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Online Ambulance Booking System

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Abstract: ***The Online Ambulance Booking Service is a vital healthcare innovation designed to address the critical need for efficient and timely emergency medical transportation. In the modern world, access to medical care is of utmost importance, and this service aims to bridge the gap between patients and emergency medical services. This abstract provides an overview of the key features and functionalities of the system. The Online Ambulance Booking Service leverages technology to create a user-friendly platform that enables individuals to request ambulance services with ease. Users can access the service through a web application or mobile app, making it accessible to a wide range of people. The Online Ambulance Booking Service is a solution that enhances emergency medical response, saving valuable time in critical situations. It fosters a sense of security and reliability in healthcare services, benefiting both the general public and healthcare providers. This abstract highlight the importance of such a service in the healthcare industry, emphasizing its role in improving patient outcomes and reducing response times during emergencies.***

Keywords: Online Booking System, Emergency Medical Services, GPS Tracking, Database Management, Booking History, Feedback/Review System

I. INTRODUCTION

Ambulance, the vehicle which is used for transportation and medical emergencies. Ambulance is simply a lateral inversion of ambulance. The vehicle in the front can see and understand the name quicker and can give the way for the ambulance. This project is named ambulance as it aims at enhancing the present ambulance scenario of Maharashtra using the internet and the mobile technology. Information and Communication Technology (ICT) in ambulance services includes all the related operations carried through electronic and internet technology. Complex electronic devices and the accompany technologies are being used extensively in developed countries for the ambulance operation. In today's traffic world, ambulance plays a major role when an accident occurs on the road network and the need arises to save valuable human life. Transportation of a patient to an emergency hospital seems quite simple but in actuality, it is quite difficult and gets more difficult during peak hours. In our Ambulance Booking System, people can easily book an ambulance. There are three major modules namely User, Ambulance, and Hospital. Users can register and log in using credentials. Users can edit their profile and change their password in an emergency. Any Upcoming Ambulance Booking details if anyone wants to Book an Ambulance or if there is an Emergency.

II. LITERATURE REVIEW

Amrita Varshini [1] developed a Mobile Ambulance Management Application for Critical Needs.The emerging researches in medical devices, wireless communications, sensors and software applications help in the advancement of health care centers. In this paper, different methodologies are used to implement mobile android applications for providing an efficient and comfort ambulance service into existence. Ambulance service providers install the application and register the details of the available ambulance services. Enquirer can avail of the ambulance facility either by registering the details in the application or directly in case of emergency situations. Enquirer can detect the locations of the ambulance vehicle either manually by providing the location details or automatically by invoking the required option.

Ozgur Koray Sahingoz [2] developed a Intelligent Ambulance Management System in Smart Cities. According to the United Nations' expectation, the total population of the cities will be doubled in the next three decades. This accelerating growth causes crucial problems in the main components of both traditional cities and smart cities. To increase the living quality of the residence in smart cities, enabling a clean, healthy, and sustainable environment are the major fields for the smart cities' managers and directors. One of the main infrastructures of the smart city is identified as smart health, which can be enabled with the use of modern technologies such as Internet of Things, especially for accessing the patients when they need help. In this Project, a smart ambulance management system is proposed in a smart city environment.

Mohammad Abdeen [3] developed a Improving the performance of emergency ambulance service using smart health system. Smart health is a new paradigm that can significantly improve the healthcare systems. In smart health, novel sensing, computing and communication technologies are integrated in healthcare to improve the quality of service.

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In this paper, we use the smart health to improve the performance of ambulance service. In particular, we use the real-time traffic information and hospital waiting time to minimize the ambulance response time, ambulance travel time to hospitals, and waiting time at hospitals. Results indicate that the use of smart health improves the performance significantly especially with non-uniform hospital capacity and non-uniform traffic conditions.P Krishna [4] developed a Ambulance Booking Application by P L Arunachalam. India is currently lagging behind other countries in terms of health care due to a shortage of fast health services. The primary explanation for this is a lack of technical implementation. To fix this question, we are implementing a mobile-based ambulance service. This mobile application would revolutionize the way people use emergency services.

Shima M Bin-Yahyaa [5] developed a E-Ambulance System. "E- AMBULANCE: Real Time Integration Platform for Heterogeneous Medical Telemetry System paper" introduced the electronic emergency ambulance response system; an intelligent ambulance design that performs automatic response developments into intensification to regulating to boost some likelihood from protecting sufferers of health frightening situations by using IOT sensors, DDS standards. Additionally, to this, added factors of Quality of Services strategies and Real-Time Publish-Subscribe Protocol which could be harmonized to magnify the sense of Data Distribution Services in medicinal operations across numerous radio communication technology such as Wireless Fide lity and many more.

III. PROPOSED WORK

Initially create a code to attempt data as input from user in the form of name, email-id, password for login purpose. Then choose the nearest location from the map and book ambulance. Then it accordingly provides the details of driver to user and user to driver.

Maintenance activities ensure system reliability, while future enhancements are considered to keep the system aligned with evolving requirements and technological advancements. Through this structured approach, the project aims to deliver a reliable and user-centric online ambulance booking solution. Integration, testing, and deployment ensure the system's functionality and reliability. User training and documentation facilitate smooth adoption, while ongoing feedback collection drives iterative improvements. Maintenance activities guarantee system stability, with future enhancements considered for keeping the system up-to-date. Through this structured process, the project aims to deliver a robust online ambulance booking system meeting user expectations and industry standards. Fig.1 This flow diagram represents the sequential steps a user might take when interacting with the online ambulance booking system. It starts with user authentication, followed by displaying the homepage where users can choose to book an ambulance or register if they are new users. The booking process involves filling out a form with necessary details, checking ambulance availability, confirming booking details, and processing payment if applicable. Once the booking is confirmed, the ambulance is dispatched, and users can track its status until the end of the process.

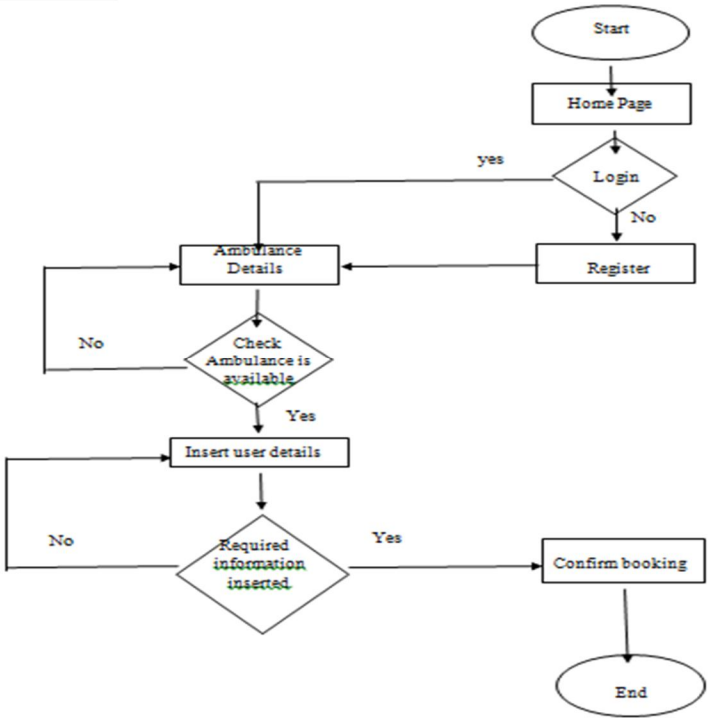


Figure:1 Flow chart

Fig.2 This architecture follows a client-server model, where the frontend interacts with the backend server via HTTP requests. The backend server handles the business logic and communicates with the database to perform CRUD (Create, Read, Update, Delete) operations on the stored data. This separation of concerns allows for better scalability, maintainability, and security of the system.

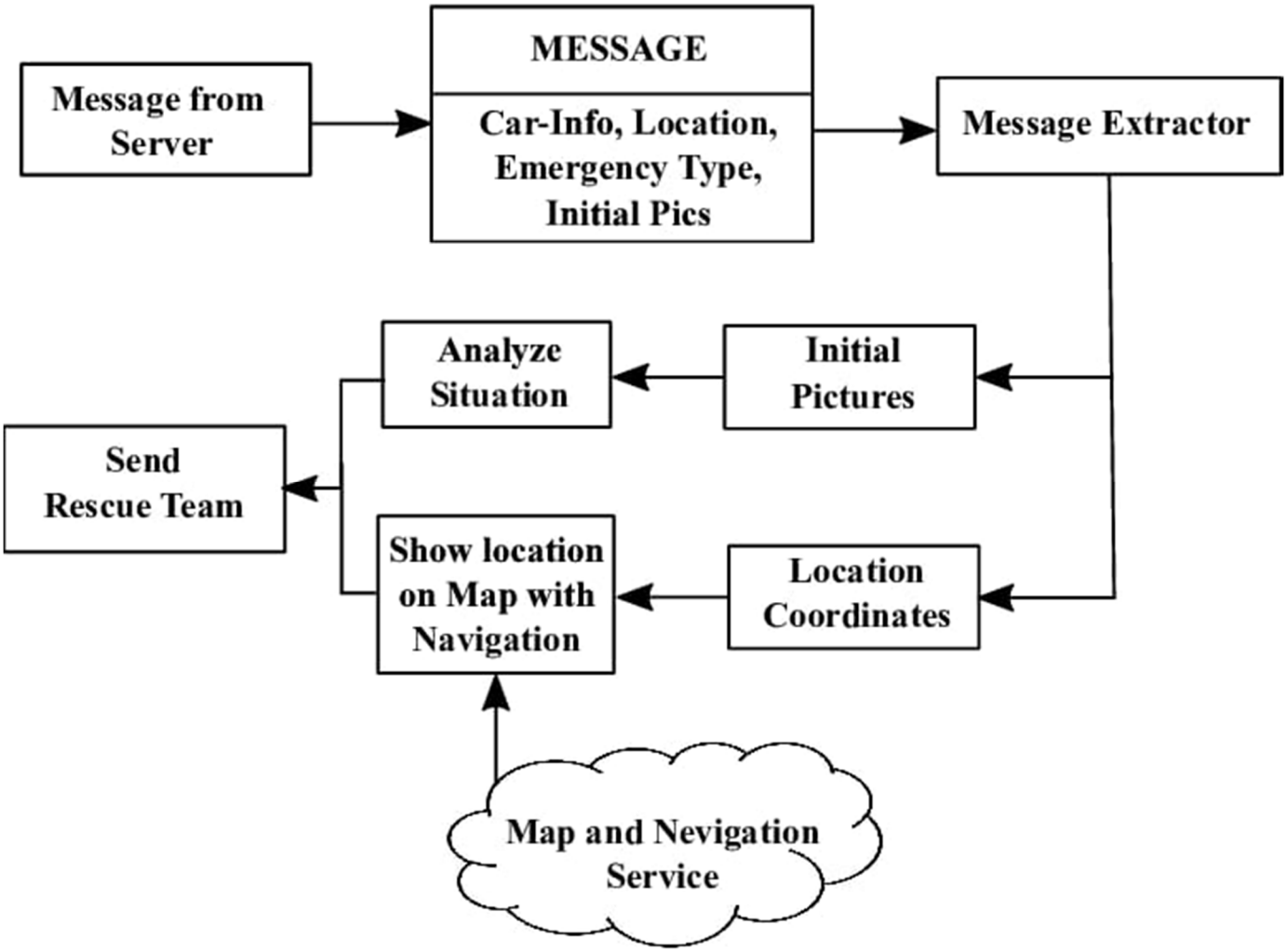


Figure:2 Architecture Diagram

The architecture diagram for an online ambulance booking system with real-time tracking of user and driver locations can be represented as user interface, user authentication and authorization, Booking management, Location tracking, Notification service, Database, Map service. This architecture diagram demonstrates the interaction between different modules and components in an online ambulance booking system with real-time location tracking.

Creating a Online ambulance booking system using web development involves several essential modules or components. Here are thekey modules used in such a system:

1) *User Authentication and Authorization Module:* This module handles user registration, login, and logout functionalities. It also manages user roles and permissions, ensuring that only authorized users can access specific features.
2) *Ambulance Booking Module:* Allows users to request ambulance services by providing details such as location, type of emergency, and contact information. Validates user inputs and ensures data accuracy. Provides real-time availability of ambulances and assigns the nearest available ambulance to the user's location.
3) *Location Tracking and Mapping Module:* Integrates with mapping APIs to display ambulance locations, route information, and estimated arrival times to users. Enables users to track the ambulance in real-time once it is dispatched.
4) *Notification Module:* Sends confirmation and status update notifications to users via email or SMS after booking an ambulance. Notifies users about the estimated time of arrival, changes in booking status, or other relevant information.

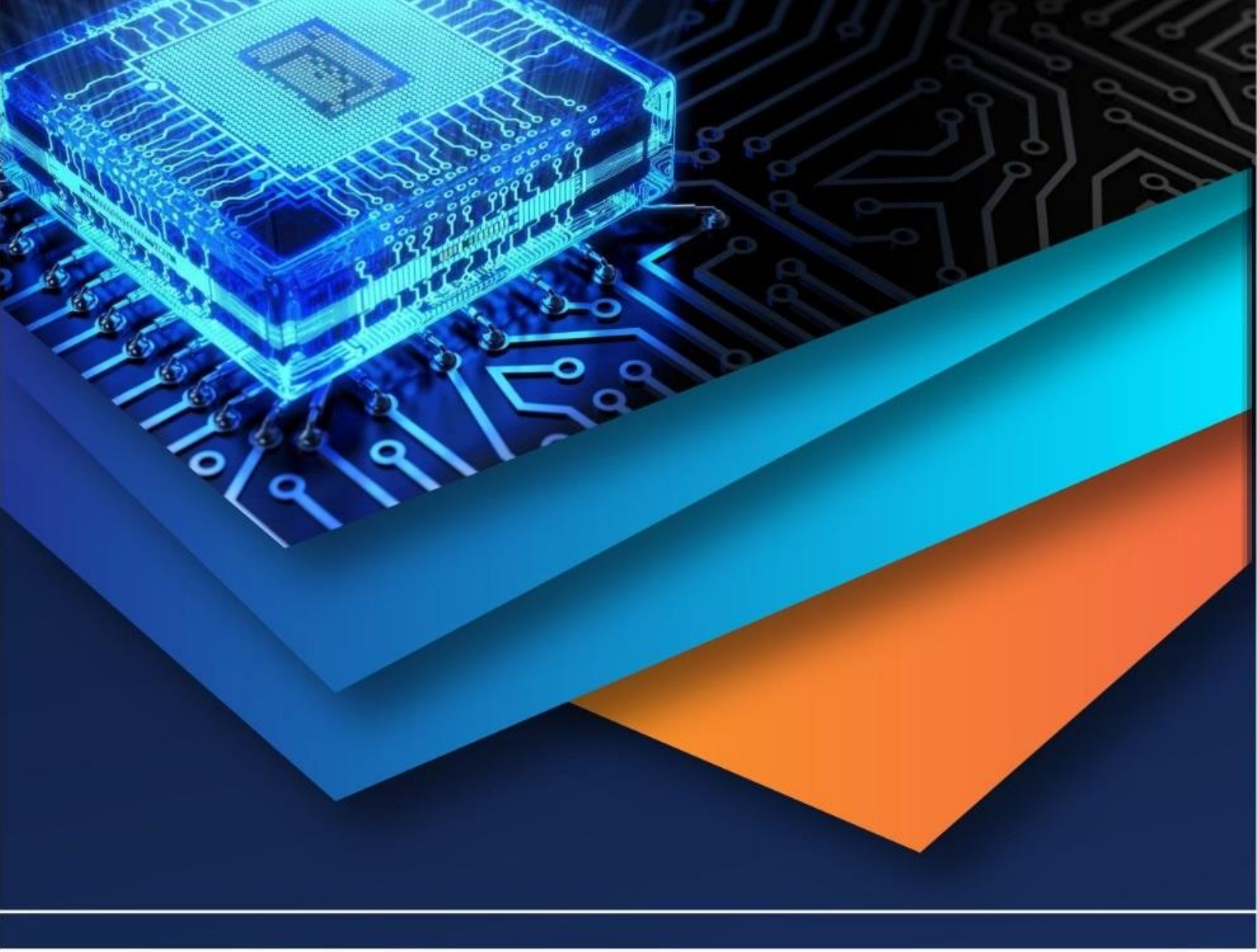
5) *Feedback and Rating Module:* Allows users to provide feedback and ratings for the ambulance service they received. Captures user reviews to improve service quality and customer satisfaction. These modules can vary based on specific project requirements and can be further expanded or customized as needed.

IV. CONCLUSION

The online ambulance booking system not only addresses the immediate need for efficient emergency response but also contributes to the broader goals of improving patient outcomes, healthcare accessibility, and the overall effectiveness of emergency medical services. The project aligns with the advancements in technology to create a more responsive and patient-centered healthcare system. The online ambulance booking system offers a comprehensive solution for efficiently managing ambulance services and improving emergency response times. By leveraging web and mobile technologies, along with real-time location tracking, the system ensures prompt assistance to users during medical emergencies.

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