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SCHOOL OF ENGINEERING

Bachelor of Technology
in

COMPUTER SCIENCE AND ENGINEERING
(Artificial Intelligence and Machine Learning)

Special Topic

ServConnect: An Android based App for service lenders

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CERTIFICATE

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LIST OF ABBREVIATIONS

WORDS	ABBREVATION
GPS	Global positioning System
GCM	Google Cloud Messaging
API	Application Programming Interfaces
IOT	Internet Of Things

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ABSTRACT

This report introduces ServConnect, a mobile application designed to leverage GPS technology to connect individuals with local, qualified professionals for various services such as plumbing and electrical work. The app is developed with a user-friendly interface that simplifies the process of scheduling appointments, making it easy and convenient for users to book services at their preferred times. With just a single tap, users can request assistance, ensuring quick responses from nearby service providers.
In addition to the flawless booking system, ServConnect features a robust rating system that allows users to review and rate the service providers, promoting accountability and helping to maintain high service quality. This rating system not only helps users in making informed decisions but also encourages professionals to deliver their best performance.By utilizing GPS-based connectivity, ServConnect efficiently bridges the gap between users and service providers, significantly enhancing the accessibility and reliability of essential services. This application represents a modern solution to traditional service booking challenges, offering a streamlined and efficient approach to meeting everyday service needs nearby the user location.

CHAPTER 1
INTRODUCTION

In our fast-paced world, getting quick and reliable help for essential services like plumbing, electrical work, and home maintenance has become more important than ever. Traditional methods of finding and hiring service providers can be time-consuming, unreliable, and often result in mixed service quality. These common frustrations underscore the need for a more efficient and dependable way to connect people with qualified service professionals.

To tackle these challenges, we developed ServConnect, an Android-based app designed to make it easier to find and hire local service professionals. By using GPS technology, ServConnect can pinpoint the user's location and match them with nearby professionals who are ready to help. This modern solution takes the guesswork out of finding trustworthy service providers.

The primary purpose of ServConnect is to bridge the gap between individuals needing essential services and qualified service professionals. In an era where time and convenience are of utmost importance, traditional methods of finding and hiring service providers often fall short due to inefficiencies and inconsistencies. ServConnect aims to address these issues by offering a streamlined, reliable, and user-friendly platform.

CHAPTER 2

PROBLEM DEFINITION

Finding and hiring reliable service providers, such as plumbers and electricians, can be a complex and frustrating process for many individuals.This difficulty arises from several key issues:Lack of Easy Access,Limited Options,Instability in Service Quality,Time-Consuming Process,Uncertain Response Times.

OBJECTIVES:

- **GPS-Based Connectivity:** The cornerstone of ServConnect is its use of GPS technology. By accurately pinpointing the user's location, the app can identify and connect them with nearby service providers.
- **User-Friendly Interface:** ServConnect is built with a clean and intuitive interface that makes navigation simple, even for users who may not be tech-savvy. The booking process is straightforward, allowing users to schedule appointments with just a few taps
- **Rating and Review System:** ServConnect features a comprehensive rating and review system that allows users to provide feedback on the services they receive. After a service is completed, users can rate the provider based on various criteria such as punctuality, quality of work, and professionalism
- **Connecting Users with Local Professionals:** It utilizes GPS technology to connect users with local professionals quickly and efficiently.By identifying the user's location, the app ensures that users are matched with nearby service providers who can respond promptly to their needs.
- **Simplifying the Booking Process:**ServConnect is designed to simplify the often-cumbersome process of booking service appointments. The app's intuitive interface allows users to easily browse available services, view provider profiles, and schedule appointments with just a few taps.
- **User-Friendly Interface:**ServConnect is built with a clean and intuitive interface that makes navigation simple, even for users who may not be tech-savvy. The booking process is straightforward, allowing users to schedule appointments with just a few taps

CHAPTER 3

LITERATURE REVIEW

Push notification service is a mechanism which is an event based one, whose purpose is to send required data to client mobile. Appropriate usage of this service provides a nice experience to the user which provides useful information to the user, where the user is without any knowledge and any effort. Google Cloud Messaging (GCM), is an officially supported push notification service for the android platform. This is one of the services available and the most reliable one. There are multiple service providers for the push notification feature. Only those apps that are Google registered will be able to implement GCM and utilize the services provided. In GCM, a server uses the mechanism of REST API, to send the notification to user. GPS (Global Positioning System) unit is a device, which is normally carried by a moving person or car, helps in detecting the precise location at intervals, using the global positioning system. So, the system makes use of the GPS tracking unit, which is provided in all smartphones, to update the real-time location of the vehicle, which is being rented. This is done just to maintain the records of each rental operation done using the application, and this doesn't satisfy any other requirements.[1]

Current technological advances and the growth of smart applications and services require the development of multi-platform mobile applications. Writing software to run on multiple computing platforms can involve a large amount of duplicate effort. This duplicate effort can take the form of re-implementing the business logic in a different language, re-implementing the user interface or, in many cases, re-implementing both for each platform. Nowadays, the mobile application development is not only carried out for smartphones and tablets, but also for a wide range of app-enabled devices , whatever wearable or embedded ones , used for smart applications and smart services , generated by the rise of smart manufacturing and smart cities . All approaches to cross-platform development must address these inconsistencies in user interfaces. Older approaches often mimicked platform controls or ignored the guidelines – that is the approach taken with Java. [2]

An API acts as a mediator between different enterprise systems and enables smooth communication between them. It allows for the exchange of data and facilitates connectivity between various applications and devices. On the other hand, a mobile application is a software program that runs on mobile devices such as smartphones, tablets, or smartwatches. The ability to monitor the performance of industrial machines remotely has become increasingly important in today's fast-paced business world. To address this need, mobile applications have been developed that connect to machines via the internet, providing real-time data about their performance and enabling remote access to critical information. One of the key benefits of these applications is their ability to provide remote access to machine data from anywhere in the world. By connecting to machines over the internet, businesses can monitor the performance of their equipment regardless of where it is located. This makes it easier to identify potential issues and take action before they become significant problems that could lead to costly downtime. Overall, the development of mobile applications that provide remote access to machine data has revolutionized the machinery industry. By providing real-time data and notifications, businesses can identify and address potential issues quickly and efficiently, reducing downtime and improving overall efficiency. With the ability to monitor and manage machines remotely, businesses can save time and money on maintenance and troubleshooting, enabling them to focus on their core operations and achieve greater success.[3]

Internet of Things (IoT) interconnects physical devices with sensors and actuators, adequately configured to automate users' routines without human involvement. Automating IoT devices could range from a simple automation routine, such as switching a light on/off, to a critical routine, such as a medical monitoring device attached to a patient's body to take a defined action when critical health situations happen. IoT smart apps refer to the application logic that runs on IoT platforms or directly on the IoT device, automating the associated IoT processes within the user environment.[4]

CHAPTER 4

PROJECT DESCRIPTION

ServConnect is an innovative Android-based mobile application designed to transform how individuals locate and hire service providers such as plumbers, electricians, and other home maintenance professionals. By making use of advanced GPS technology, ServConnect addresses common challenges associated with finding reliable service professionals, providing a streamlined and efficient solution.

Properties:

- **Comprehensive Booking System:**

ServConnect offers a flexible booking system where users can view available time slots, schedule appointments at their convenience, and reschedule if necessary. This system reduces the hassle of coordinating with service providers and ensures user satisfaction.

- **GPS-Based Connectivity:**

ServConnect utilizes GPS technology to accurately identify the user's location and connect them with nearby service providers. This ensures rapid response times and efficient service delivery, especially in urgent situations.

- **User-Friendly Interface:**

The app features an intuitive and clean interface that makes navigation straightforward. Users can easily book services, manage appointments, and receive notifications with just a few taps, enhancing overall convenience.

- **Rating and Review System:**

To maintain high service standards, ServConnect includes a robust rating and review system. After receiving services, users can rate and review providers based on their experiences. This transparency helps other users make informed decisions and encourages providers to deliver excellent service.

➢ Secure Payment System:

The app offers a secure payment system that allows users to pay for services directly through the app. By supporting various payment methods, ServConnect ensures both convenience and security for users.

➢ Instant Notifications:

ServConnect sends real-time notifications to both users and service providers about booking confirmations, reminders, and updates. This feature ensures clear communication and timely responses.

➢ Customer Support:

The app provides robust customer support, including in-app help features, FAQs, and access to customer service representatives. This support system ensures users have assistance whenever needed, enhancing their overall experience.

Fig 4.1 social Impact

CHAPTER 5

METHADOLOGY

5.1 Requirement Analysis

The first step in the development of the ServConnect app involves a thorough requirement analysis. This phase includes understanding the needs of potential users, identifying the features that are most important, and defining the scope of the project.

- Analyzing competitor applications to identify gaps and opportunities to overcome those cons
- Defining user personas and user journeys to guide the development process.

5.2 System Design

Based on the requirements gathered, the next step is to design the system architecture of the application.This involves:

- Architecture Design: Developing a scalable and robust architecture that can handle real-time GPS tracking, user interactions, and data management.
- Database Design: Designing a database schema that supports efficient data storage and retrieval for user profiles, service provider details, bookings, reviews, and payment transactions.

5.3. Development

Build the application in front-end and back-end stages:

- Front-End Development: Implement user interface and features using Java for Android.
- Back-End Development: Develop server-side components using Node.js, Python, or Java for APIs, user data management, bookings, payments, and security.

5.4. Integration of GPS Technology

Location Tracking: Implement GPS to track user and service provider locations.

- Real-Time Updates: Provide real-time location and status updates.
- Routing and Directions: Integrate Google Maps for directions.

5.5 Design

System Overview:

- Client-server architecture with mobile app (client-side) and backend server.
- Database includes tables for user data, service providers, services, and service requests.

Dependencies:

- Relies on cloud infrastructure providers.
- Integrates with payment gateways, SMS gateway providers, and geocoding/mapping services**.**

Relationships:

- Mobile app interacts with backend for authentication, service management, etc.
- System features are interconnected for seamless user experience.

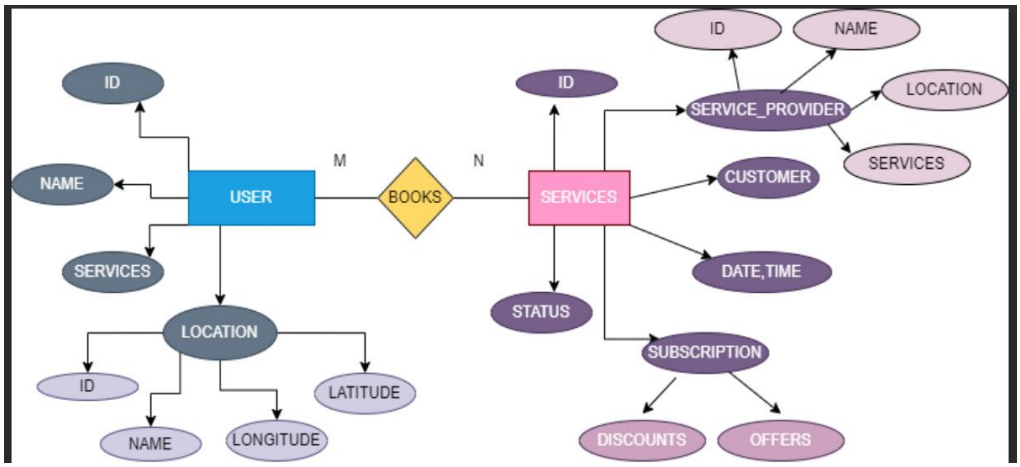

Fig 5.6 : flow chart

CHAPTER 6

RESULT AND ANALYSIS

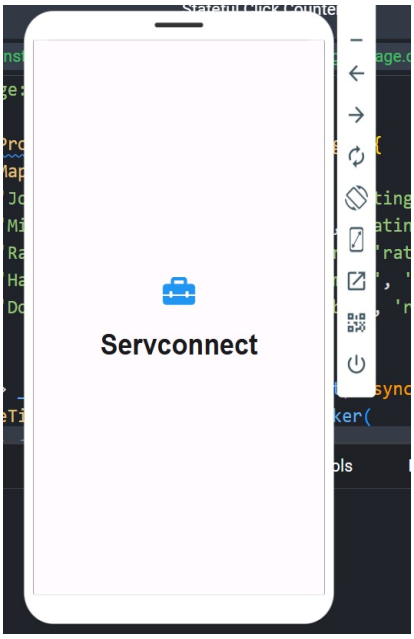

Fig 6.1 First page

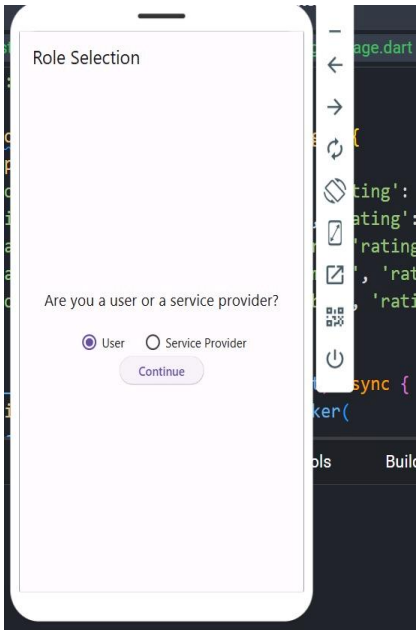

Fig 6.2 Role Selection

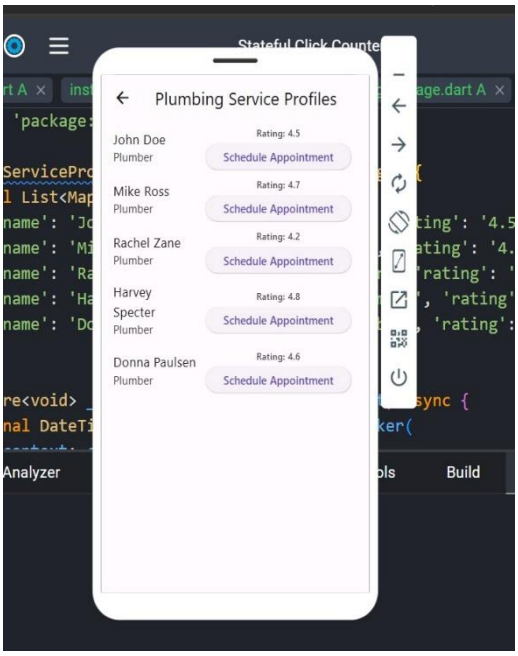

Fig 6.3 services available nearby

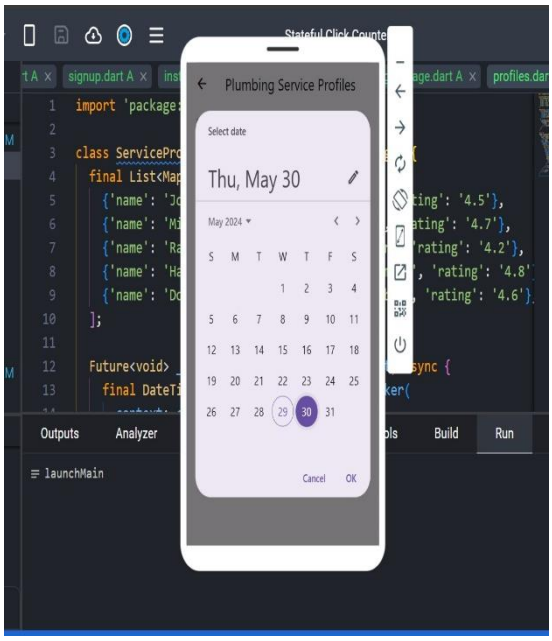

Fig 6.4 scheduling appointments

CHAPTER 7

PROGRAM

Imported Libraries

- **Material.dart:** It's a Dart library that provides a set of widgets and utilities to implement Material Design in Flutter applications

- **sms_autofill.dart :**It's a Dart library that helps in implementing SMS autofill functionalities in Flutter apps .It autofills OTP codes received via SMS.

- **geolocator.dart :**It's a Dart library that provides geolocation functionalities in Flutter applications. It allows apps to access device location

- **dart:math:** Includes mathematical functions and constants, such as trigonometric functions, exponentiation, and logarithms.

- **dart:** async and other navigation widgets in the screen

- **Firebase_auth.dart :** It's a Dart library that provides Firebase Authentication functionalities for Flutter apps.

- **Firebase_core.dart :** It's a core library for using Firebase services in Flutter apps. It provides the necessary initialization code and configuration to connect your Flutter app to Firebase.

- **Pinput.dart :** It's a Dart library for creating and managing PIN input fields in Flutter applications. It is used to build customizable PIN entry fields, such as entering OTP (One-Time Password) codes

CHAPTER 8

CONCLUSION

In conclusion, creating and launching the ServConnect app has been a major step in making it easier to find and hire reliable service providers. This app tackles the common hassles people face by offering a simple and efficient platform. With features like an easy booking system, integrated payment options, and detailed profiles, ServConnect makes connecting with local professionals a breeze. By streamlining the process of finding and hiring professionals, ServConnect simplifies everyday life. Its user-friendly interface, integrated payment options, and thorough provider verification system make it a standout solution in the service market. As we continue to enhance the app based on user feedback and market trends, ServConnect remains a valuable tool for both users and service providers.

The app's review and rating system also helps build trust. Beyond convenience for users, ServConnect supports local businesses by giving service providers a platform to reach more customers. By continuously improving based on user feedback, the app stays relevant and useful. Overall, ServConnect shows how technology can make everyday tasks simpler and more efficient for everyone involved.

CHAPTER 9

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