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Emergenix AI: AI Emergency Intelligence and Smart Hospital Recommendation System

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ABSTRACT: Emergency healthcare services require rapid assessment of patient conditions and timely identification of suitable hospitals. However, selecting an appropriate hospital during an emergency can be challenging when information about geographical distance, emergency bed availability, intensive care unit (ICU) capacity, and medical facilities is limited.

The proposed system captures emergency requests and geographical coordinates through a patient SOS interface. Its emergency triaging and hospital recommendation modules evaluate emergency severity, hospital proximity, and available medical resources to identify suitable healthcare facilities. The platform also includes emergency responder dispatch, route navigation, incident tracking, and a hospital administrator dashboard for updating bed availability and monitoring emergency activities. React.js is used for the frontend, while Laravel REST APIs support backend processing. MySQL is used for data management, with GPS and mapping services supporting location-based operations. The system aims to facilitate informed hospital selection, improve emergency coordination, and provide timely access to relevant emergency information. Its practical effectiveness requires further validation through systematic testing and real-world evaluation.

KEYWORDS: Artificial Intelligence, Emergency Triage, Smart Hospital Recommendation, Hospital Bed Availability, GPS Navigation, Emergency Response, Laravel REST API.

I. INTRODUCTION

Emergency healthcare management is an important part of healthcare services, where timely medical assistance and appropriate hospital selection are essential. During emergencies such as road accidents, cardiac problems, and other critical medical conditions, patients may face difficulties in identifying suitable hospitals. Factors such as geographical distance, availability of emergency beds, intensive care facilities, and medical resources can influence hospital selection. The Emergenix AI system is designed to support emergency response by integrating emergency severity triaging, smart hospital recommendation, and location-based navigation. The system allows users to raise emergency requests through an SOS interface and provides relevant hospital information based on factors such as location and available facilities. It also includes a hospital administrator dashboard for managing hospital information and monitoring emergency activities.

The proposed system aims to reduce difficulties in finding suitable healthcare facilities by providing an integrated platform for emergency requests and hospital recommendations. Route navigation and hospital availability information help users make informed decisions during emergency situations. The system is intended to support emergency coordination and does not replace professional medical assessment or emergency services.

The paper is organized as follows. Section II presents the literature survey related to emergency healthcare management and smart hospital recommendation systems. Section III describes the proposed methodology and system architecture. Section IV discusses the implementation and experimental results, based on available testing evidence. Finally, Section V presents the conclusion and future enhancements.

II. LITERATURE SURVEY

Emergency healthcare management systems have been developed to improve the coordination of emergency services and provide timely access to medical facilities. Existing approaches use information technology, geographical information systems, and hospital information systems to support emergency response and healthcare resource management. These technologies help users access hospital-related information and assist healthcare providers in managing emergency situations. Hospital recommendation systems focus on identifying suitable healthcare facilities based on factors such as geographical distance, available medical services, and hospital resources. Location-based services can support users in finding nearby hospitals and obtaining navigation assistance. However, the usefulness of these systems depends on the accuracy and availability of hospital information, including emergency facilities and bed availability.

Emergency triage is another important component of emergency healthcare management. Triage approaches classify patients according to the urgency of their medical conditions so that appropriate attention can be prioritized. Digital triage systems can assist in collecting emergency information and organizing requests.

request handling, severity triaging, hospital recommendation, route navigation, and an administrator dashboard within a single platform. The system is designed to help users identify relevant healthcare facilities using available location and hospital resource information. Further evaluation is required to determine the system's effectiveness, recommendation quality, and reliability under practical emergency conditions.

III. METHODOLOGY

The Emergenix AI system integrates emergency severity triaging, smart hospital recommendation, route navigation, and hospital administration. Users can submit emergency requests through the SOS interface along with their location details. The system evaluates emergency severity and recommends suitable hospitals based on location, available beds, and medical facilities.

The route navigation module helps users reach the selected hospital, while the administrator dashboard supports hospital information and bed availability management. The system uses React.js for the frontend, Laravel REST APIs for backend processing, and MySQL for data storage. Further testing is required to evaluate the system's reliability and effectiveness.

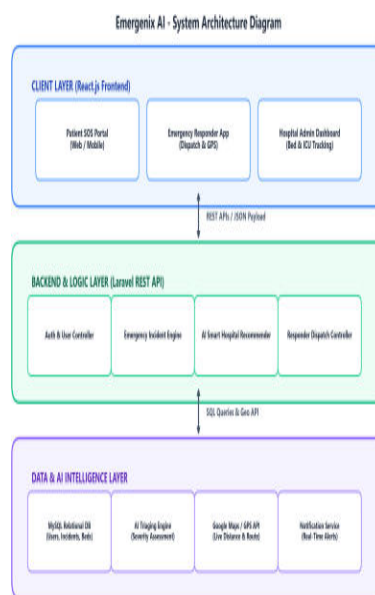


Fig.1. Overall Workflow of the Emergenix AI Emergency Intelligence & Smart Hospital Recommendation System

IV. EXPERIMENTAL RESULTS

The Emergenix AI system provides an integrated interface for emergency requests, hospital recommendations, route navigation, and hospital administration. The user interface displays hospital information and available emergency resources based on the data maintained in the system. The administrator dashboard supports monitoring hospital details and bed availability. Further functional testing and performance evaluation are required to measure the accuracy and reliability of the proposed system.

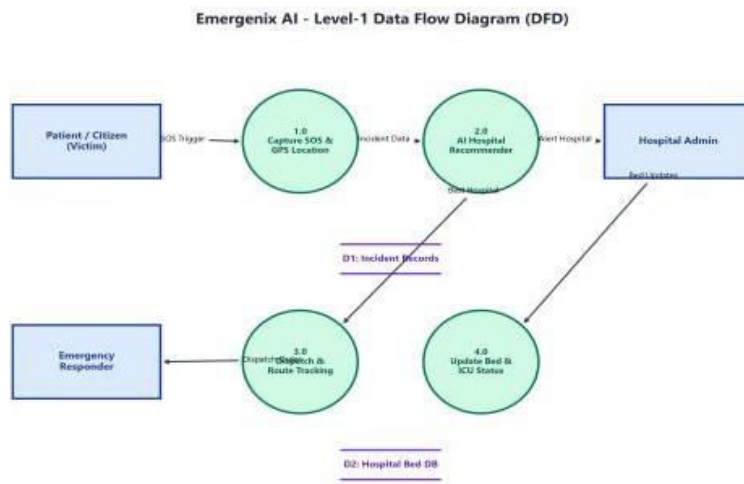


Fig.2. Data Flow Diagram of the Emergenix AI Emergency Intelligence & Smart Hospital Recommendation System

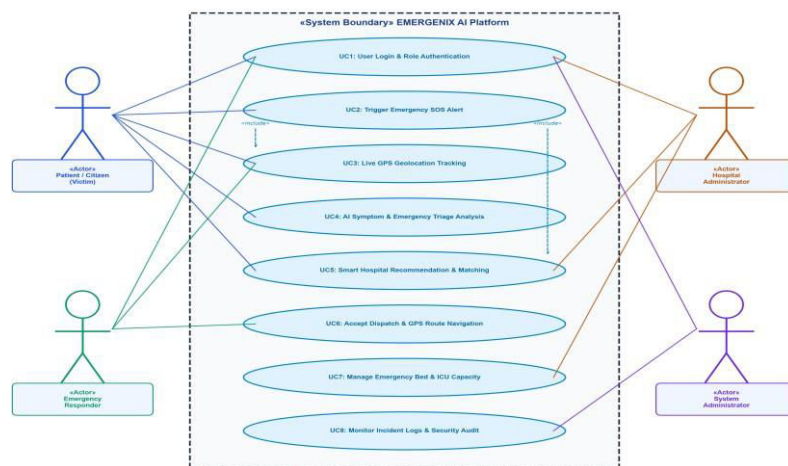


Fig.3. Activity Workflow of the Emergenix AI Emergency Intelligence & Smart Hospital Recommendation System

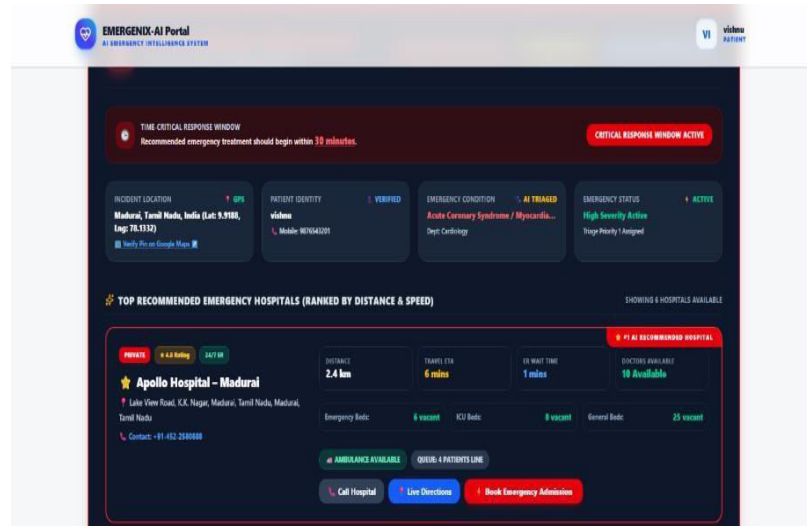


Fig.4. Emergency SOS Interface of the Emergenix AI System

V. CONCLUSION

The Emergenix AI system provides an integrated approach to emergency management by combining emergency severity triaging, smart hospital recommendation, and route navigation. The system considers available hospital information and location details to support users in identifying suitable healthcare facilities. The administrator dashboard also supports hospital information and bed availability management. The proposed system aims to improve emergency coordination and access to relevant healthcare information. Further testing and real-world evaluation are required to assess its reliability, recommendation accuracy, and effectiveness in emergency situations.

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