FLOW

01 Data Collection → 02 Pattern Analysis → 03 Risk Score Generation → 04 Red Zone Mapping → 05 Real-Time User Alert

06. PROPOSED SYSTEM

Identifies High-Risk Areas | Sends Real-Time Warnings | Suggests safer alternative routers

FOCUS: Prevent risk before it happens

11. SYSTEM WORKFLOW

Data Sources — Crime data, user reports, location, time patterns

→ **Risk Analysis & Prediction** — AI/Analytics detect High-Risk Patterns

→ **Red Zone Identification** — High-Risk areas are marked

→ **User Alert & Notification** — Real-Time warning sent to user

→ **Safe Decision & Action** — User takes safe route / action

REFERENCES

1. Nawed, M., Fatih, A. H., Venkatesh, A. N., Vani, A., Vijayakumar, P., & Kshirsagar, P. R. (2021). Artificial intelligence based women security and safety measure system. AIP Conference Proceedings, 2393, 020072. https://doi.org/10.1063/5.0074211

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07. KEY FEATURES (WOMEN SAFETY FOCUS)

- SOS — One-Tap SOS Emergency Button
- Live Location Sharing
- Silent Alert System
- Safe Route Navigation
- Night-Time Safety Alerts

08. UX DESIGN PRINCIPLES

One-Tap Action	Clear & Visible alerts	Simple & Minimal UI	Bangla+English Language Support

09. RESULT/EXPECTED FINDINGS

- Users can identify risky areas before entering
- Faster response in emergency situations
- Increased safety awareness among users
- Improved decision-making in critical situations

Practical Impact:
Enhances public safety and supports women's mobility with confidence

10. REAL-WORLD APPLICATION

Can be integrated with national emergency services (999)	Useful for daily commuters & ride-sharing users	Supports smart city & public safety initiatives

12. CONCLUSION

This research demonstrates that a data-driven and user-centered approach can significantly improve safety systems.

By shifting from reactive to proactive safety, the proposed system helps users avoid risks and take action before incidents occur. "Prevention is better than reaction."