# Android based System for Domestic Services

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***Abstract —*** *Handyman services are in the constant need around the world. Domestic service industries have seen quick growth by enabling customers to get access to their services through web based interfaces. A large number of inventive systems have been designed to embrace consumer demands and establish a marketplace. These services provide service professionals an opportunity to connect to the customers at their homes and a way to earn additional income streams. This fine grained perspective for service reporting and recognition increases a user's productivity to perform service searches. This new option allows people to shoulder projects on their own, assuming that, if they were to encounter any issues, they can contact a service professional in real-time from another location to assist them in fixing the issue. Service providers and their area of expertise is disclosed in the system enabling potential clients to verify if relevant, local handymen are available to fix any issues.Deploying web applications in the cloud reduces operational cost and infrastructure overhead and thereby helps to focus on application development.It also enables resources to scale up to meet the increasing demand and helps the application to autoscale thus help in maintaining steady and predictable performance at a lower cost.*

***Keywords —*** *Handyman services,Web based interface, Service professionals, cloud deployment, auto scale.*

## I. INTRODUCTION

Maintaining the home clean and tidy at little convenience is always desired by the people. But due to busy schedules people hardly find any time to maintain their homes. And therefore they opt for professionals who can handle the repair and maintenance with great care.A handyman or handywoman is skilled person who is capable of working on a wide range of repairs or any home improvement jobs. . Some of them are self-trained, while others receive formal training in various areas of home repair and construction jobs. A handyman might be specialized in a few types of home maintenance works, such as painting, carpentry, while others may have additional skills such as plumbing or electrical repair.Many options are available to find and book a service handyman from finding one on the streets to using technology for an effortless and time saving way of booking a handyman from professionally managed handyman companies. For most of the homeowners, their home is entitled to be the most important physical property and a big lifetime investment. It is also the space where they spend most of their time engaging in a broad range of activities. Thus, domestic maintenance is and always will be a huge market for many household services and products. Many surveys suggest that several factors benefitting to the ever growing requirement for domestic services as second homes, income/rental properties and maintenance of commercial assets. Moreover most of the countries have experienced a reduction in domestic service prices due to tremendous growth in technology enabling them to find a better option online.[1] Every home has a history of recurring repair works. An efficient handymen service can help the customers eradicate the domestic issues. A proper team of diligent handymen with their latest tools and expertise can help to keep those repair issues fromsprouting up in times to come.

Locating domestic service professionals becomes tiresomespecially when one relocates to a new place since these service providers are available across different areas and charge differently along with a varying range quality and services. When in case of alarming situations like car breakdown or an electric fault it becomes difficult to get in touch with a service professional immediately. Another challenge encountered by the customers is ensuring the quality of services provided by these handymen beforehand.

Also when the customers are in need to get smaller repair works done, they have to rely on locally available service professionals or ask a friend or a neighbour to contact handyman offering the best quote.Typically, an informal hiring is done based on recommendations and without any documentation.

But in this modern era when customers are in need to hire handyman service providers ,they can rely on online providers and avoid hassles of searching and calling them randomly and the scope for online domestic services is skyrocketing.[1]Leveraging the might of technology, home services as a sector has been seeing considerable interest as it looks to link local services to consumers. Whether it is dispatching handymen to repair faulty appliances, getting clothes washed, or getting ironed and delivered to customers at

their doorstep, startups are attempting to organize this highly fragmented sector to deliver these services with at the most ease at the click of a single button from any place

Now that there is a fully digitized services market with people clamoring for the chance to come and help the customers out whenever they have any issues pertaining to their household maintenance. Also in a fully digitized services, verification of the professionals has become mandatory to ensure the quality of the handymen.The development in the recent technologies simply allow the people and service providers to connect seamlessly, thereby easing their efforts. [2]

There are scores of websites that offer handymen repairs to deal with any defects related to their workman ship without any additional costs.Many start-ups offering the domestic services online are becoming more popular day by day. They provide an aggregation of home cleaning and maintenance services to the customers. They deliver skilled, qualified and background checked professionals to the doorstep from anywhere and anytime. Through certifications professionals enrolled in the digitized services enjoy an upward mobility in their careers that they did not have previously. They are also offered better pay, perks like insurance benefits, flexible work hours.

## II. SYSTEM DESIGN

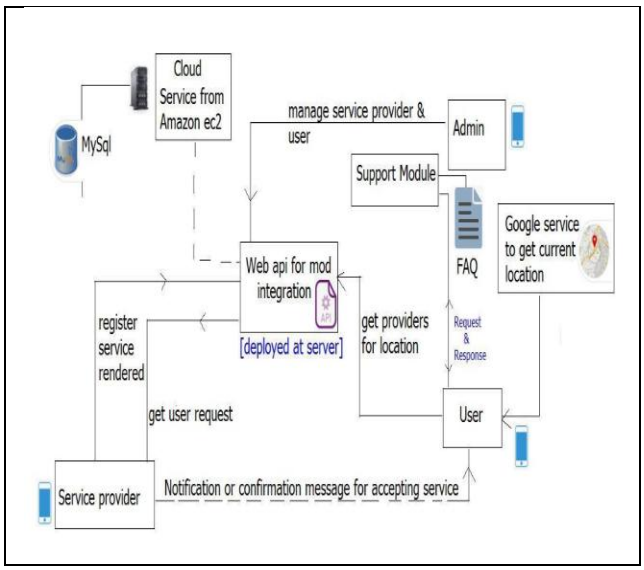


*Fig 1.System design*

The three main actors involved in the system are Admin, Service Provider and the customer. The Admin is responsible for monitoring the activities of the customers and the service providers and has to generate the overall report of the activities. The admin also fixes the base price of all the services available.Service provider can get registered to the application by providing his details and his area of expertise.The customer can registered to the application and search for the services needed.A list of service providers of that particular service is displayed and the customer can book the service professional based on the ratings.Once the booking is done,the service professional will be notified and he can either accept or reject the service.

The application is deployed in Amazon EC2 instances to increase the scalability and reliability.

**FEATURES**

- **Time Scheduling** - The customer can book the service at his convenient time.
- **Reviews** - On the completion of the service,the customer can rate the professional based on the quality of the service given by the service provider.
- **Image upload**- The customer has the provision to provide problem description and can upload the images of the damaged product so that the service providers can know the problem beforehand.

**MODULES**

- **Amazon EC2 instances**-An amazon EC2 instance is a virtual server in Amazon's Elastic Compute Cloud (EC2) which can be used to run applications on the Amazon Web Services (AWS) infrastructure. Amazon web service (AWS) is a modern and comprehensive,evolving public cloud computing platform.EC2 is a service that allows business subscribers to run application programs in the computing environment. The EC2 can act as a large number of virtual machines. The application is deployed in Amazon EC2 instances for easy accessibility.[4]
- **Google Maps API** – It is a Web based service which provides information about the geographical areas and sites around the world.It provides an API that allows maps to be integrated with third-party websites, and it provides a locator for manyurban businesses and other organizations in various countries around the world. The API is free for commercial use, if the site on which it is used is publicly accessible. Sites not fulfilling these demands can purchase the Google Maps API for Businessapplications.It is used to track the location of the customers as well as the service

providers and also to provide the live updates of the status of the professionals.

- **Chat Bot** – It is a computer program which simulates human conversation.It processes the text given by the user and runs algorithm to determine what the user has said to produce series of responds. Generic and frequently asked questions is fed into the chat script to produce the appropriate response.[6]

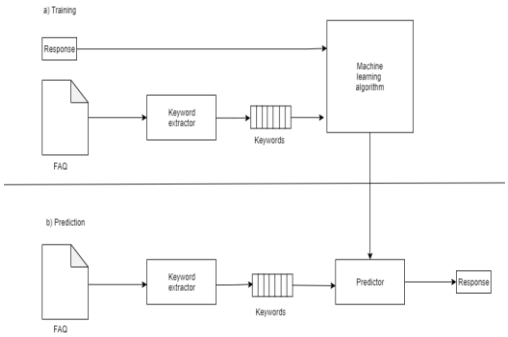


*Fig 2. Chatbot*

- **Customer Module** –Customer module shows the activities of the user. The user or the customer has to get registered in the web application using his credentials. Using the same credentials, he has to login to book the service of his desire for which he has to choose a service provider. After booking the service, the user will get notifications for the service acceptance or denial. If the service is accepted then the user will be able to track and locate the service provider. After the service is completed, the user can rate the serviceman which will get updated. The user can log out from his account after the above activities are completed.

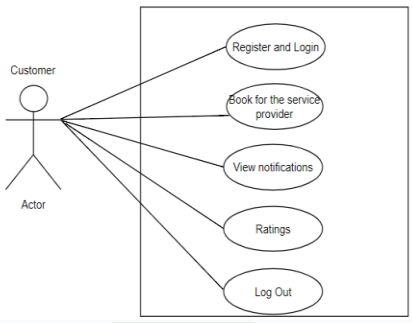


*Fig 3. Customer Module*

- **Admin Module** –This module will have the activities that are shown in the Fig 4. The Admin also has to register and login to perform some functions. Admin can manage both users and the service providers. He can enable or disable the service providers if any unusual activities are found. He can view ratings in the dashboard and he keeps track of all the activities.

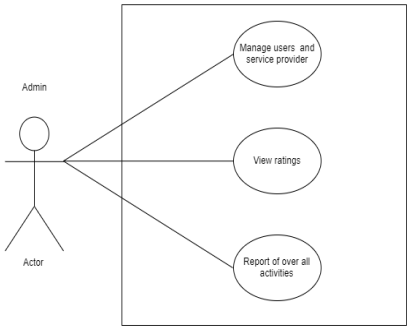


*Fig 4. Admin Module*

- **Service Provider Module** –Service provider is the service man who comes to the customer's doorstep. He also has to register and login to accept the services which are booked by the users. The service provider will send a notification to the user confirming or denying the service. He can then log out from his account.

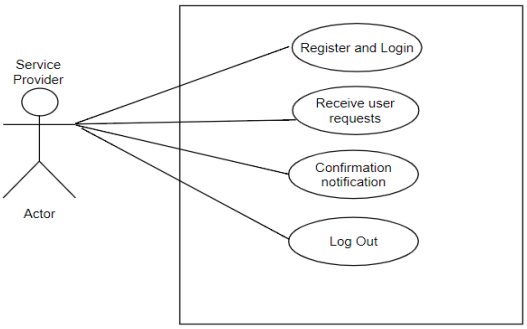


*Fig 5. Service Provider Module*

## III. FEASIBILITY STUDY

The term "Feasibility study" means the analysis and the process of evaluating the proposed system for the determination of workability of the proposed idea, ability to meet the wants of the users/consumers, impact to the organization.It examines the five frames of analysis of the proposed project.

It includes the following types of feasibility studies:

- **Economic Feasibility**

The proposed system is economically feasible, because
1. The cost for installing the system is low.
2. Hardware requirements for the system is minimal thus making it affordable[3]

- **Technical Feasibility**

1.The Hardware and software tools which are required are easily available.
2.The project can be implemented with the existing technical resources.

- **Operational Feasibility**

1. The system is has a user friendly GUI (Graphical User Interface)
2. Administrator can do the Information updation easily.

- **Behavioural Feasibility**

An estimation is done on how strong the user staff reaction is likely to have impact towards the development of the proposed system.
1. User friendly.
2. Reduction of workload and time saving

- **Schedule feasibility:**

The time schedule which is required for the development of the project is crucial since more development time effects machine time, costs and delay time in the development of other systems.[7]

## IV. APPLICATIONS

The application offers a one stop solution to various domestic needs. The system provides well organizedstructure for locating service professionals within a locality. Handyman services encompass just about any work the customers may need done around a residential or commercial building. This includes performing various kitchen repairs, fixing gutters, installing electrical work and tackling many other projects that might appear on a honey-do list. The system provides safety, security and reliability around the unreliable home repair service industry.[9]

The application does not only set a new benchmark for service delivery, but also for pricing. To prevent irregular pricing, the system has regulated pricing by setting per-hour rates. It is neither cheap nor pricey and it's somewhere in the middle based on the locality and also on the quality ofthe work done.[8] The system serves to meet the growing requirement for on-demand domestic handyman services by easing and fastening the process of acquiring handymen services.

## V. FUTURE FORECAST

Below is the trend for searches on Google Trends for plumbers, carpenters and electricians:

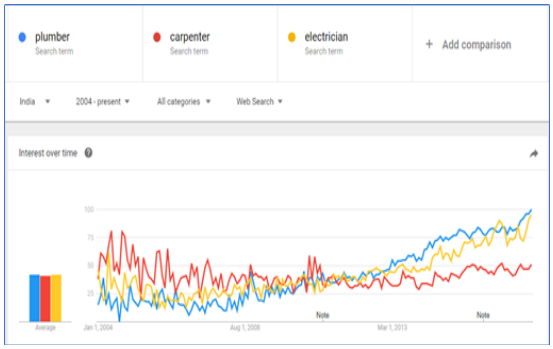


*Fig 6. Trend for online domestic service search*

The scope for online home maintenance services and repairs is still largely unexplored even though the demand is sky rocketing. Over the past 5 years the industry has grown by 6.2% to reach revenue of $4bn in 2018.The number of startups have grown by 2%. [13]

## VI. CONCLUSION

This survey paper established the factors that led to the development of the handyman services and other services which help us in our busy and hectic lifestyle of this generation.[10] Few technologies are currently being used to locate the services within a particular area. The data collected shows that the people were in need of new system that would overcome the disadvantages of the existing systems.

The users wanted a system that will provide them with handymen details located in their area or near their area which is not there in existing systems. The research discovered that the current systems lack in providing trust in the quality of the service that is being provided by handymen as desired by the clients. This helped in developing an application with both web and mobile interface to overcome the above disadvantage.[11]

The system serves to build trust with the clients in providing quality of service with the help of rating feature and work history information of the servicemen. It is an interactive, easy to use system and suitable for on demand services which is a distinguishing factor from other systems. It provides users with details of servicemen in consideration to the nearest location, best price offered and highestrating score making it more efficient as compared to the current systems.[14] The new system is of great importance to the informal sector as it involves the process of acquiring these servicemen with the current rise and demand of them in this sector.

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