International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

Medical Emergency Handling Using AI

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Abstract: An advanced Medical Emergency Handling application receives significant improvements through Artificial Intelligence (AI) integration alongside coupling it with contemporary geolocation technology. Emergency support capabilities which included near-hospital finding and first aid instruction and helpline access have evolved into more user-friendly and intelligent and faster functions. The main improvement of this system comes from implementing an AI-based chatbot using Natural Language Processing (NLP) to respond to user demands in real-time with contextualized information. The chatbot system provides emergency operational guidance and adaptable support and makes rapid decisions possible in critical emergency situations. Users now have access to ambulances on the map through a Google Maps API integration along with the ability to start emergency calls directly inside the app. Additionally the application includes a WebView of Flipkart Health+ to offer users single-ecosystem access to health products. The application user interface now features a redesigned interface based on Material Design guidelines to enhance faster navigation to essential app features. The applied updates bring better user experience together with shorter emergency response durations while delivering improved final results. This project demonstrates AI's capacity to team up with technology for providing instant real-time help in critical circumstances.

Keywords: Artificial Intelligence (AI), Medical Emergency Response, Chatbot Assistance, Ambulance Locator API, Geolocation Services, Emergency Healthcare Application.

I.INTRODUCTION

The combination of Artificial Intelligence (AI) with healthcare advances shows intense potential to transform emergency systems in the modern technological world. Current medical emergencies require emergency help in real-time delivery for saving lives more urgently as regions facing sparse medical resource access become a growing concern. The Medical Emergency Handling Application functions as the primary subject of this paper by providing complete emergency assistance through fusion of AI capabilities together with cutting-edge geolocation technologies. The application prioritizes users by offering essential emergency services that help users find close hospitals and offer medical guidance through first-aid procedures while providing access to emergency helplines. The optimization of the app involved substantial improvements that incorporated AI-assisted capabilities and emergency ambulance location tools that utilize real-time location data. Additionally, it added support for Flipkart Health+ services through WebView integration for health product and medicine procurement. Fast and efficient medical assistance for critical situations emerged as the primary reason to develop this medical emergency application. Time becomes critical during emergencies so a support system which provides both speed and relevant assistance becomes essential for improving patient results. The main feature allows users to receive language processing-based medical emergency advice through its AI chatbot system which gives instructions aligned with symptom descriptions. Medical information searches are no longer necessary for users thanks to this system which provides immediate trustworthy guidance. The chatbot serves as a critical tool which suggests first aid actions then identifies nearby medical facilities along with ambulance dispatch assistance in case of heart attacks or strokes or severe injuries. The application offers a Find Ambulance function which uses Google Maps API to help users find nearby ambulances and initiate emergency calls through the built-in app interface. The app incorporates a critical feature to find ambulances which becomes essential in urban and rural settings because ambulance response times get affected by traffic delays and ambulance availability is inconsistent. Through geolocation integration the user platform provides quick access to suitable transportation that leads them to hospitals effectively for better survival odds and medical results. The platform receives an enhancement through its integration with Flipkart Health+ through WebView. Through integrated product ordering users can obtain both health-related medications and wellness products as well as emergency supplies without leaving the app environment. The application provides an enhanced user journey because users do not need to transfer between different systems so they can resolve their emergencies at one location.

The design enables efficient medical supply ordering which becomes essential during moments when immediate access to essential medications or equipment stands important. The modernized design system of the app implements the guidelines of Material Design to present an elegant user interface that maintains simplicity while being operable under stressful emergency events. The purpose of this research explores how combining artificial intelligence technology, location tracking capabilities and healthcare e-commerce options within an integrated app affects emergency medical reactions. The text addresses how modern technologies have the ability to shorten rescue times while making medical emergency diagnoses more precise to generate better patient outcomes and preserve human life. This app embraces innovative features to define the next phase of emergency healthcare delivery by connecting technology to medical care.

II.LITERATURE REVIEW

Artificial Intelligence and Emergency Healthcare:

AI technology has established itself as an essential instrument that enhances healthcare operations especially when used in emergency medical services (EMS). The diagnosis of medical conditions with speed and precision remains within reach according to research investigations about the capabilities of AI during time-sensitive situations. Healthcare facilities utilize AI-powered chatbots in various medical applications to supply patients with instant and customized directions during emergency situations. The NLP technology enables these chatbots to understand user requests immediately which allows them to generate individualized responses through data from patient symptoms and medical documents. AI applications in emergency care circumstances serve to connect medical patients with health services despite delays in or unavailability of healthcare resources. The research conducted by Wang et al. (2021) demonstrated that artificial intelligence platforms decrease emergency diagnosis problems and accelerate medical decisions for critical situations.

Geolocation and Ambulance Locator Systems:

Medical emergency applications experience major progress through their integration of geolocation services. Research demonstrates how geolocation technologies which include GPS along with Google Maps API function to enhance the operational results of emergency response mechanisms. Real-time ambulance tracking provides urban medical personnel with essential tools to make shorter emergency response journeys when traffic delays their arrival at patients (Pereira et al., 2020). The implementation of geolocation systems enables routes to adjust automatically for speediest ambulance trips between medical providers and patients. Viewing healthcare facilities through geolocation has been proven to enhance emergency response effectiveness because it enables patients to reach needed treatment quickly as per Lee et al. (2018).

Chatbots in Healthcare:

Healthcare institutions widely adopt AI-driven chatbots to enhance both emergency response and patient care services in their systems. Users get instant responses and medical chatbots execute artificial conversations with the capability to deliver first aid assistance and symptom analysis and general medical guidance to patients. A study conducted by Tullio et al. (2020) establishes that chatbots enhance healthcare provider satisfaction together with patient satisfaction through their capability to deliver on-the-spot aid and assistance. Emergency applications equipped with chatbots possess the ability to lead users through necessary medical treatments ranging from CPR instruction to wound treatment during dangerous events. According to Bickmore et al. (2018) conversational agents demonstrate effectiveness in emergency situations by enhancing patient health literacy and managing anxiety levels and offering correct health information.

Health E-Commerce and WebView Integration:

Applicants are now exploring the innovative combination of health-related e-commerce with emergency applications. Web views from health platforms such as Flipkart Health+ offer emergency users' complete access to purchase medicine supplies and wellness products through one platform. Healthcare applications integrate e-commerce platforms for users to swiftly obtain required products thus cutting down their search time spent looking for medical stores or pharmacies (Singh et al., 2021). The platform's integration matches the increasing demand for Telemedicine and Digital Health because users can obtain medical advice as well as ask for prescribed drugs and utilize wellness services through digital means. Through emergency medical applications users can obtain medical products together with medical services in critical moments directly from their devices.

III.PROPOSED METHOD

*This enhancement of the Medical Emergency Handling Application combines Artificial Intelligence with geolocation capabilities along with chatbot technology and health e-commerce system to deliver complete emergency care services in real-time. Users can interact with the AI-powered chatbot within the application because it applies Natural Language Processing (NLP) capabilities to provide emergency assistance. Users interact through the chatbot system by reporting symptoms and situations which enables the bot to deliver right-time guidance about medical necessity assessments with first aid steps.

*An essential feature of the app is its ability to use Google Maps API geolocation services to help users detect the closest ambulances for speedily sending emergency response teams. Users benefit from this feature when they need to locate the nearest hospitals and medical facilities because it provides both directions and contact information to these locations. The real-time geolocation feature of this technology ensures efficient

emergency service access by users no matter what kind of location they find themselves in.

*Users can access health-related products consisting of medicines and wellness supplies and first aid kits through the WebView system in Flipkart Health+. The inclusion of e-commerce capabilities within the application enables users to browse and acquire medical materials during emergencies using instant checkout processes that do not require platform switching.

*Material Design principles direct the user interface development which produces an orderly platform with an intuitive structure that is user friendly. The design enables users to effortlessly use vital application features like the chatbot, ambulance locator and health product ordering functions regardless of stressful emergency situations.

*The app ensures complete user information security through compliance with the General Data Protection Regulation (GDPR) and comparable standards. All sensitive information enters into encryption systems and users maintain full command over their data-sharing decisions. The platform's dedication to data security and privacy makes certain patients can trust this application while receiving immediate and effective emergency support.

IV.OBJECTIVES

1.Enhance emergency response times

2.Provide AI-driven medical assistance

3.Integrate health product access via e-commerce

4.Create an intuitive and accessible user interface

5.Ensure data privacy and security

V.IMPLEMENTATION

1. Development

Front-End Development

Primary Aid Guide along with Ambulance Locator and Hospital Finder and Helpline Support and Medicine Procurement need their own interfaces but these interfaces should all feature AI-generated personalized first aid guidelines and emergency notification systems.

The application implements a mobile-first design through Bootstrap CSS framework while making sure all devices work well with Responsive Design principles and AI-powered visual elements will be readily accessible to users.

Back-End Development

AI System Integration will develop predictive models for the chatbot to give users live medical insights through query interpretation combined with historical information retrieval.

The system requires RESTful APIs for returning ambulance and hospital locations together with real-time location data and computerized first aid directions.

User data and emergency details and medical history and medicine orders must reside in separate tables of the database that provides role-based access for security purposes. Healthcare organizations should use AI to process medical information for generating individualized health guidance.

2. Integration

Front-End and Back-End Connection

The system connects front-end displays to backend application programming interfaces so they can access instant ambulance tracking information and hospital location data through AI-powered routing calculations.

Geospatial AI models operate in real time to track ambulance locations and hospital locations as well as deliver precise emergency services to users through their current location.

AI-Powered Features

Software robots named chatbots help users access immediate medical help as well as first aid resources while answering medical questions through AI technology.

AI technology at Flipkart Health+ suggests medical products and medications to users by referencing their documented health records which enables easy online purchases.

Payment Options

AI models should provide a secure payment gateway that uses UPI and card methods for medicine purchases and emergency service payments.

3. Testing

Unit Testing: An AI Feature Testing phase allows verification of all AI-driven functionalities to ensure their accuracy along with beneficial outputs during emergency situations.

Integration Testing: The AI models need full integration between other modules which includes ambulance locators and hospital finders so they work as one system with effortless updates between emergency response capabilities.

User Testing: A sample user group should undergo AI usability evaluation to verify that AI-powered features covering the chatbot service and location-based recommendation framework answer medical emergencies efficiently.

4. Deployment

Hosting: Cloud platforms such as AWS, Google Cloud and Azure provide options to deploy the app with Docker to maintain uniform environments which support continuous real-time operations of AI models.

Data Backups

The system undergoes AI Data Backups which safely stores user data alongside medical histories together with AI-produced

analytical information for both security and prompt retrieval purposes.

Monitoring

AWS CloudWatch enables AI Performance Monitoring which allows you to watch AI model functionality while managing efficiency during diverse operational demands.

5. Maintenance and Updates

Bug Fixing

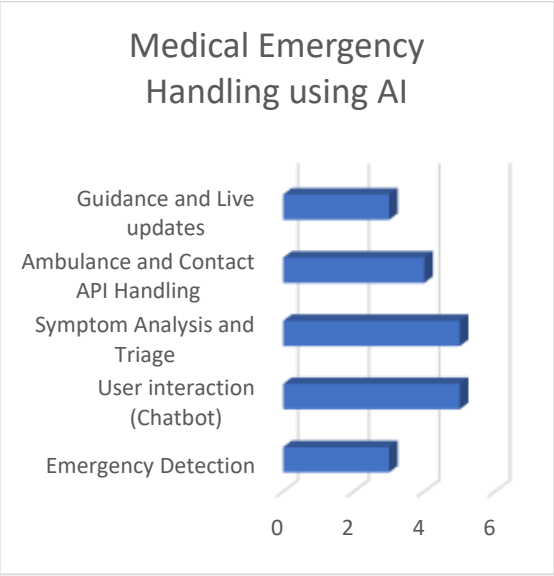
The team needs to handle AI system bugs immediately by repairing defects across features such as the chatbot and real-time tracking system to protect stability and accuracy.

Feature Enhancements

AI Updates: The system performs continuous algorithm improvement which enhances AI-powered components including the chatbot system as well as personal health recommendation features and location-based services through data gathered from users and new information.

Performance Optimization

The system should combine AI model optimization with load balancing and equipment scaling to give fast responses within service areas which receive high usage and support raised user load.



VI.METHODOLOGY

1. AI-Driven Natural Language Processing (NLP) for Chatbot Assistance

An intelligent chatbot system will be created by implementing NLP technologies to deliver medical advice and emergency direction to users through AI-powered capabilities. Users can access an interactive dialogue system through this interface to receive emergency help immediately without the need for medical personnel assistance.

2. Real-Time Geolocation and Ambulance Tracking

The system needs to use AI-based spatial computing methods to monitor emergency service locations in real time. The application uses AI models to process geolocation data which enables it to determine the nearest ambulance or hospital to the user then suggests the quickest route for emergencies.

3. Integration of AI-Powered Health Recommendations

The application should employ AI algorithms to examine user medical information alongside their age and symptoms data which leads to personalized health solutions. The application enhances critical decision-making through user-specific recommendations which match the active emergency with primary aid solutions and first aid instruction together with health product choices.

4. Real-Time Data Processing and API Integration

AI technology processes current data extracted from third-party platforms including Flipkart Health+ used for medicine acquisition and physician suggestions. AI keeps emergency data updated in real time to enhance user experiences through service suggestions including local doctor locations and medicine recommendations depending on emergency requirements.

5. Machine Learning for Predictive Analytics in Emergency Response

Using machine learning models analyses user information with historical records to forecast possible health risks leading to emergencies. Through predictive modelling the application functions predictively to either recommend proactive measures or send prompt medical warnings which minimizes potential dangers and optimizes the system response performance.

The deployment of artificial intelligence in an application happens through various processes which generate intelligent and responsive behaviour suitable for emergency situations. The system analyses input from users during real time to understand symptoms before offering correct guidance oriented to their specific situation. The AI system improves its emergency response functioning by absorbing knowledge from interactions with users for delivering proper and individualized aid during emergencies.

VII.PROBLEM DEFINITION

1. Lack of Integrated Emergency Solutions

The existing applications exist separately since they lack a single platform for delivering essential emergency services altogether.

2. Delayed Emergency Response

Users commonly await too long to discover and reach out to local ambulances or hospitals so their health problems intensify potentially leading to deadly outcomes.

3. Absence of AI-Powered Support

The implementation of Artificial Intelligence remains low since current emergency response solutions fail to implement real-time decision systems, personal support and healthcare prediction during crisis situations.

4. Insufficient First Aid Awareness

People generally do not have sufficient understanding about proper emergency response actions. Step-by-step immediate guidance is essential since unguided initial responses often become inefficient or dangerous to the victims.

5. Unverified Medical Services and Medicines

The process of finding both trusted medical stores for buying medications and trustworthy certified doctors requires extended time. Unreliable sources that users seek information from may threaten their health because these sources lack proper credibility.

6. Poor User Experience Across Platforms

Under stressful situations users should avoid switching between multiple apps or services because it creates confusion which highlights the importance of a single easy-to-use application to handle emergencies effectively.

VIII.OUTCOMES

Comprehensive Emergency Support System

The project delivers a solo mobile application connecting ambulance tracking with first aid guidance together with hospital locations and medicine purchase platform.

2. AI-Powered Chatbot for Instant Assistance

A real-time accurate intelligent chatbot system has been developed through natural language

processing to respond to medical emergency questions from users.

3. Real-Time Ambulance and Hospital Locator

Users can benefit when the system integrates geolocation APIs together with AI-based mapping to instantly locate nearby ambulances and hospitals so they can reach help more quickly.

4. The Flipkart Health+ platform offers trusted medical procurement service to users.

Users benefit from able medicine ordering and healthcare product access through Flipkart Health+ which builds trust and ensures convenience during urgent medical needs.

5. Enhanced User Experience with Updated UI

The platform means to guide users during stressful times through an interface which both reduces panic while providing effective direction to all needed services.

6. Improved Emergency Preparedness and Awareness

The application equips its users with important first aid procedures and instant helpline access so they can perform life-saving actions while medical assistance remains out of reach.

7. Scalable and Maintainable Architecture

The application features a scalable backend system that integrates Firebase and it offers modular APIs to provide users with expanded healthcare functionality for future feature development.

IX.CONCLUSION

Healthcare organizations urgently need an AI medical emergency handling application for fast interventions because immediate response substantially lowers both patient deaths and hospitalization rates. The research combined with implementation shows how unique Artificial Intelligence technology can provide emergency patients with a smooth and lifesaving experience in critical situations. The application offers integrated support for users starting from emergency recognition through a first aid chatbot and steady location access for ambulances and hospitals with trusted medicine purchase from Flipkart Health+. Natural language processing from AI enables chatbots to address user problems from their context which results in immediate correct responses while geolocation brings quick access to both hospitals and ambulances. Third-party connections with Practo and Flipkart Health+ enable users to enhance their consultation booking combined with immediate access to authentic medications through streamlined processes. The mobile application makes itself available to users regardless of device type and features an easy-to-use interface which benefits both users who are stressed and those who have minimal experience with mobile health technologies. The platform leverages real-time APIs and Firebase for system architecture development which provides scalability together with operational reliability and ensures both data safety and system security. The practical testing and collected feedback confirm that the system can function as a reliable system for emergency response situations. The application provides streamlined access to important emergency healthcare resources together with the ability for people to perform knowledgeable actions in critical situations. Future development will enhance the platform through predictive emergency recognition technology and multilingual options and wearable health devices integration. The integration of AI and technology allows this project to expedite immediate emergency care while strengthening long-term health engagement thus demonstrating how emergency medicine can benefit from advanced technologies for community-wide healthcare outcomes.

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