Web 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.**

Index Terms—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. 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 from sprouting up in times to come.

Locating domestic service professionals becomes tiresome specially 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. 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.

There are scores of websites that offer handymen repairs to deal with any defects related to their workman ship without any additional costs. Many startups 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 ANALYTICS

Location based domestic services is the use of technology which enables users to gather location sensitive information so that users can act accordingly. Mobile location based services rely on the geographic location of a personal mobile device or a navigational device and make use of inbuilt satellite navigation receivers or some network-based technologies such as triangulation from the location of the base station transmission cells to to recognize the position of the mobile device. User's location can be established by making use of existing technologies such as the Bluetooth, Radio Frequency

identification(RFID), wireless networks ,Near Field Communication (NFC) and location-based systems using the Global Positioning Services (GPS) technologies. These sensors are increasingly used to allow the software applications to automatically keep track of what is happening in their physical environment. In the nutshell, they ease the barrier of interface between the physical world and the electronic world. The location information is then used to determine relevant information that is conveyed to the user using short messaging service (SMS), WAP (Wireless Application Protocol).

Location Based Mobile Services(LBMS) are the services which are provided through mobile applications by making use of the network connectivity and capacity to recognize the user's location to enable the service to get adapted to a geographic location. An LBMS consists of five basic modules namely: the provider's software application, a mobile network that transmits user's data and requests for the service, a content provider to provide the end user with geo-specific information, a positioning component and the end user's mobile phone. Specifically, location-based services must be permission-oriented. That suggests that the end user must request for the service to use it. The user has to install the LBMS application and accept the request to allow the service to receive the device's location . A number of technologies are being used to provide location based mobile services. They are:

Wi-Fi: Wi-Fi is a wireless networking technology that uses radio waves to enable high speed internet and network connections. WiFi is a trademarked phrase that is *IEEE 802.11x*. It is a local area wireless computer networking technology that helps in networking of electronic devices. Wi-Fi enabled devices emit regular 'probes' when trying to connect to Wi-Fi. Wi-Fi access points can be placed in a certain way inside a venue, so that the position of a given device in the space can then be calculated, using the strength of the phone's probes and timing to estimate the distance from each APC for customers.

Bluetooth: It is a specification that describes how computers, mobile phones and other devices can easily communicate with each other by making use of a short-range wireless connection. It enables to exchange data over short distances using radio transmissions. Devices can detect each other and can form a short range network and transfer information based on master-slave connection model. It has been used to obtain information in a number of location based mobile marketing applications. The recent Bluetooth versions help the user to place hands-free phone calls through a mobile

phone or connect wireless headphones to a smartphone's music playlist.

GPS: It is the abbreviation for "Global Positioning System". It is a satellite based navigation system used to determine the ground position of an object. It consists of 24 satellites which are placed into the orbit about 12,000 miles above the earth's surface. Every GPS satellite broadcasts a signal which includes the satellite's current position, exact time and orbit. A GPS receiver gathers the broadcasted messages from all the satellites and calculates its exact position using a process which is called as triangulation. A minimum of three satellites are required to determine the receiver's location, but a connection of four satellites would be ideal to provide a better accuracy estimate.
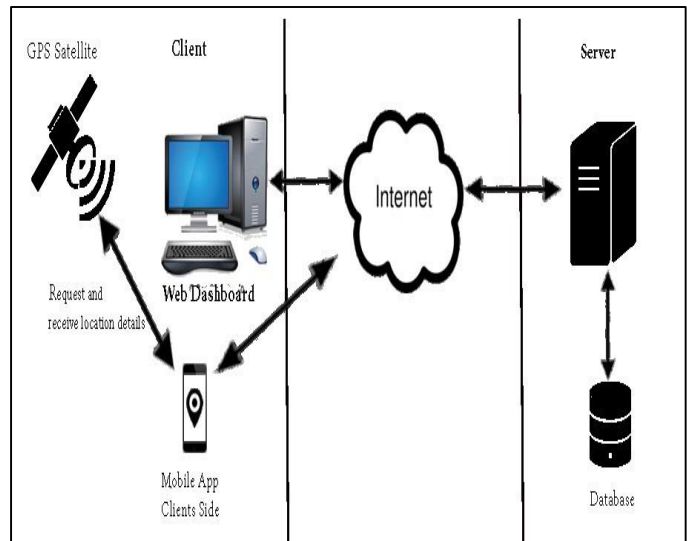
NFC: It stands for "Near Field Communication" and it enables short range communication between multiple compatible devices. It demands at least one transmitting device, and another device to receive the signal. This enables the mobile device user to communicate securely with the world at ease. NFC transforms the location-based information with their flexibility to integrate with payment cards or wristbands, and enables the mobile owners to use the device within range , it can operate without any manual intervention unlike many of the other technologies. It is also used as additional feature to the GPS enabling to offer more precise information about the position of a device or object.

Google Maps: It is a Web based service which provides information about the geographical areas and sites around the world. Google Maps also offers aerial and satellite views. In some of the cities, Google Maps also offers street views which consists of photographs taken from various vehicles. The front end makes of XML, and Ajax and JavaScript. It provides an API that allows maps to be integrated with third-party websites, and it provides a locator for many urban 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 Business applications.

Web Services: The application services is the combination of programming and data that are available from a Web server for the users and other Web-connected programs. Providers of Web services are generally known as application service provider s. Web services range from standard services such as storage management and customer relationship

management to limited services such as the furnishing of a stock quote and the checking of bids for an auction item. Web services are a set of open standards like XML, UDDI, SOAP that enable applications of multiple sources to automatically find, link and communicate with each another over the Internet, sharing data and performing jobs. Universal Description, Discovery, and Integration (UDDI) is one of the most important building blocks of Web Services. UDDI gives a standard framework for application publishing, discovery, and dynamic integration. Users can access some Web services through a peer-to-peer methods instead of by going to a central server. Some services can interact with other available services and this exchange of data and procedures is usually enabled by a software known as middleware . Services previously possible through Electronic Data Interchange (EDI) are more likely to become Web services. Web services are also rapidly enabled by the use of the Extensible Mark-up Language (XML) as a means of standardizing data formats and exchanging data. XML is the foundation for the Web Services Description Language (WSDL).

Fig 1.System design

III. APPLICATIONS

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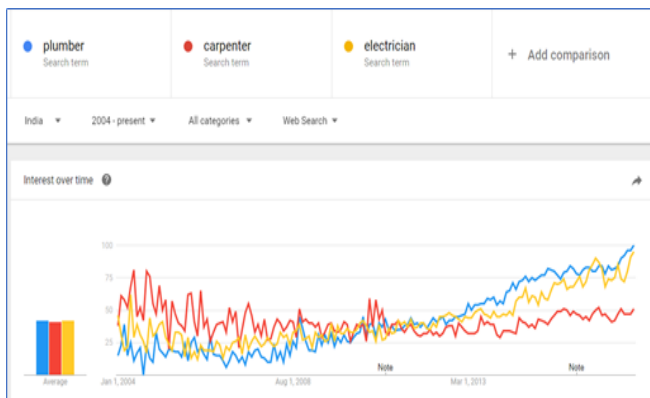
The application does not only set a new benchmark for service delivery, but also for pricing. To prevent irregular pricing, the system has regulated pricing by setting per-hour rates. It is neither cheap nor pricey and it's somewhere in the middle based on the locality and also on the quality of the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

IV FUTURE FORECAST

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%.

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

Fig 2. Trend for online domestic service search

V 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. 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.

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 highest rating score making it more efficient as compared to the current systems. 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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