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Household Services Provider System

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Abstract- In present scenario, people are buried up in a heavy work culture, as everyone is engaged with busy schedules, and hectic tasks which make them deviate from family life. If any issues encounter unexpectedly, it distracts them and makes them choose over the work they have to accomplish primarily. Dealing with household services like plumbing, carpentry, electricity, etc. is major problem in the urban areas where people are busy in their daily activities. It is also difficult because of non-availability of service-providers around a certain region/ area or locality. So, in such a situation developing a web app is very useful which can provide all the basic household services at fingertip. Giving a thought to that aspect of life is to design and develop a system that provides many services at your doorstep in just one click. A system that provides variety of services like plumbing, electrician, IT repair and many more. The web home service project consists of many categories and services as mentioned before. Users who are in need of services can register with this website and look for service providers. There are two users in our system, first is home service providers and therefore the other may be a user. home service providers have a crucial role within the project he/she can register with this website by mentioning their role. By this users can easily avail the needed home services with none difficulty and delay. When someone requires assistance for domestic tasks, the problem occurs due to inaccessibility of service skilled or a trustworthy provider who provides faultless service on request. Our on demand home service system affords the foremost convenient unrestricted approach to urge your household work finished. This technique helps in providing finest results to all or any domestic troubles with high efficacy and ease. The system helps in connecting the skilful in-house experts and gets service done on quickly. On demand home service system aids not only the users but also the service providers to succeed in out the potential customers.

Keywords- home services, web app, service providers, urban areas, busy schedules, household services, plumbing, carpentry, electricity, IT repair, doorstep service, one-click service, user registration, service categories, service accessibility..

I. INTRODUCTION

In today's fast-paced urban environment, individuals struggle to balance demanding work schedules with household responsibilities[1]. When unexpected domestic issues arise, they create significant disruptions, forcing difficult choices between professional obligations and home maintenance. Tasks requiring specialized skills like plumbing, electrical work, carpentry, and IT repairs present particular challenges due to the difficulty of locating reliable service providers within one's locality.

This proposed web application addresses these challenges by creating a digital platform connecting urban households with verified service professionals. The system features dual registration capabilities—one for service providers who can list their specialized skills and availability, and another for customers seeking specific household services. By implementing a streamlined[2], one-click booking process, the application enables users to quickly secure necessary home services with- out the traditional inconvenience of searching for and vetting providers.

The platform benefits both consumers, who gain immediate access to trustworthy household services, and skilled professionals, who can expand their customer base by reaching potential clients more efficiently. This digital solution effectively responds to the modern urban lifestyle by delivering convenient, reliable, and prompt home services directly to the user's doorstep.

II. RELATED WORK

Research by Habib Ullah and Sana Yasin found that house- hold consumers' general attitudes towards the environment have no relationship[3] with their intention to buy energy- efficient appliances, with education level showing similar lack of correlation. However, specific knowledge of energy issues, consumption problems, and ecological concerns demonstrated positive association with energy-efficient purchase behavior. Ek and Soderholm Patrik (2010) investigated the relationship between household energy-saving behavior and household intentions, targeting 1200 Swedish homes. Their research showed that costs of energy-efficient appliances, environmen- tal attitudes of residents, and social interactions strongly im- pact household behavior towards energy efficiency. Bradford and Mills (2009) conducted a study in Germany examining the relationship between energy labeling and home appliances, concluding that attitude is the most significant predictor of household consumers' intentions to buy energy-saving ap-pliances. Speed et al. (2013) focused on energy-efficient household appliances in China, revealing that residents had very little knowledge of energy-saving behavior and were largely unaware of government incentive policies. Mills et al. (2013) expanded this research with a larger dataset of

5000 households from European Union countries, noting that consumers prefer functionality over aesthetic appearance and price, with particular concern for environmental impact.

Bo Zhang, Meizi Li, Jianguo Pan, and Ruihan Yong studied e-commerce in online social networks (ECOS), identifying that this trading method relies on social relationships among users and faces potential security risks from dishonest dealers. They proposed trust models as effective security mechanisms, typically based on historical transactions with an integrated- valued degree called "reputation." Their research indicated that centralized reputation systems are inefficient for ECOS due to the absence of centralized authority, substantial network overloads, and flooding costs. The researchers distinguished[4] between trust relationship (comprising direct and indirect trust) and reputation, highlighting the EigenRep model that calculates trust degree through iterations between neighbor nodes, though noting its high time complexity and lower risk resistance. The weighted average of ratings method emerged as a commonly utilized trust computation scheme in their findings.

Shahrzad Shahriari, Mohammadreza Shahriari, and Saeid gheiji defined e-commerce as trading in products or services using computer networks, primarily the Internet, encompassing technologies like mobile commerce, electronic funds trans- fer, supply chain management, and Internet marketing. They reported that in 2010, the United Kingdom had the largest e-commerce market worldwide when measured by amount spent per capita, while the Czech Republic led European countries with e-commerce contributing 24% to enterprises' total revenue. Their research tracked China's expanding e- commerce presence, with online shopping sales reaching $36.6 billion in 2009 and Alibaba capturing 80% market share by 2013. They also noted Brazil's rapid e-commerce growth with retail sales projected to reach $17.3 billion by 2016, while

identifying slower progress in India despite its vast potential with 1.2 billion consumers.

N. M. Indravasan, Adarsh G., Shruthi C., and Shanthi K. Dadapeer developed an online system for household services, creating a marketplace with standardized rates for services including painting, pest control, home cleaning, plumbing[5], electrical works, and carpentry. Their system features both web-based and mobile applications with authenticated login for service seekers and providers, secure online payment gateway, and confirmation emails for selected services. The researchers specifically designed this system to address the needs of busy professionals struggling to manage work and home maintenance responsibilities, with potential for exten- sion through additional services and payment systems.

Elizabeth Daniel and Hugh Wilson studied household sur- veys, identifying their value in providing considerable discre- tion to interviewers but noting drawbacks including response error and nonresponse problems. Their research revealed that wealth distribution is often skewed in these surveys with the very rich underrepresented in random samples, and while stratified samples can be used, they demonstrate higher re- sponse error among the wealthy. The researchers recognized household surveys as important sources for income analysis and information on the informal sector, particularly noting their application in rural Africa where they demonstrated fuelwood remains the predominant household energy source, though energy use patterns prove difficult to predict due to various local factors.

Naresh Thoutam, Hrutik Jaware, Kunal Zambare, Dhiraj Shelke, and Swapnil Deshmukh created a two-module app with "Shop Services" for daily needs and "Door Services" for home maintenance. Their application provides local retailers an online platform while enabling social distancing during the COVID-19 pandemic by allowing users to check product availability in nearby shops, verify service providers through reviews, and track monthly service expenditures. The system features easy modification capabilities for future enhancements and addresses both consumer convenience and business sustainability during challenging circumstances.

Prakash Yadao Khillare and Madhulika Ajay Sonawane conducted a descriptive study on women domestic workers in Malkapur, Maharashtra using surveys and interviews with 50 respondents. Their findings revealed significant challenges in balancing work and family responsibilities, with time spent on employment reducing family focus and creating relation- ship tensions. Their research identified how low wages in the unorganized sector fail to meet financial needs despite being the primary motivation for seeking work, while various health issues affect workers' mental and physical well-being. The researchers noted that despite cultural changes, women continue bearing household responsibilities alongside external employment, creating dual burdens.

Nikam Poonam R., Gunjal Trupti T., Jadhav Priti V., Parakhe Sonali K., and Prachi S. Tambe developed an online platform connecting home service providers and receivers for appliance maintenance and repair. Their system delivers services including plumbing, moving and packing, and repairs with a single click[6], featuring a feedback-based rating system to improve quality and real-time technician tracking via geo- location. The platform standardizes service rates, eliminating haggling while providing authenticated login, interactive user interfaces, and secure payment options, with potential future expansions to include mobile/computer repair, laundry, and catering services. Their research emphasizes the value of con- necting skilled professionals with consumers seeking house- hold services in an efficient, technology-driven marketplace.

III. EXISTING SYSTEM

The Existing system provides registration for users to login as customers and order services based on their requirements. It provides services like plumbing[7], electric based services, painting, mechanic services etc.. After ordering their services the customers are able to see their order or service status. It also consists of admin panel where the

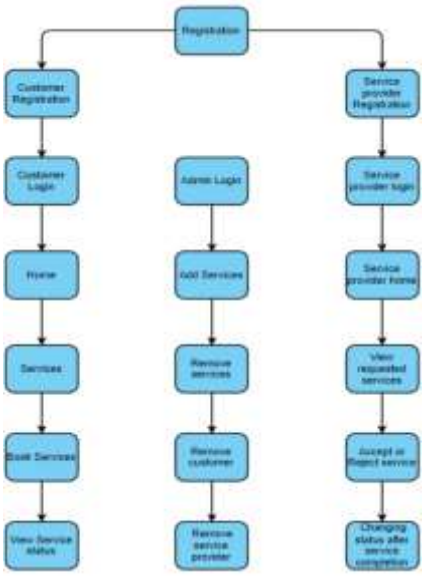
customer[8] details are managed by the admin. It provides a list a service providers based on their preferred services. The customers can choose service providers from the given list who are near to their location and book their service. The household service provider[9] system acts as an intermediary[10,11,12] between the customer and the service provider. The Existing system[13,14] also provides authorization of customers when they login using the username and password. It consists of home module which displays their images of on-field ser- vices[15,16] and a about page which provides details about their owners and a description about them. It also provides the motto of their company.

IV. PROPOSED SYSTEM

Our proposed system provides registration for users as two types, 1. Customer registration and 2. Service Provider registration[17,18]. In customer type registration, the user has to register as customer by providing[19,20] their first name, last name, password and other credentials. In service provider registration, the user has to register as service provider[21] by providing their first name, last name, password and other credentials[22] like service license ID and the category of service. The data of customers and service providers are stored in the database for authorization purpose. It also consists of lo- gin module which enables authorization for admin, customers and service providers [23]. Each of them has to provide their username, password to access the features of the application. Each type of users have different and unique User Interfaces (UI). The proposed system also consists of home module which displays on-field service images and what services we provide. Our proposed system also has services module where users can book their service based on the requirement. It provides services like plumbing, carpentry, mechanic etc. We have also introduced IT repair service which is not provided in the existing system. It also has an about page which has a description about the owners who own the company and their main motto. Once the customer ordered their service he/she is able to view the service or order status. The service provider has the access to accept or reject the service requested by the customer. In the proposed system, the service provider is able to change the status of the service once completed he doesn't have to inform the admin to change the status instead he can login using his username and password and change the status of the service. The proposed system has an admin module once the admin login using username and password he is redirected to the admin page which consists of remove service providers and customers, add and remove new services. If the admin wants to add a new service he can get into the add category module. If admin wants to remove any existing services he can get into the remove category module. If customers and service providers are no longer active the admin has the access to remove customers and service providers [24].

Requirement Analysis

The software requirement engineering determines the func- tional or non-functional requirements for engineering software. The requirement software is the first stage of any software project development. It is the process of determining func- tions of the software systems. The process encompasses all activities concerned with the requirement eliciting, analyzing, documenting, validating and managing software or systems. In requirement engineering the real world goals are explored and established for the software system that is being developed.



The architecture diagram is shown in Fig 3.1 [25].

The first stage of requirements cannot be perceived at a given point of time. The reason is that they evolve with time mostly they are observed after the system deployment [26].

These papers propose a model of software intelligent agent that automatically senses and gather user's new requirements and generates a report of it and finally sends it to the developer. This model of software intelligent agent gathers the requirement through various learning methods. The intel- ligent agents can either be embedded with Household services provider system. During the course of Household services provider system operation, the intelligent agents sense new requirements from user's operations and use them to evolve Household services provider system dynamically by adding functionalities that satisfies the newly captured requirements [26].

1) SYSTEM REQUIREMENT – HTML: HTML, or Hy-

perText Markup Language, allows web users to create and structure sections, paragraphs, and links using elements, tags, and attributes. The average website includes several different HTML pages. For instance, a homepage, an about page, and a contact page would all have separate HTML files. HTML documents are files that end with a .html or .htm extension. A web browser the HTML file and renders its content so that internet users can view it [26].

A tag tells the browser where an element begins and ends, whereas an attribute describes the characteristics of an element. It's also worth noting that HTML is now considered an official web standard. The world wide consortium (w3c) maintains and develops HTML specifications, along with providing regular updates. Over the basics of HTML, including how it works, its pros and cons, and how it relates to CSS and JavaScript [27].

2) CSS: CSS (Cascading Style Sheets) allows you to create great-looking web pages how does it work under the hood? This article explains what CSS is with a simple example and also covers some key terms about the language. CSS properties have different allowable values, depending on which property is being specified. In our example, we have the color property, can take various color values. We also have the font-size property. CSS can be used for very basic document text styling for example, for changing the color and size of headings and links. It can be used to create a layout for example, turning a single column of text into a layout with a main content area and a sidebar for related information. It can even be used for effects such as animation. Have a look at the links in this paragraph for specific examples [27].

3) JAVASCRIPT: JavaScript is a scripting or programming language that allows you to implement complex features on web pages every time a web page does more than just sit there and display static information for you to look at displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc. you can bet that JavaScript is probably involved. It is the third layer of the layer cake of standard web technologies, two of which (HTML and CSS) we have covered in much more detail in other parts of the Learning Area. JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia pretty everything else. (Okay, not everything, but it is amazing what you can achieve with a few lines of JavaScript code.) What is even more exciting however is the functionality built on top of the client-side JavaScript language. So-called Application Programming Interfaces (APIs) provide you with extra superpowers to use in your JavaScript code [27].

APIs are ready-made sets of code building blocks that allow a developer to implement programs that would otherwise be hard or impossible to implement. They do the same thing for programming that ready-made furniture kits do for home building it is much easier to take ready-cut panels and screw them together to make a bookshelf than it is to work out the design yourself, go and find the correct wood, cut all the panels to the right size and shape, find the correct-sized screws, and then put them together to make a Bookshelf [28].

Here we'll actually start looking at some code, and while doing so, explore what actually happens when you run some JavaScript in your page. Let's briefly recap the story of what happens when you load a web page in a browser. When you load a

web page in your browser, you are running your code (the HTML, CSS and JavaScript) inside an execution environment (the browser tab). This is like a factory that takes in raw materials (the code) and outputs a product (the web page) [28].

4) BOOTSTRAP: Bootstrap is the most popular HTML, CSS and JavaScript framework for developing a responsive and mobile friendly website. It is absolutely free to download and use. It is a front-end framework used for easier and faster web development. It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many others. It can also use JavaScript plug-ins. It facilitates you to create responsive designs. Bootstrap was developed by Mark Otto and Jacob Thornton at Twitter. It was released as an open source product in August 2011 on GitHub. In June 2014 Bootstrap was the No.1 project on GitHub. Following are the main advantage of Bootstrap: It is very easy to use. Anybody having basic knowledge of HTML and CSS can use Bootstrap. It facilitates users to develop a responsive website. It is compatible on most of browsers like Chrome, Firefox, Internet Explorer, Safari and Opera etc. Bootstrap provides a basic structure with Grid System, link styles, and background. Bootstrap comes with the feature of global CSS settings, fundamental HTML elements style and an advanced grid system. Bootstrap contains a lot of reusable components built to provide iconography, dropdowns, navigation, alerts, pop-overs, and much more [28].

Bootstrap also contains a lot of custom jQuery plugins. You can easily include them all, or one by one. Bootstrap components are customizable and you can customize Boot- strap's components, LESS variables, and jQuery plugins to get your own style. Bootstrap is the newest and latest version of Bootstrap. It is the most popular HTML, CSS, JavaScript framework for developing responsive, mobile first websites. Bootstrap 4 has some new components, faster stylesheet, more buttons, effects and more responsiveness. Bootstrap 4 supports some the latest, stable releases of all major browsers and platforms. Bootstrap is more than efficient to create a responsive and mobile first website but it is not the best in the industry. There is an alternative of Bootstrap named W3.CSS which is smaller, faster, and easier to use. Internet Explorer 9 and down is not supported by Bootstrap 4. Although Internet Explorer 8-9 supported Bootstrap 3. So, if you have Internet Explorer 8-9, you should use Bootstrap 3. Bootstrap 3 is the most stable version of Bootstrap, and it is still supported by the team for critical bug fixes and documentation changes [28].

5) PYTHON: In technical terms, Python is an object- oriented, high-level programming language with integrated dynamic semantics primarily for web and app development. It is extremely attractive in the field of Rapid Application Development because it offers dynamic typing and dynamic binding options. Python is relatively simple, so it's easy to learn since it requires a unique syntax that focuses on readability. Developers can read and translate Python code much easier than other languages. In turn, this reduces the cost of program maintenance and development because it allows teams to work collaboratively without significant language and experience barriers [29].

Additionally, Python supports the use of modules and pack- ages, which means that programs can be designed in a modular style and code can be reused across a variety of projects. Once you've developed a module or package you need, it can be scaled for use in other projects, and it's easy to import or export these modules. One of the most promising benefits of Python is that both the standard library and the interpreter are available free of charge, in both binary and source form. There is no exclusivity either, as Python and all the necessary tools are available on all major platforms. Therefore, it is an enticing option for developers who don't want to worry about paying high development costs [29].

Python is a general-purpose programming language, which is another way to say that it can be used for nearly everything. Most importantly, it is an interpreted language, which means that the written code is not actually translated to a computer- readable format at runtime. Whereas, most programming lan- guages do this conversion before the program is even run. This type of language is also referred to as a "scripting language" because it was initially meant to be used

for trivial projects. The concept of a ”scripting language” has changed considerably since its inception, because Python is now used to write large, commercial style applications, instead of just banal ones. This reliance on Python has grown even more so as the internet gained popularity. A large majority of web applications and platforms rely on Python, including Google’s search engine, YouTube, and the web-oriented transaction system of the New York Stock Exchange (NYSE). In short, it is used behind the scenes to process a lot of elements you might need or encounter on your devices [29].

6) DJANGO: In this first Django article, we answer the question ”What is Django?” and give you an overview of what makes this web framework special. We’ll outline the main features, including some of the advanced functionality that we won’t have time to cover in detail in this module. We’ll also show you some of the main building blocks of a Django application (although at this point you won’t yet have a development environment in which to test it). Django is a high- level Python web framework that enables rapid development of secure and maintainable websites. Built by experienced developers, Django takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It is free and open source, has a thriving and active community, great documentation, and many options for free and paid-for support. Django helps you write software that is: Complete Django follows the ”Batteries included” philosophy and provides almost every- thing developers might want to do ”out of the box”. Because everything you need is part of the one ”product”, it all works seamlessly together, follows consistent design principles, and has extensive. Versatile Django can be (and has been) used to build almost any type of website — from content management systems and wikis, through to social networks and news sites. It can work with any client-side framework, and can deliver content in almost any format (including HTML, RSS feeds, JSON, and XML). Internally, while it provides choices for almost any functionality you might want (e.g. several popular databases, templating engines, etc.), it can also be extended to use other components if needed [30].

Django helps developers avoid many common security mistakes by providing a framework that has been engineered to ”do the right things” to protect the website automatically. For example, Django provides a secure way to manage user accounts and passwords, avoiding common mistakes like putting session information in cookies where it is vulnerable or directly storing passwords rather than a password hash [31].

7) XAMPP SERVER: XAMPP is one of the widely used cross-platform web servers, which helps developers to create and test their programs on a local webserver. It was developed by the Apache Friends, and its native source code can be revised or modified by the audience. It consists of Apache HTTP Server, MariaDB, and interpreter for the different programming languages like PHP and Perl. It is available in 11 languages and supported by different platforms such as the IA-32 package of Windows & x64 package of macOS and Linux. It is an open-source package of web solutions that includes Apache distribution for many servers and command- line executables along with modules such as Apache server, MariaDB, PHP, and Perl. XAMPP helps a local host or server to test its website and clients via computers and laptops before releasing it to the main server. It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, Perl, MySQL database, and PHP through the system of the host itself. Among these technologies, Perl is a programming language used for web development, PHP is a backend scripting language, and MariaDB is the most vividly used database developed by MySQL [31].

The detailed description of these components is given below. As defined earlier, XAMPP is used to symbolize the classi- fication of solutions for different technologies. It provides a base for testing of projects based on different technologies through a personal server. XAMPP is an abbreviated form of each alphabet representing each of its major components. This collection of software contains a web server named Apache, a database management system named MariaDB and scripting/programming languages such as PHP and Perl. X denotes Cross-platform, which means that it

can work on different platforms such as Windows, Linux, and macOS.

Originally, MySQL DBMS was a part of XAMPP, but now it has been replaced by MariaDB. It is one of the most widely used relational DBMS, developed by MySQL. It offers online services of data storage, manipulation, retrieval, arrangement, and deletion [32].

MYSQL: A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or a place to hold the vast amounts of information in a corporate network. In particular, a relational database is a digital store collecting data and organizing it according to the relational model. In this model, tables consist of rows and columns, and relationships between data elements all follow a strict logical structure. An RDBMS is simply the set of software tools used to actually implement, manage, and query such a database [33].

MySQL is integral to many of the most popular software stacks for building and maintaining everything from customer- facing web applications to powerful, data-driven B2B services. Its open-source nature, stability, and rich feature set, paired with ongoing development and support from Oracle[34], have meant that internet-critical organizations such as Facebook, Flickr, Twitter, Wikipedia, and YouTube all employ MySQL backends. Though often associated with internet applications or web services, MySQL was designed to be extensively com- patible with other technologies and architectures. The RDBMS runs on all major computing platforms, including Unix-based operating systems, such as the myriad Linux distributions or Mac OS, and Windows. MySQL's client-server architecture means it can support a variety of backends, as well as different programming interfaces. Data can be directly migrated from MySQL to its forks (e.g. MariaDB), as well as most other RDBMSs thanks to architectural and language similarities. Established Oracle and third-party migration tools further allow MySQL to move data to and from a vast set of general storage systems, whether. The primary factor differentiating relational databases from other digital storage lies in how data is organized at a high level. Databases like MySQL contain records in multiple, separate, and highly codified tables, as opposed to a single all-encompassing repository, or collections of semi- or unstructured documents. Relational models have remained popular for several reasons. MySQL was originally envisioned to manage massive databases, faster than existing database software. Used in demanding operational, transac- tional, and production environments for decades, MySQL evolved alongside the move of computation and storage into the cloud. Though typically installed on individual machines, MySQL now includes deep support for distributed applications and inclusion in most cloud data platforms [33].

Relative to many data storage and processing solutions on the market today, MySQL is an older technology, but it shows no signs of flagging in either popularity or utility. In fact, MySQL has enjoyed a recent resurgence over even more specialized modern storage systems, due to its speed, reliability, ease of use, and wide compatibility. MySQL is a popular, time-tested, but also modern and fully-featured rela- tional database management software. Businesses everywhere use it for mission-critical enterprise data storage, processing, as a backend to major customer-facing applications, and as part of powerful, established web software stacks. Whether your business already uses MySQL or is planning new systems or migrations to this RDBMS, the importance of data integration cannot be overstated. Talend provides a comprehensive suite of apps for managing data ecosystems from end to end [35].

V. CONCLUSION

The Household Services Provider System can be enhanced by including additional features such as payment integration, feedback mechanisms, the ability to upload photos of prob- lems, and geolocation functions. Each of these features would enable users to engage more comprehensively with the system.

While the project is complete in its current form, there is always room for improvement. Adding provisions for ob- taining information through the internet would be beneficial. Furthermore, a mobile application could be implemented to increase accessibility.

Users could also be given the ability to post articles about service providers or share their experiences with specific ser- vices. The system already provides backup functionality as re- quired. All functionalities were implemented after thoroughly understanding the system modules according to requirements.

The successfully implemented functionalities include:

- User registration with all necessary field validations
- Login capabilities
- User authentication
- Logout functionality
- Customer ability to view all Service Provider details
- Customer ability to request services
- Service Provider options to accept, reject, or fulfill cus- tomer requests
- Admin capabilities to view or delete Service Providers and Customers

After implementation and coding, comprehensive testing was performed to identify errors and potential flaws. The function- ality model of "Daily Household Service" has been success- fully implemented. The current goal is to make this product ready for use in limited locations.

Currently, the project supports only an online web platform. It does not yet include location-based services (like Google Maps integration) or allow users and Service Providers to upload profile photos or shop images. Future enhancements could include in-browser testing capabilities, GitHub inte- gration, and machine learning recommendation models to suggest services based on past requests. The project could be extended to support cross- platform services on iOS and Android. Implementation of OTP or email-based registration could also be considered for future development.

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