HOSPITAL FINDER APPLICATION

Ms. Soumya[1], Mohammed Faizan[2], Mohammed Rayyan[3] , Mohammed Farhan [4]

[1] Assistant Professor, Presidency University, Bengaluru
[2] Undergraduate Student, Presidency University, Bengaluru
[3] Undergraduate Student, Presidency University, Bengaluru
[4] Undergraduate Student, Presidency University, Bengaluru

---***---

Abstract – The hospital Finder Application is a user-friendly mobile solution designed to help people quickly locate nearby hospitals and also accessing all the other health care facilities. By utilizing Google Maps API, the app provides real time location data and direction to the hospitals. The application is ideal for emergency cases or health care check-up. A standout feature is the emergency button specially designed for very seamless cases where it detects users' location and send an alert to ambulance. Its intuitive interface ensures seamless navigation, offering an efficient and stress-free experience. With a focus on accessibility, the app aims to simplify the process of finding health care facilities, ensuring users can make informed decision during critical times.

1. INTRODUCTION

Medical emergencies are inherently chaotic and stressful situations. During these times, individuals often struggle to make quick, fast decisions, particularly regarding which medical facility to seek. This difficulty in decision-making can have serious consequences, as the choice of hospital can significantly impact patient outcomes.

Consider a scenario: A family member experiences a sudden medical event at home. Immediate questions arise: Should an ambulance be called? Is self-transport a viable option? Which hospital is geographically closest? Which facility is best equipped to handle the specific medical need? Are resources such as specialized equipment, specific blood types, and relevant specialists readily available? These are critical considerations, and delays in addressing them can negatively affect the patient's prognosis. The availability of specialized medical equipment, access to specific blood types, and the immediate presence of qualified specialists are all factors that can significantly influence the outcome of a medical emergency.

This is the very problem our app is designed to solve. We understand the immense pressure and confusion that arise during medical crises, and we've created a tool to provide clarity and guidance when it matters most. Our goal is to empower individuals with the information they need to make the best possible decisions in the face of adversity, ensuring their loved ones receive prompt and appropriate care.

Imagine having a reliable resource at your fingertips, a digital companion that can quickly assess your situation and guide you towards the most suitable medical facility. This is what we offer: a comprehensive, user-friendly app that acts as a lifeline in times of medical emergencies.

Our app is built on the principle of providing immediate, actionable information. We understand that every second counts, and we've prioritized speed and efficiency in our design.

2. LITERATURE REVIEW

In recent years, the integration of mobile applications for healthcare services has gained significant attention, and particularly in emergency management and healthcare accessibility. Various studies have highlighted the increasing reliance on technology to improve medical care delivery and assist patients in locating healthcare providers efficiently. The Hospital Finder Application concept, which is central to this review, aligns with emerging trends in healthcare technology, aiming to address the challenges of locating hospitals, consulting healthcare providers, and accessing medical services quickly.

Several studies have explored the use of mobile apps for locating healthcare facilities and accessing essential information during emergencies. Research by Clasquin et al. (2011) demonstrated the feasibility and acceptability of using mobile technology to provide real-time information about hospital emergency department wait times. Similarly, studies have shown the effectiveness of mobile apps in providing access to medication information, drug interactions, and allergy alerts (e.g., Schnipper et al., 2009). These findings suggest that mobile platforms can effectively deliver critical information to individuals during medical crises

The growing prevalence of smartphones and mobile apps has significantly contributed to the digital transformation of healthcare services. The World Health Organization (WHO) has emphasized that mobile applications can help in reducing healthcare inequalities, especially by

providing access to medical services in rural or underserved regions. In a study by Boulos et al. (2017), it was noted that mobile health (mHealth) applications allow users to access healthcare information on demand, thus improving decision-making and facilitating timely interventions.

Many Studies have focused on emergency management using mobile application. The study by Miller et.al. Highlighted the critical role of mobile application in emergency response scenarios, showing that apps equipped with emergency button and immediate call functionalities help patients in distress.

Another important area of research focuses on the role of mobile apps in facilitating communication and coordination between individuals, emergency services, and healthcare providers. Studies have explored the use of mobile apps for contacting emergency services, providing location information, and transmitting patient data (e.g., Mars et al., 2012). These studies highlight the potential of mobile technology to improve the efficiency and effectiveness of emergency response systems. For example, apps enabling direct communication with dispatch centers and transmission of vital signs can significantly reduce response times and improve patient outcomes.

Furthermore, research has investigated the impact of mobile apps on patient empowerment and self-management during emergencies. Studies have shown that providing individuals with access to their medical records, medication lists, and emergency plans through mobile apps can increase their sense of control and improve their ability to manage their health during crises (eg, Free et al., 2010). This is particularly relevant for individuals with chronic conditions who may require specific interventions during emergencies.
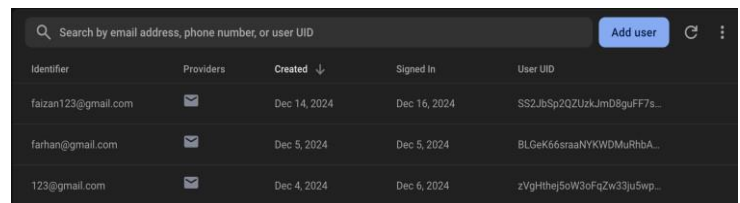
3. METHODOLOGY

The Methodology for developing the Hospital Finder Application using the Google Maps API, Firebase and Android Studio involves several key steps. The initial requirement for the app is gathered, including the target platform and desired featured.

Next the Google Maps API is integrated by obtaining an API key from Google Cloud Platform, this enables the app to display maps, and locate hospital and give directions to it.

3.1 Database

The Database used in this project in Firebase which is non-relational database. It offers a real-time data synchronization across devices. This is crucial for a medical emergency app where up to date information is required.

Firebase offline persistence allows the app to function even without network connectivity. This is vital for emergency situation where internet access might be unreliable.

Figure-1 (Firebase Data Storage)

3.2 System Design and Architecture

The Goal of the system design phase is to develop an application, which includes UI/UX planning.

During the development phase, the app is built using tools like Android Studio and integrates APIs such as Google Maps and Google Places for location tracking and hospital data. The backend is developed to handle user requests and manage the database, which stores hospital,doctor, and service information. Testing follows to ensure the app's functionality, performance, and usability. Unit, integration, and user testing help identify and fix any issues, ensuring the app meets user expectations and is reliable during emergencies.

Development then proceeds in Agile sprints with incremental feature delivery, continuous integration and delivery, regular code reviews focused on security, and Firebase integration.
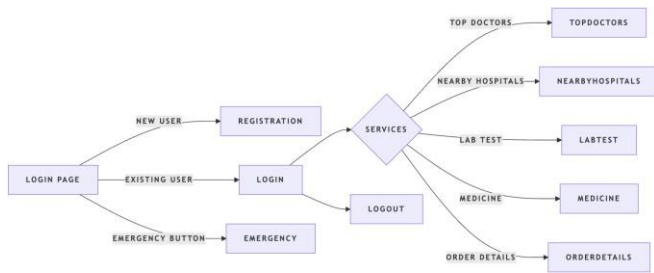
Figure-2(Architecture)
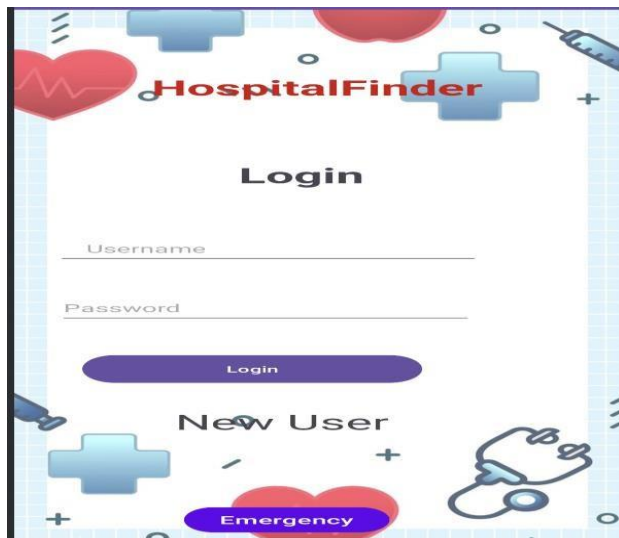
4. RESULTS

4.1 User login

Figure-3(Login page)

The Figure 3 states the login of the user to access the medical services, if the user in new then they need to register in the new user section seen in figure 4. The emergency button is for critical cases where is send ambulance to the users last location.
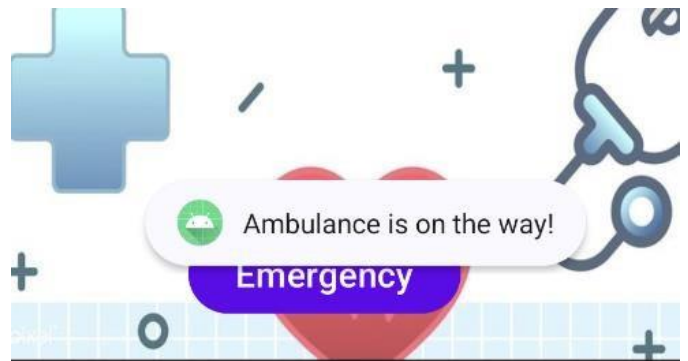

Figure-4(New Registration)

Figure-5(Emergency)

Figure-6(Health services)

The Figure-6 shows all the different type pf health services offered to user for hassle free experience, where they have access to lab test, Top Doctors, Buy Medicine, Order details and most important Nearby hospitals.
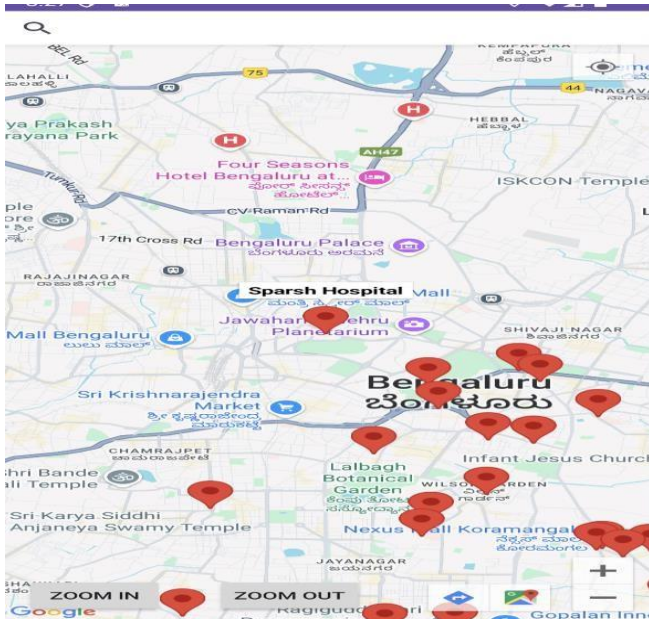
Figure-7(Nearby hospitals)

The figure –7 locates all the hospital nearby to your location with also a search bar to find your personal hospitals and get direction to it through google maps.

Figure-8(Lab Test)

The figure-8 shows the different types Lab Test offered to the users where they can book test which they want and get it delivered to their location.
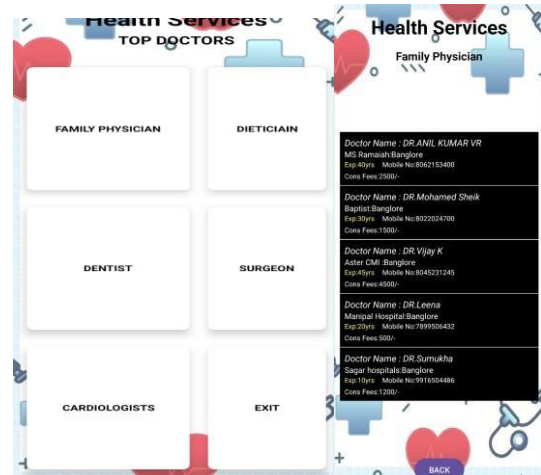

Figure-9(Top Doctors)

The figure-9 Shows all the Top Doctor to the user's location with their interest for dietician, dentist, cardiologist, surgeon and family physician.
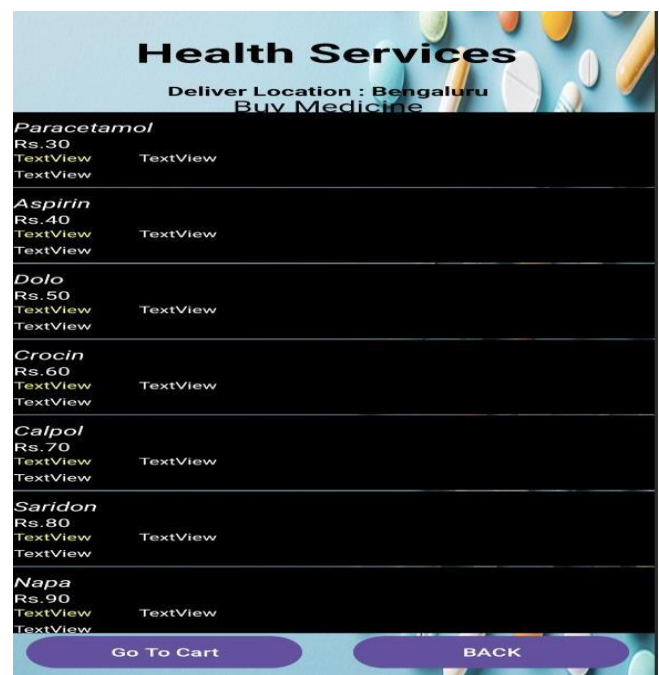
Figure –10(Medicine)

The figure-10 shows the essential tablet for the user to take when headache or cold, the user can also search details of it.

4. CONCLUSION

In conclusion, the development of a mobile application designed to aid decision-making during medical emergencies presents a complex but vital undertaking.

This endeavor necessitates a careful balance between rapid development cycles, robust security measures, and strict adherence to regulatory compliance. The hybrid methodology outlined, combining Agile principles with a structured, plan-driven approach, offers a robust framework for navigating these complexities.

The core challenge addressed by such an application lies in the inherent difficulty individuals face when confronted with medical emergencies. Cognitive overload, stress-induced impairment of judgment, and a lack of readily available information can significantly hinder the ability to make timely and effective decisions. These challenges underscore the critical need for readily accessible tools that provide clear, concise, and accurate information, empowering individuals to navigate these stressful situations.

Mobile technology, and specifically mobile applications, offer a promising solution to this problem. By leveraging the ubiquity of smartphones and their advanced capabilities, these applications can provide immediate access to crucial information such as the location of nearby hospitals, available medical services, access to specialists, and essential medication details. Furthermore, they can facilitate direct communication with emergency services, potentially reducing response times and improving patient outcomes.

The implementation of Firebase as a backend platform offers significant advantages in this context. Its Backend-as-a-Service (BaaS) nature accelerates development, enabling rapid prototyping and iterative development cycles. Firebase's real-time database and Fire store facilitate the synchronization of data across devices, ensuring that users have access to the most up-to-date information. Crucially, Firebase provides robust security features, including authentication, authorization, and data encryption, which are essential for protecting sensitive medical data and complying with relevant regulations.

Ultimately, the goal of this development effort is to create a tool that empowers individuals to make informed decisions during medical emergencies. By providing quick access to critical information, facilitating communication with emergency services, and streamlining access to essential medical resources, this application has the potential to significantly improve patient outcomes and even save lives. The careful consideration of design, usability, security, and the strategic use of Firebase within a robust development methodology are crucial for achieving this goal.

ACKNOWLEDGEMENT

REFERENCES

[1]https://www.irjmets.com/uploadedfiles/paper//issue_1_january_2024/48110/final/fin_irjmets1704889716.pdf.

[2]https://shmpublications.onlinelibrary.wiley.com/journal/15535606.

[3] https://www.journalofhospitalinfection.com/

[4] https://ijsrem.com/download/hospital-finder/.

[5]https://ijrpr.com/uploads/V5ISSUE1/IJRPR21798.pdf

[6]https://www.researchgate.net/publication/377843092_Doc_Appointment_Booking_and_Hospital_Finder.

[7]https://ijsrcseit.com/home/issue/view/article.php?id=CSEIT2390579.

[8]https://ijme.in/articles/telemedicine-and-ethics-opportunities-in-india/?galley=html.

[9]https://www.researchgate.net/publication/279954676_Mobile_Operating_Systems_and_Application_Development_Platforms_A_Survey.

[10]https://www.scribd.com/document/394960441/MOBILE-OPERATING-SYSTEM-pdf.

[11]https://www.riverpublishers.com/pdf/ebook/chapter/RP_9788770040723C98.pdf

[12]https://www.ijraset.com/research-paper/doc-appointment-booking-and-hospital-finder

[13] https://ieeexplore.ieee.org/document/7057126

[14] https://www.irjet.net/archives/V9/i12/IRJET-V9I12142.pdf.

[15] https://www.ijatir.org/uploads/613452IJATIR5059-297.pdf.

[16] https://www.researchgate.net/publication/333250345_Hospital_Real-Time_Location_System_A_Practical_Approach_in_Healthcare_A_Narrative_Review_Article

[17] https://www.sciencedirect.com/journal/journal-of-hospital-infection.