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Rapid Rescue-Ambulance Service App

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Abstract: ***Users of this Android application can view neighboring ambulance services with an easy-to-use UI. The program uses location-based services to find the closest ambulance services that are available and provides users with anticipated arrival times and real-time information. Customers can schedule an ambulance and check real-time booking details, such as the location and expected arrival time. The program is a useful resource for people in need of immediate medical assistance because of its user-friendly features and straightforward design.***

Keywords: Mobile Application Development, Ambulance, Location-based Technology, App, Kotlin, Android

I. INTRODUCTION

In the ever-changing field of emergency medical services, our Emergency Response App stands out as a groundbreaking invention that is revolutionizing the ways in which healthcare is delivered in a fast and efficient manner. Our application aims to transform the traditional method of emergency medical response in a time when prompt action is vital and having access to emergency services is crucial. Our Emergency Response App uses state-of-the-art technology to act as a link between people in need and emergency response providers. It provides a comprehensive platform for quick communication, effective event management, and life-saving help.

II. LITERATURE REVIEW

1) *User Preferences in Emergency Medical Apps:* Investigate existing literature on user preferences, identifying key features users seek in ambulance services apps for quick and efficient emergency response[1].
2) *Interface Design and Usability:* Explore studies on interface design principles and usability testing specifically geared towards high-stress emergency situations, ensuring user-friendly interactions during critical moments[2].
3) *Impact of Real-Time Tracking on Emergency Response:* Review literature examining the influence of real-time tracking features on improving emergency response times, patient outcomes, and overall service efficiency[1].
4) *Technological Advances in GPS and Location-Based Services:* Explore advancements in GPS technology and location-based services, emphasizing their potential role in optimizing ambulance tracking and monitoring functionalities[3].
5) *Challenges in Implementing Real-Time Monitoring:* Investigate literature discussing challenges such as network connectivity issues, data accuracy, and technical complexities when integrating real-time monitoring features in healthcare apps[1].
6) *User Experience and Human-Computer Interaction (HCI):* Review studies focusing on HCI principles for designing apps tailored to emergency medical situations, ensuring intuitive navigation and effective communication during emergencies[2].
7) *Impact of Mobile Health (mHealth) Apps on Emergency Medical Services:* Examine research discussing the broader impact of mobile health applications on emergency medical services, highlighting trends and advancements[5].
8) *Case Studies and Success Stories:* Explore documented case studies or success stories demonstrating the tangible benefits of real-time tracking and monitoring functionalities in improving emergency medical response[5].
9) *Usability Testing and Feedback Analysis:* Review studies on usability testing methodologies and feedback analysis specifically within the context of emergency medical apps, identifying best practices and areas for improvement[1].
10) *Future Trends and Directions:* Investigate literature discussing emerging trends in technology, such as AI, IoT, or telemedicine, and their potential integration to further enhance real-time tracking and monitoring in ambulance services apps[5].

A. *Existing Methods Drawback*

Current methods for real-time tracking and monitoring in ambulance services apps confront challenges in maintaining consistent network connectivity, potentially hindering timely data transmission. Moreover, ensuring the accuracy and reliability of information during critical moments remains a persistent concern. User interfaces might lack optimal design for seamless interaction during high-stress emergencies, impacting usability. Addressing these drawbacks is crucial for enhancing the effectiveness of emergency medical response through app-based tracking and monitoring systems.

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III. REQUIREMENTS

A. Hardware Requirements

1) Laptop.
2) Android Phone.
3) USB cable

B. Software Requirements

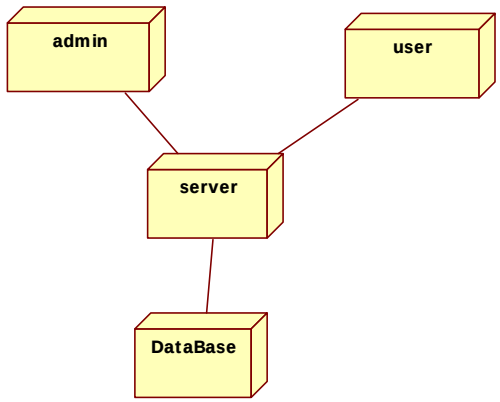
1) Operating System : Windows 7.
2) Programming : Java, Kotlin
3) Server-side Script : PHP
4) IDE : Android Studio.
5) SDK : Android SDK 34
6) Libraries Used : Volley, Material design.

The proposed Android app streamlines ambulance booking by leveraging location-based services for swift identification of nearby services. Real-time information on estimated arrival times enhances user decision-making. Its user-friendly interface enables seamless ambulance booking and real-time tracking of the ambulance's arrival and location. Featuring an intuitive design, this system caters to urgent medical needs, ensuring quick and efficient access to emergency services. Overall, the app aims to provide users with a reliable and efficient tool for swift emergency medical assistance.

IV. DESIGN PROCEDURE

A. Architecture Diagram

The architecture of a Doctor App is designed with a holistic approach to ensure a seamless, secure, and user-friendly healthcare platform. At its core is the User Interface (UI) layer, responsible for presenting information and gathering user input through intuitive screens for various functionalities, such as appointment scheduling and virtual consultations. The Application Layer, or business logic layer, manages the core functionalities of the app, including appointment scheduling, user communication, and data processing. Server-side components handle data storage, processing, and communication with external systems, employing APIs to facilitate seamless interactions.



B. Modules

1) *User Module:* The proposed system enables users to sign up and log in using their credentials. They can then access the application's functionality, which includes viewing nearby ambulance services, booking an ambulance as required, and accessing their booking history through the history activity. This system simplifies the process of booking an ambulance for users and provides them with the necessary information.
2) *Admin Module:* Admin can add Ambulance drivers and view the list user in the app.

C. Ambulance Driver Module

Ambulance driver can view the booking history which are booked by the user and the driver can accept the drive.

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V. EXPECTED OUTCOMES

1) *Improved Accessibility:* Swift and efficient access to nearby ambulance services, reducing response times during emergencies[3].
2) *Enhanced Decision-Making:* Real-time information on estimated arrival times empowers users to make informed decisions when booking ambulances[1].
3) *User-Friendly Interface:* An intuitive interface facilitates easy ambulance booking and real-time tracking, ensuring seamless user experience during critical situations[2].
4) *Reliable Emergency Assistance:* Ensured availability of emergency medical services whenever needed, contributing to reliable and timely healthcare access[5].
5) *Increased Efficiency:* Streamlined ambulance booking and tracking processes, optimizing emergency medical service delivery[3].

VI. PSEUDOCODE

```
class MainActivity : AppCompatActivity() {
   override fun onCreate(savedInstanceState: Bundle?) {
      super.onCreate(savedInstanceState)
      setContentView(R.layout.activity_main)

      val loti = findViewById<LottieAnimationView>(R.id.lotifie)
      loti.playAnimation()
      loti.alpha = 0f

      var type = ""
      getSharedPreferences("user", 0).apply {
         type = getString("type", "")!!
      }

      loti.animate().setDuration(1000).alpha(1f).withStartAction {
         overridePendingTransition(androidx.appcompat.R.anim.abc_fade_in, androidx.appcompat.R.anim.abc_fade_out)
      }.withEndAction {
         finishAffinity()

         when (type) {
            "admin" -> startActivity(Intent(this, AdminMainActivity::class.java))
            "user" -> startActivity(Intent(this, UserMainActivity::class.java))
            "driver" -> startActivity(Intent(this, DriverActivity::class.java))
            else -> startActivity(Intent(this, LoginPage::class.java))
         }

         loti.pauseAnimation()
      }
   }
}
class LoginPage : AppCompatActivity() {
   lateinit var layout: TabLayout
   lateinit var view: ViewPager

   override fun onCreate(savedInstanceState: Bundle?) {
      super.onCreate(savedInstanceState)
      setContentView(R.layout.activity_login_page)
```

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```
        layout = findViewById(R.id.tablayout)
        view = findViewById(R.id.viewp)

        // Add tabs with icons to the TabLayout
        layout.addTab(layout.newTab().setText("Login").setIcon(R.drawable.enter))
        layout.addTab(layout.newTab().setText("SignUp").setIcon(R.drawable.contract))

        // Create an adapter for the ViewPager
        val adapter = AdapterTab(this, supportFragmentManager, layout.tabCount)
        view.adapter = adapter

        // Set up a listener to synchronize TabLayout with ViewPager
        view.addOnPageChangeListener(TabLayout.TabLayoutOnPageChangeListener(layout))

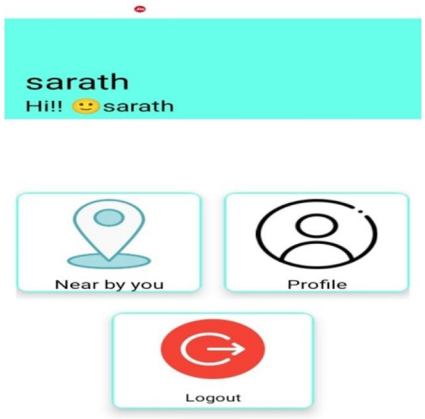
        layout.addOnTabSelectedListener(object : TabLayout.OnTabSelectedListener {
            override fun onTabSelected(tab: TabLayout.Tab?) {
                // Change the current item in ViewPager when a tab is selected
                view.currentItem = tab!!.position
            }

            override fun onTabUnselected(tab: TabLayout.Tab?) {
                // Not implemented for this use case
            }

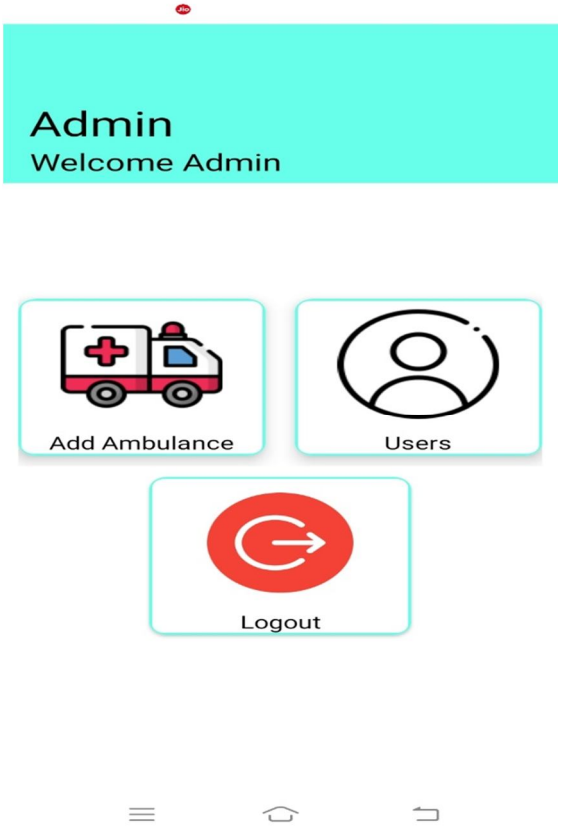
            override fun onTabReselected(tab: TabLayout.Tab?) {
                // Change the current item in ViewPager when a tab is reselected
                view.currentItem = tab!!.position
            }
        })
    }
}
```

VII. OUTPUTS

A. *User HomePage*



B. Admin Homepage



C. Driver HomePage



D. Driver Details



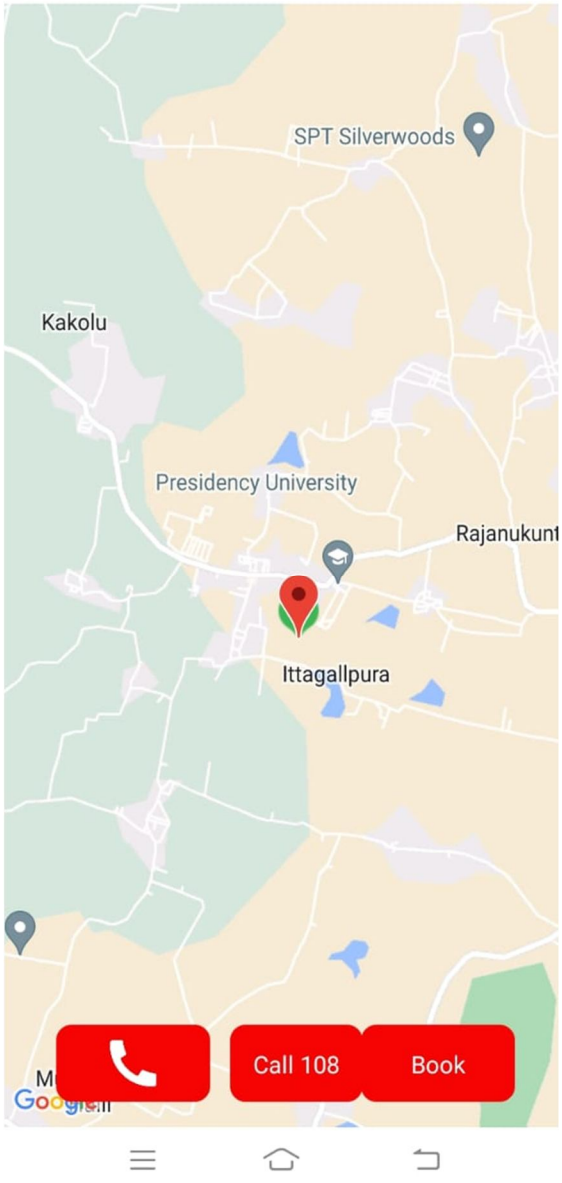
E. Drver History



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VIII. DIFFERENCE FROM EXISTING APPS

Our app stands apart from previous versions by integrating a direct emergency calling feature to 108 within the application interface. Unlike previous versions lacking this capability, our app ensures immediate access to emergency services with a built-in 108 calling functionality, enabling users to swiftly connect with emergency responders without needing to exit the app or rely on external calling features. This integrated emergency calling elevates the efficiency and speed of accessing urgent medical assistance, setting our app distinctly ahead of its predecessors.



IX. CONCLUSION

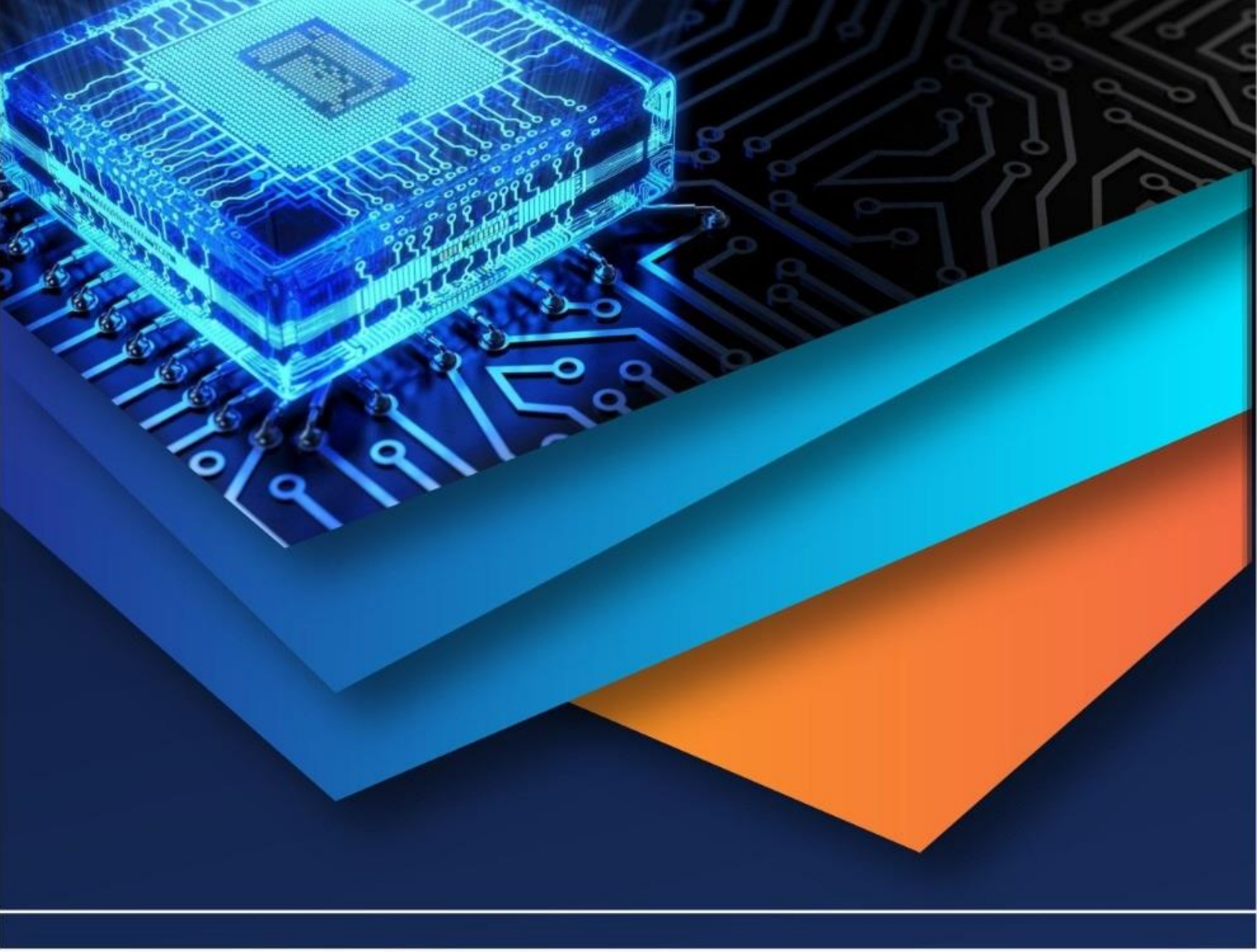
In conclusion, the proposed Android application for viewing nearby ambulance services is a highly valuable tool for anyone in need of urgent medical attention. The application leverages location-based services to quickly identify the nearest available ambulance services, providing users with real-the ambulance's location. The intuitive design and easy-to-use features of the application make it simple and convenient for users to book an ambulance and view their booking details in real-time. With this application, users can have peace of mind knowing that they have a reliable and efficient way to access emergency medical services whenever they need them. Overall, the proposed system has the potential to greatly improve emergency response times and save lives, making it a valuable addition to any community.

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