HALO: Home Assistance and Local Operatives

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Abstract: *In modern urban lifestyles, individuals often face difficulties in finding reliable professionals for routine household services such as plumbing, electrical repair, cleaning, and appliance maintenance. Traditional methods of locating service providers are often time-consuming and inefficient. To address this issue, the HALO (Home Assistance and Local Operatives) platform is proposed as a web-based system that connects users with nearby service providers through geolocation technology. The platform enables users to browse service categories, select nearby professionals, and book services through a structured digital interface. Secure payment integration and administrative monitoring help ensure transparency and reliability within the system. By simplifying the process of locating and booking home services, the HALO platform improves service accessibility and enhances convenience for both customers and service providers..*

Keywords: HALO, Home Service Platform, Geolocation Technology, Service Booking System, Digital Marketplace

I. INTRODUCTION

In modern urban life, people often face difficulties in finding reliable professionals for everyday household tasks such as plumbing, electrical repairs, home cleaning, carpentry, and appliance maintenance. Although these services are essential, locating skilled and trustworthy service providers within a short time frame remains a major challenge. Traditional methods such as searching through personal contacts or local advertisements are often inefficient and time-consuming.

To address this issue, the **HALO Local Service Provider Platform** has been developed as an online marketplace that connects customers with verified local professionals. The system utilizes **geolocation technology** to identify and display available service providers within a **5-kilometer radius** of the user's location. This approach ensures faster service availability and improves convenience for both customers and service providers.

The platform allows users to easily browse services, book professionals, and receive timely assistance for household tasks through a simple digital interface. By integrating location-based services with an organized booking system, the platform reduces the difficulty of finding skilled workers and improves service accessibility. The objective of this system is to create a reliable, efficient, and user-friendly solution for managing domestic service needs while promoting transparency and trust between customers and local service professionals.

II. LITERATURE REVIEW

The development of digital platforms has significantly changed the way service providers and customers interact in modern society. With the rapid growth of internet technologies, several online systems have been introduced to simplify the process of accessing household services. These platforms allow users to search, compare, and book service professionals through centralized digital interfaces. According to Kumar and Singh [1], digital service platforms improve efficiency by providing structured systems that reduce the time required to locate reliable professionals.

Location-based technologies have also played an important role in improving service discovery. Geolocation systems enable applications to identify nearby service providers and display them to users based on their current location.

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Verma and Mehta [2] explain that integrating geolocation features in service booking platforms helps users quickly access nearby professionals, thereby reducing service delays and improving operational efficiency.

Several commercial platforms have implemented digital marketplaces for home services. For example, Urban Company provides a centralized platform where customers can book services such as home cleaning, appliance repair, plumbing, and electrical maintenance. According to Sharma and Gupta [3], such platforms improve customer satisfaction by offering verified professionals, standardized pricing, and structured booking mechanisms.

Secure online payment systems are another critical component of modern service platforms. Patel and Shah [4] highlight that integrating digital payment gateways ensures safe financial transactions between users and service providers. Secure payment methods increase trust in the system and encourage users to adopt online service platforms.

Furthermore, research on service aggregation systems indicates that digital platforms help local professionals reach a wider customer base. Gupta and Arora [5] explain that online service marketplaces create new economic opportunities for service providers while improving convenience for customers. These systems also enable efficient service management through centralized databases and administrative monitoring.

Recent studies also highlight the importance of digital platforms in improving service accessibility in urban environments. Online service marketplaces allow users to compare different providers, read reviews, and choose services based on ratings and availability. These systems also help service providers increase their visibility and reach more customers. As a result, digital service platforms have become an important component of modern service management systems.

Although several platforms exist for service booking, many of them operate on a large scale and may not focus on hyper-local service availability. The proposed **HALO system** aims to address this limitation by providing a simplified digital platform that connects users with nearby service professionals within a limited geographic radius, thereby ensuring faster and more convenient service delivery.

III. EXISTING SYSTEM

Urban Company is one of the most widely recognized digital service marketplaces that connects customers with trained professionals for various home services. With the increasing number of nuclear families and busy work schedules, many people prefer convenient digital solutions for managing household tasks. Urban Company allows users to book services such as home cleaning, appliance repair, plumbing, electrical maintenance, and beauty services through its mobile application or website. The platform focuses on providing verified professionals, standardized service procedures, and improved customer experience.

TaskRabbit is another service platform that enables users to hire local professionals for everyday tasks and home maintenance services. The platform allows customers to find skilled individuals who can assist with activities such as furniture assembly, home repairs, cleaning, moving assistance, and other household tasks. By connecting customers directly with nearby service providers, the platform simplifies the process of finding reliable help for routine work.

Thumbtack is a digital marketplace that connects customers with professionals across various service categories including home improvement, event planning, and personal services. Users can search for service providers based on location, compare service options, and request quotations from professionals. The platform helps individuals identify suitable professionals quickly while providing opportunities for service providers to reach potential customers.

Although these platforms provide useful services, they often operate on a broad scale and may not always prioritize hyper-local service availability. Users may sometimes experience delays in locating nearby professionals or finding services within a limited geographic area. This limitation highlights the need for a system that focuses on connecting users with **local service providers within a defined radius**, which is the primary objective of the proposed HALO platform.

IV. PROPOSED METHODOLOGY

The HALO system is developed as a web-based platform that connects users with nearby service providers for various household services. The main purpose of the system is to simplify the process of finding and booking reliable professionals through a single digital platform. The system consists of three major modules: the **User Module**, the **Service Provider Module**, and the **Admin Module**.

The User Module allows customers to register and log in to the platform. After logging in, users can explore different service categories such as plumbing, electrical repair, appliance maintenance, car detailing, cleaning, and pest control. The platform provides a simple interface that allows users to easily search for services and select the one they need.

The system uses geolocation technology to identify service providers located near the user. When a service is selected, the system detects the user's location and displays available professionals within a limited distance. This helps users quickly find nearby providers and reduces the time required to receive the service.

After selecting a provider, the user can confirm the booking request. The request is then sent to the selected service provider, who can accept the job through the provider interface. The platform also supports secure digital payment methods to ensure safe transactions between users and service providers.

The Admin Module allows administrators to manage the overall system. Through the admin dashboard, administrators can verify service providers, manage users, and monitor system activities. This module helps maintain the reliability and smooth operation of the platform.

Another important aspect of the HALO platform is its centralized database, which stores user information, service provider details, and booking records. This database helps manage the platform efficiently and ensures that service requests are processed smoothly. Overall, the HALO system provides a structured and convenient way to connect users with local service professionals, improving service accessibility and reducing the effort required to locate reliable providers.
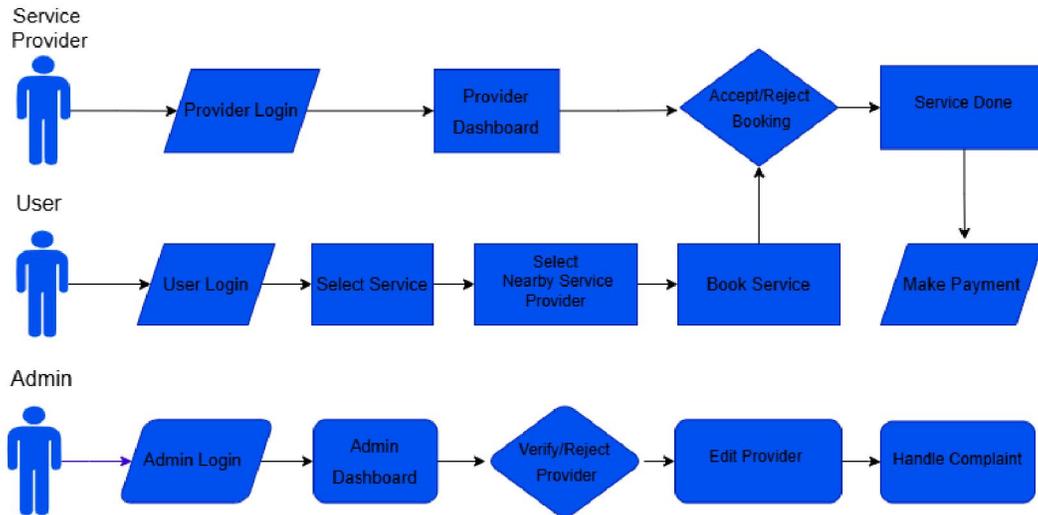

Fig. 1. System Diagram

The system diagram illustrates the interaction between the main components of the HALO platform, including users, service providers, and administrators. Users access the platform to search for services and book nearby professionals based on their location. Service providers receive booking requests through their dashboard and perform the required services. Administrators manage the overall platform by verifying service providers, monitoring activities, and resolving user complaints. This workflow ensures effective communication between different components of the system and helps maintain the reliability of the platform.

V. ADVANTAGES OF THE PROPOSED SYSTEM

The HALO platform offers several advantages compared to traditional methods of finding home service providers. One of the major benefits of the system is the use of geolocation technology, which allows users to quickly identify nearby service providers. This reduces the time required to search for professionals and enables faster service availability.

Another advantage of the system is the structured booking process. Users can easily browse different service categories, select a suitable provider, and confirm their booking through a simple digital interface. This eliminates the difficulty of manually searching for workers or negotiating service availability.

The platform also supports secure digital payment methods, which ensure safe and transparent transactions between users and service providers. Additionally, the presence of an administrative monitoring system helps verify providers, manage user activities, and maintain service quality. These features make the HALO system a reliable and efficient solution for managing household services.

VI. FUTURE SCOPE

The HALO system can be further enhanced by integrating additional features and technologies in the future. One possible improvement is the development of a dedicated mobile application that would provide faster access and improved user experience for both customers and service providers.

Another enhancement could be the implementation of an intelligent recommendation system that suggests suitable service providers based on user preferences and previous bookings. This would help users find services more efficiently.

The platform can also incorporate real-time service tracking, allowing users to monitor the progress of their service requests. Furthermore, additional features such as customer support chat systems and advanced rating mechanisms could be integrated to improve overall platform reliability and user satisfaction.

VII. RESULTS AND DISCUSSION

The HALO system was tested under different scenarios to evaluate its performance and usability. The results show that users were able to quickly find nearby service providers within a short time. The geolocation feature significantly reduced the effort required to search for services manually.

The booking system was found to be efficient, allowing users to easily select services and confirm requests. Service providers were able to receive and respond to booking requests in real time.

The admin module successfully managed user data, verified providers, and monitored system activities, ensuring platform reliability. Overall, the system improved service accessibility, reduced delays, and enhanced user satisfaction.

VIII. CONCLUSION

The HALO platform provides an efficient solution for connecting users with local service providers through a digital interface. By integrating geolocation technology, structured booking systems, and secure payment mechanisms, the system improves accessibility and convenience for household service management. The platform reduces the time required to locate reliable professionals while promoting transparency between customers and service providers. Overall, the HALO platform simplifies service management, enhances user experience, and contributes to the growth of local service providers by increasing their accessibility and visibility.

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531

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