

Smart Rescue

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Abstract:

Smart rescue systems are becoming essential for improving safety and emergency response in modern environments. The proposed Smart Rescue System uses Internet of Things technology and machine learning techniques to detect accidents or dangerous situations and send immediate alerts to rescue teams. Sensors and connected devices collect real time data such as location, movement, and environmental conditions. This information is processed by a machine learning model to identify emergencies and trigger automated notifications. The system helps reduce response time and improves the efficiency of rescue operations. It can be applied in disaster management, road accident detection, and emergency monitoring systems. The proposed solution enhances public safety by providing quick and reliable rescue support.

Keywords — Smart rescue system, Location Guidance, Mobile Application, Emergency detection.

I. INTRODUCTION

Emergency situations such as road accidents, natural disasters, and sudden health emergencies require immediate attention and quick response from rescue teams. Traditional rescue systems often depend on manual reporting, which can lead to delays in response time. With the advancement of modern technologies such as Internet of Things and machine learning, it is possible to develop intelligent systems that can automatically detect emergencies and send alerts.

A Smart Rescue System integrates sensors, communication devices, and intelligent algorithms to monitor real time conditions and identify potential emergencies. IoT devices collect important information such as location data, motion patterns, and environmental parameters. Machine learning algorithms analyze this data to determine whether a critical situation has occurred.

The main objective of the Smart Rescue System is to improve emergency response time and ensure that rescue teams receive accurate information quickly. This system can be used in accident detection, disaster management, and remote monitoring applications. By combining real time monitoring with intelligent decision making, the system can significantly enhance the effectiveness of rescue operations and save lives.

II. LITERATURE REVIEW

Various emergency response systems and personal safety applications have been developed to provide quick assistance during critical situations. The 112 India App enables users to contact police, ambulance, and fire services through a single platform and provides location sharing features. The bSafe application offers functionalities such as live GPS tracking, SOS alerts, and real-time monitoring by trusted contacts. Similarly, Life360 focuses on location sharing and emergency communication among

family members. Although these systems are helpful, they have certain limitations, including dependence on internet connectivity, manual activation of alerts, and limited emergency features. These drawbacks may delay response time in critical situations. The proposed Smart Rescue system addresses these issues by integrating multiple SOS activation methods, offline SMS functionality, and faster communication to enhance reliability and efficiency.

III. METHODS

The Smart Rescue system is developed using a systematic approach to ensure fast and reliable emergency communication. Initially, users register in the application and add trusted contacts for emergency alerts. The system provides multiple SOS activation methods such as a button press, long press, and voice command for quick access during critical situations. When an SOS is triggered, the application captures the user’s current location using GPS, or uses the last-known location if GPS is unavailable. The system then generates an emergency message containing essential details such as location and type of emergency. This message is sent via SMS to police, ambulance services, and trusted contacts. In cases where internet connectivity is unavailable, the system relies on SMS-based communication. If no network is present, the alert is stored locally and automatically sent once connectivity is restored. The backend system manages alert processing and stores data for monitoring and future reference, ensuring an efficient and dependable emergency response system.

IV. BLOCK DIAGRAM

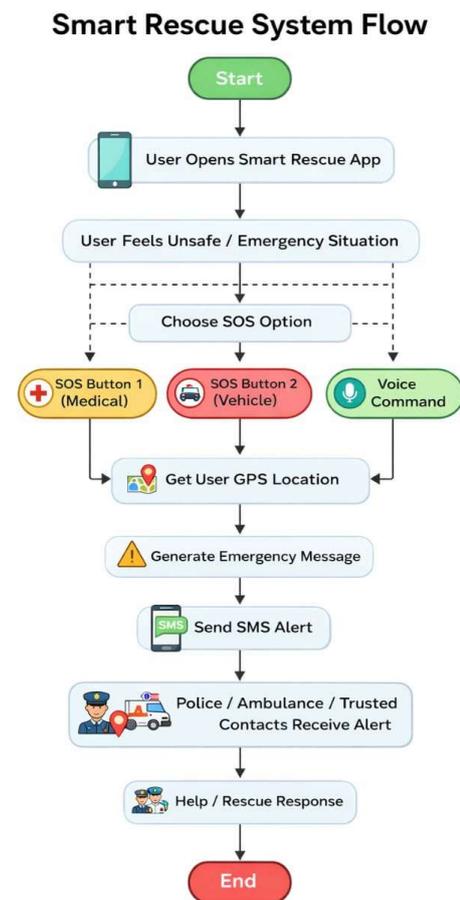


Fig.1

V. FINDINGS

The **Smart Rescue system** effectively sends SOS alerts with accurate location to ensure quick emergency response. It works reliably even without internet using SMS and offers easy activation through button or voice commands. Although network issues may cause slight delays, it significantly improves personal safety and response time.

VI. SYSTEM ARCHITECTURE



Fig.2

The Smart Rescue system architecture consists of a mobile application, GPS module, backend server, and SMS notification system. When the user activates the SOS feature, the application collects the user’s location using GPS and sends it to the backend server. The server processes the alert and forwards it to police, ambulance services, and trusted contacts via SMS or notifications. The system also stores user and alert data in a database for tracking and future reference. This architecture ensures fast, reliable, and efficient emergency communication.

VII. RESULT AND IMPLEMENTATION



VIII.CONCLUSIONS

The Smart Rescue system provides an effective solution for improving personal safety during emergency situations. It enables users to send instant SOS alerts along with location details to authorities and trusted contacts, ensuring quick response. The integration of GPS tracking and SMS-based communication makes the system reliable even in low internet conditions. The application is simple to use and accessible to all users, helping reduce delays in emergency assistance. Overall, Smart Rescue enhances safety, reduces response time, and proves to be a practical and efficient emergency response system.

XI.ACKNOWLEDGMENT

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