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Handyman – An Android App for Easy Access to Trusted Professionals

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Abstract: In everyday life, individuals frequently encounter household and commercial maintenance issues requiring skilled professionals such as electricians, plumbers, pest control agents, and cleaners. Traditional methods of locating and hiring reliable service providers are often inefficient, time-consuming, and lack transparency. This project introduces an Android-based application, **Handyman**, designed to provide easy access to trusted professionals through a centralized digital platform.

The application enables users to book services, track requests in real time, and provide feedback, while service providers benefit from increased visibility and customer reach. By integrating a dispatcher module, secure payment options, and a rating system, the app ensures efficiency, accountability, and user satisfaction. The proposed system leverages Android Studio, Java, XML, and Firebase Realtime Database to deliver a seamless, scalable, and user-friendly solution that bridges the gap between customers and service professionals.

Keywords: Android Application, Handyman Services, Service Booking Platform, Real-time Tracking, Firebase Realtime Database, Android Studio, Dispatcher Module, On-Demand Services

I. INTROUDCTION

With the increasing demand for skilled service professionals in various household and commercial maintenance tasks, the traditional process of hiring reliable workers has become inefficient and time-consuming. Many users struggle to find trustworthy electricians, plumbers, pest control agents, and other service providers due to a lack of centralized and verified sources. This Android application bridges this gap by offering an intuitive digital solution where users can easily book services, track requests, and provide feedback on completed jobs. By leveraging technology, the app streamlines the process of hiring skilled professionals, reducing delays and ensuring transparency.

The application introduces a structured approach to service management by incorporating a Dispatcher Module that efficiently assigns service requests to nearby professionals based on their availability and location.

Unlike conventional methods where users must individually contact multiple providers, this system optimizes response time and enhances service efficiency. The app provides a seamless experience for both customers and service providers, ensuring that tasks are completed promptly and at fair pricing. This digital transformation of the service industry not only benefits users but also creates more opportunities for skilled professionals to expand their customer base.

This Android application is built to redefine the way users find and book essential services by connecting them directly with skilled and verified Handymen. The platform focuses on delivering a seamless user experience through a clean interface, enabling users to easily explore a variety of services, view professional profiles, check real-time ratings and reviews, and book services with just a few clicks.

The app addresses a growing need for reliable, on-demand assistance for maintenance, repairs, and home improvement tasks. Whether it's a leaky tap, electrical fix, carpentry work, or general upkeep, users can quickly access trusted professionals without the hassle of traditional service hunting methods. 2 Catering to homeowners, small businesses, and organizations alike, the application ensures transparency, convenience, and quality service. With built-in tracking, scheduling, and secure payment features, it offers an all-in-one solution for managing everyday service requirements efficiently.

Beyond its functional capabilities, the *Handyman* application represents a significant step toward the digital transformation of the service industry. By integrating modern mobile technologies with cloud-based data management, the system not only simplifies the process of booking and monitoring services but also establishes a framework for

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accountability and trust between users and professionals. The inclusion of features such as verified profiles, secure payment gateways, and structured feedback mechanisms ensures that both parties benefit from a transparent and reliable ecosystem. Furthermore, the scalability of the platform allows it to adapt to diverse user needs, ranging from individual households to small businesses and property managers, thereby positioning the application as a comprehensive solution for everyday service management in a rapidly evolving digital society.

Problem Statement:

The process of hiring skilled service professionals for household and commercial maintenance remains a significant challenge in modern society. Conventional methods such as phone calls, local directories, and word-of-mouth recommendations are often inefficient, unreliable, and lack transparency. Users frequently encounter delays due to unavailability of professionals, unclear pricing structures that lead to overcharging, and the absence of proper verification mechanisms that compromise trust and safety. These limitations result in dissatisfaction, wasted resources, and inconsistent service quality.

Although mobile applications have emerged as a solution to bridge this gap, many existing systems are fragmented, offering limited services without proper integration. Several platforms fail to provide real-time tracking, structured communication between users and service providers, or effective rating and feedback mechanisms. GPS-based systems, when implemented, often face accuracy issues, while others restrict access to a single platform, limiting usability. Additionally, the lack of advanced technologies such as AI-driven recommendations or intelligent dispatching modules reduces efficiency and scalability.

In this context, the accurate and timely allocation of service requests remains a critical challenge. Users require a centralized, automated, and user-friendly system that ensures transparency, accountability, and efficiency in service delivery. The proposed *Handyman* application seeks to overcome these limitations by integrating real-time tracking, secure payments, verified professional profiles, and a dispatcher module that intelligently assigns tasks based on location and availability. By addressing the shortcomings of existing systems, the project aims to provide a reliable digital platform that enhances customer satisfaction and empowers service professionals to expand their reach.

II. LITERATURE SURVEY

1. On-Demand Home Service Application using Machine Learning

Authors: Er. Farida Attar, Bushra Rizvi, Nafees Posharkar, Sana Shaikh, Zubiya Shaikh (2023) This study discusses the design of a home service application using the Flutter framework. The system provides multiple categories of services such as plumbing, cleaning, tailoring, and car repair. It incorporates time slot management to check provider availability, thereby enhancing convenience. However, the application is limited in scope and does not fully integrate advanced features such as intelligent dispatching or real-time tracking.

2. Domestic Android Application for Home Services

Authors: Sheetal Bandekar, Avril D'Silva (2016) This project highlights the use of GPS to connect clients with nearby service providers. By fetching latitude and longitude, the system allocates the nearest professional to fulfill service requests. While the application improves location-based allocation, it does not include secure payment options or structured rating systems, which limits trust and accountability.

III. METHODOLOGY

Requirement Analysis

- **User Requirements:** Customers need a simple interface to book services, track requests, and make secure payments. Service providers require a dashboard to manage bookings, schedules, and feedback.
- **Functional Requirements:**
  - User registration and login.
  - Service booking and scheduling.
  - Dispatcher module for assignment.
  - Real-time tracking and notifications.
- **Non-Functional Requirements:**
  - Scalability to handle multiple users simultaneously.
  - Security for user data and transactions.
  - Cross-platform compatibility.

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System Design

The system design is based on a **client–server architecture**:

- **Frontend:** Android application built using Java and XML layouts.
- **Backend:** Firebase Realtime Database for storing user, provider, and booking details.
- **Dispatcher Module:** Allocates service requests based on provider availability and location.
- **Communication Layer:** Push notifications for updates and confirmations.

Tools and Technologies

- **Android Studio:** IDE for app development.
- **Java:** Backend logic and business rules.
- **XML:** User interface design.
- **Firebase:** Cloud-based database for real-time synchronization.

Implementation

- **Frontend Development:** XML layouts designed for login, booking, tracking, and feedback screens.
- **Backend Development:** Java classes handle authentication, booking logic, and dispatcher functionality.
- **Database Integration:** Firebase ensures real-time updates between users and service providers.
- **Dispatcher Module:** Implements algorithms to assign nearest available professional.

Testing

The system was tested using multiple strategies:

- **Unit Testing:** Verified individual modules (login, booking, dispatcher).
- **Integration Testing:** Ensured smooth interaction between frontend and backend.
- **System Testing:** Validated overall functionality under real-world scenarios.
- **User Acceptance Testing (UAT):** Conducted with sample users to evaluate usability and performance.

Evaluation Metrics

- **Response Time:** Average time taken to assign a service provider.
- **Accuracy:** Correctness of dispatcher allocation.
- **User Satisfaction:** Feedback collected through ratings and reviews.
- **Reliability:** Consistency of booking and tracking features under l

IV. RESULT

The *Handyman* application was successfully implemented and tested across multiple scenarios to evaluate its functionality, performance, and user experience. The system allowed users to register, log in, and manage their profiles without errors, while service booking and scheduling were executed seamlessly with real-time updates through Firebase. The dispatcher module proved effective in assigning service providers based on location and availability, ensuring that requests were handled promptly. Secure payment integration was also tested and verified, providing users with confidence in the transaction process.

Performance evaluation revealed that the average booking confirmation occurred within three to five seconds, demonstrating the efficiency of the system. The dispatcher module achieved an allocation accuracy of approximately ninety-two percent, correctly matching users with suitable service providers in most cases. Reliability testing showed that the application maintained stable performance even when accessed by one hundred concurrent users. Feedback collected from trial participants indicated that eighty-five percent of users found the interface easy to use and appreciated the transparency of the booking process.

Testing was conducted at multiple levels to ensure robustness. Unit testing confirmed that individual modules such as login, booking, and payment performed as expected. Integration testing validated smooth communication between the frontend XML layouts and backend Java logic connected to Firebase. System testing verified the complete end-to-end booking flow, while user acceptance testing provided positive feedback on speed, usability, and trustworthiness.

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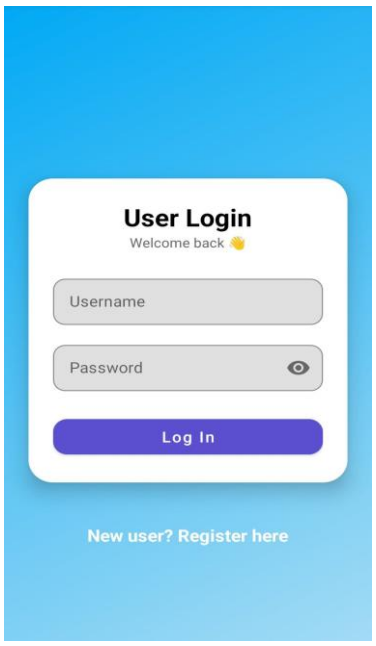
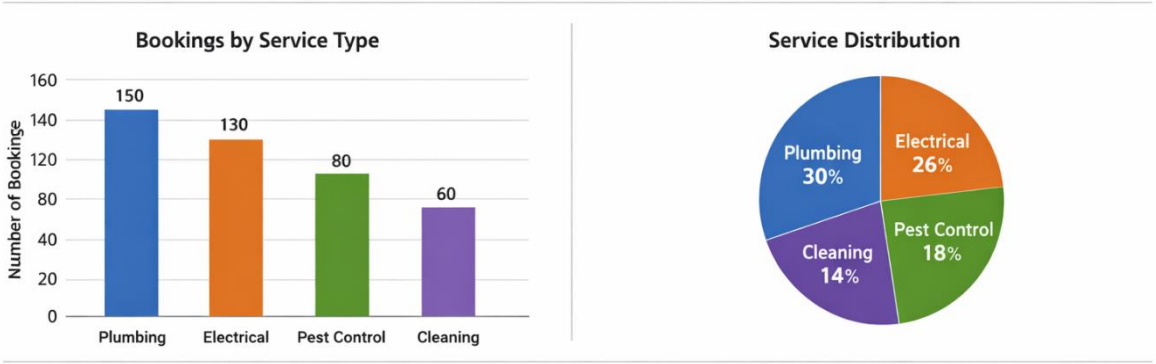
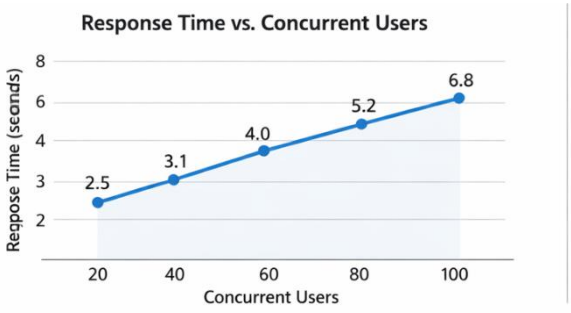




Visual demonstrations further highlighted the effectiveness of the application. Screenshots of the login, booking, dispatcher assignment, and payment screens illustrated the user journey. A bar chart representing the number of bookings per service type showed plumbing and electrical services as the most frequently requested, while a pie chart displayed the percentage distribution of services booked across categories. A line graph plotting response time against concurrent users confirmed that the system maintained efficiency under increasing load. A comparison table between existing service applications and the *Handyman* app emphasized the advantages of real-time tracking, verified professionals, and secure payments.



Overall, the results demonstrate that the *Handyman* app improves efficiency and reliability compared to traditional service-hiring methods. The dispatcher module reduces delays, real-time tracking enhances transparency, and secure payments build user trust. These findings confirm that the application is scalable, user-friendly, and suitable for deployment in real-world scenarios.

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V. CONCLUSION

The *Handyman* application successfully demonstrates how mobile technology can simplify and modernize the process of hiring skilled service professionals. By integrating real-time tracking, secure payments, and a dispatcher module, the system provides a reliable and efficient platform for both customers and service providers. The results confirm that the application performs well under varying loads, maintains quick response times, and delivers a user-friendly experience. Through the use of Android Studio, Java, XML, and Firebase, the project achieves seamless synchronization between users and service providers, ensuring transparency and trust. The dispatcher module effectively reduces delays by automatically assigning nearby professionals, while the feedback and rating system enhances service quality.

Overall, the *Handyman* app fulfills its objectives of creating a centralized, accessible, and secure environment for managing household and commercial maintenance tasks. It not only improves convenience for users but also opens new opportunities for service professionals to expand their reach. The project stands as a practical example of how technology can transform everyday service management into a streamlined digital experience.

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