Personal Home Assistance based on Content-based Recommendation Algorithm

Jhansi Ida S

Assistant Professor, Department of Computer Science & Business Systems, R.M.K. Engineering College, Gummidipoondi,

Rekha M

Assistant Professor, Department of Information Technology, R.M.K. Engineering College, Gummidipoondi, India.

Dr.K. Chidambaramthanu

Associate Professor, Department of Computer Science & Business Systems, R.M.K. Engineering College, Gummidipoondi,

Archana U

Assistant Professor, Department of Computer Science R.M.K. Engineering College, Gummidipoondi, India.

Shanmugam N

Assistant Professor, Department of Information Technology, R.M.K. Engineering College, Gummidipoondi, India.

Abstract - **The mindset of the middleclass people is to lead a comfortable life. Our project provides that comfort by offering a customized personal assistance for every user. Based on the requirements of the user, nearby man-source with better rating will be suggested and recommended for that specific task along with their personal details. Our app will be convenient and connects the people based on requirements and further increases the employment opportunities for sure. In addition to service provision, our project also enables the user to buy groceries and fuel such as petrol and diesel from user's specified location at any time.**

Keywords---Home Assistance, Household Services, Content-based algorithm.

INTRODUCTION

The evolution of mobile technology opens the windows to the android applications. It's the time to bring up the solution for our day-to-day problems through mobile apps, which has become the part of our daily routine. We are introducing Clic-IT the android application cum website which works as a Manpower Interaction software among people. It provides more comfort and a better user interface to the user. Separate account can be created for every user.

Every user can check for the notifications he received and can update their own profile better at any time. It enables both the owners and the labours to come in contact through single point. It also enables user to find their worker's current location. Secured data access as each user is given with a separate password for login/signup. User can get the assistance whenever he needs help through mobile irrespective of place and time.

OBJECTIVES

The main focus of this system is about delivering the home services just by one click. This paper explains about major theme of finding solution for the home services and how the ordering and delivery of man power services and the grocery services take place. Personal Home Assistance can be used by an authenticated user to seek for household and other personal emergency services such as vehicle assistance through an mobile application. To provide an authentication to user such as service seekers, service providers and the admin, through their phone number by generating One Time Password(OTP). To develop an identical mobile application for opting the services. To design an interactive User Interface for seeking services on the go. To provide a secured online payment gateway for service seekers. To acknowledge the conformation of services opted by the users.

LITERATURE REVIEW:

In the year 2018, the paper, "An Online System for Household Services" was published in the International Journal of Engineering Research & Technology (IJERT) by N. M. Indravasan, Adarsh G, Shruthi C, Shanthi K, Dadapeer Prof.,

Department of Information Science and Engineering, BITM, Ballari. This paper proposes the idea of finding the skilled person or worker for any major or minor household problems and booking the worker for specific work. It also includes the payment gateway. The paper specifies separate login credentials for admin, user and the worker. Our application differs from this idea by including the geolocation facility, which enables the user to track the location of the worker.

Another paper named "Web based System for Domestic Services" is published in the year 2019 in International Journal of Research in Electronics and Computer Engineering by S Rachitha, Sanjana Sathish, Shruthi S, Vismitha, Ambika V UG Scholar Computer Science and Engineering, Vidyavardhaka College of Engineering, Mysore. This paper 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. The advantage of the system is the user location tracking and geo location services are accurate because of usage of minimum three satellites to determine user's location.The disadvantages of the system is the initialization and setup cost are high and worker needs separate login credentials to seek help. The system also works only based on hardware support. Whereas our project is completely software- oriented.

SYSTEM REQUIREMENTS

a. Software Requirements

Table 1: Software Requirements		
SERVER SIDE	Operating System	Windowsx86_64
	Application Software	Android Studio, TensorFlow
	Software Tool	Java, XML
	Database	Google Firebase
	Payment Gateway	Any Payment Gateway viz., Papal, Instamojo
CLIENT SIDE	Operating System	Android phone supports Android4.1(Jelly bean)+.

b. Hardware Requirements

Table 2: Hardware Requirements		
SERVER SIDE	A hosting service based on cloud	
CLIENT SIDE	Android Version	Android 7.1 and more.

SYSTEM DESIGN

5.1 System Modules:

5.1.1 Worker Module

User has to login through his Phone number and OTP will be generated to authenticate the user. Once the user logs in for first time, he/she has to fill their profile details. As our app allows even worker to seek a help from others, they can search for the assistance in the forum page. If assistance is not needed, the worker can check for any notification in the notification tab of profile page.

If any notification is received, he may /may not accept the proposal. Once accepted, the worker can contact the person who assigned him a job. The worker can also the user' location through tracking facility.

5.1.2 User Module

User has to login through his Phone number and OTP will be generated to authenticate the user. Once the user logs in for first time, he/she has to fill their profile details. Once the profile details have been filled, the user can search for the assistance. On searching, if he/she finds the suitable person, they can ping them by ping button.

If the worker accepts the user's proposal, the user will be notified. Once proposal is confirmed, he can track the current location of the worker by using tracking facility. Once the job is done, the user can submit the rating and feedback for the workers. User can also place the grocery order which will be sent as notification to the grocery stores of nearby location and track the order. Also, user can book the fuel such as Petrol and diesel and required quantity and track the order.

5.1.3 Grocery Store Module

Grocery Store Manager has to login through their registered Phone number and OTP will be generated to authenticate the user. Once the user logs in for first time, he/she has to fill their profile details. Once the profile details have been filled, they can go through the notifications received from the user, based on availability of stocks, they can either accept or decline the order.

5.1.4 *Petroleum Bunk Module*

Petroleum bunk Manager has to login through their registered Phone number and OTP will be generated to authenticate the user. Once the user logs in for first time, he/she has to fill their profile details. Once the profile details have been filled, they can go through the notifications received from the user, based on availability of fuel, they can either accept or decline the order.

5.1.5 *Admin Module*

Admin will track all the transaction and payment activities.

5.2 *Use case Diagram:*

DIAGRAM 5.1: USE CASE OF PROPOSED MODEL
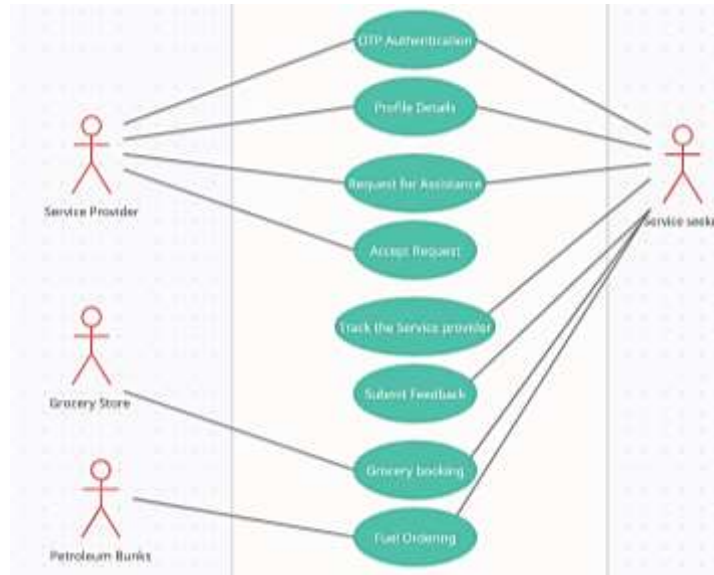
Our application hopes to draw on two main user groups. Currently it is impossible to see people without smart phones. About half of those smartphones are Android, and more than half of those Android phones are fit to run Clic-IT. These users are obsessed with social media, and almost all of them actively uses at least one of the following: Facebook, Twitter, Instagram, and Snapchat. The application will be helpful to workers to post their personal details which will offer them a job. The group that is probably going to be using the app most, and thus the most important group, is the Workers who seeks job.

The various users and corresponding use-cases involved in the project includes,

1. Service Seeker:

The main use-cases of service seekers are search and request for service from the service providers, and track their location. Once the service is done, ratings and feedback should be provided for service provider. Additionally, service seeker can also place the grocery order.

2. Service Provider:

The use cases of service providers are accept the request received from the service seeker and also search and request for service from other service-provider. Additionally, placing the grocery order.

3. Grocery Store:

The use case of grocery store is to check the availability of stocks in the store and respond to the user's request.

4. Petroleum Bunks:

The use- case of the petroleum bunk is to check the availability of fuels and respond to the user's request in case of vehicle assistance.

PROCESS

DIAGRAM 6.1: PROCESS OF PROPOSED MODEL

The system is proposed with the focus of providing better and easy user interface for the user. So, login credentials include phone number. By providing the phone number, One Time Password(OTP) will be sent to that number. After authentication, if he is a new user, the profile page will be displayed, where the basic details will be collected, and if user wish to be a service provider, he can give his occupation details which will be stored in the database. Now, service seeker can select the module in which he seeks service.

The list of workers will be displayed based upon the ratings. The user can opt any of the worker from the list and book a slot immediately or to specific date and time. If the worker is not available for that time slot unavailable alert message will be shown to the user. Once the worker is booked, the user can chat him through the built in chat application, and can track the worker's location using embedded map feature.

The user can also book the groceries through this application. Once the user creates their own grocery list, the particular list will be sent to nearby grocery shops. The grocery shop can check the availability of the stocks which are mentioned in the user's list. Based on the availability and price from each store, the user can book the order with the required store. In vehicle assistance module, the user can also book the petrol or diesel, from the nearby petroleum bunks.

SYSTEM ARCHITECTURE

DIAGRAM 7.1 : ARCHITECTURE OF PROPOSED MODEL
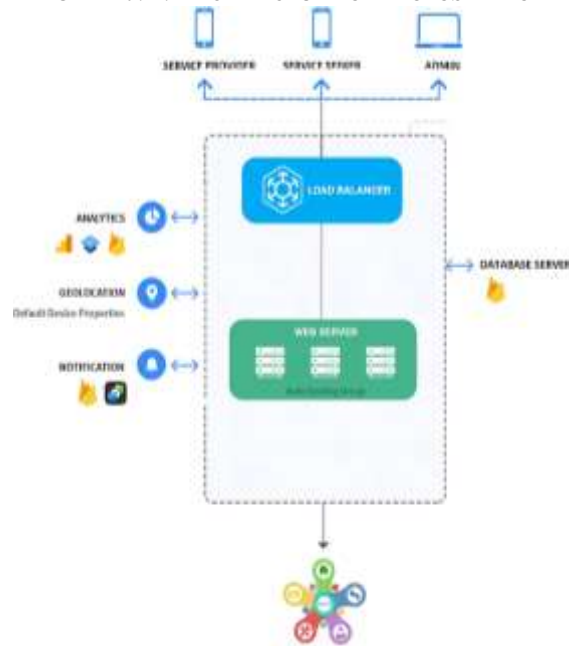
The Architecture of the system includes Firebase, which is a cloud data storage medium. OTP authentication will be sent to the user through Firebase Authentication System. For recommendation of the better worker to the user, Content based

Recommendation Algorithm will be used. This machine learning algorithm will be built in TensorFlow application. That developed model will be incorporated with the android application through an API (Application Programming Interface). The application will be hosted in the Apache web server. For tracking the user's location, Google maps API will be incorporated in the application.

IMPLEMENTATION

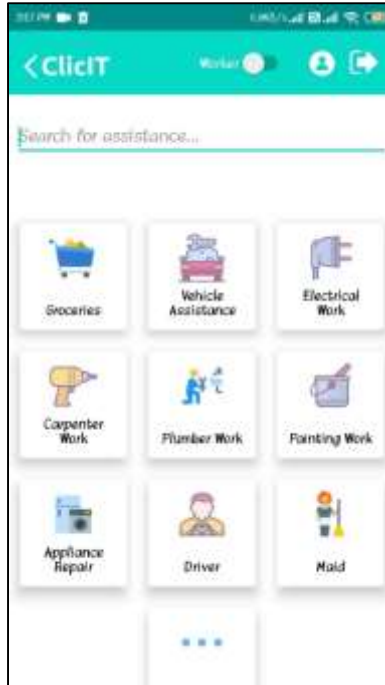### DIAGRAM 8.1 : PHONE AUTHENTICATION PAGE-1
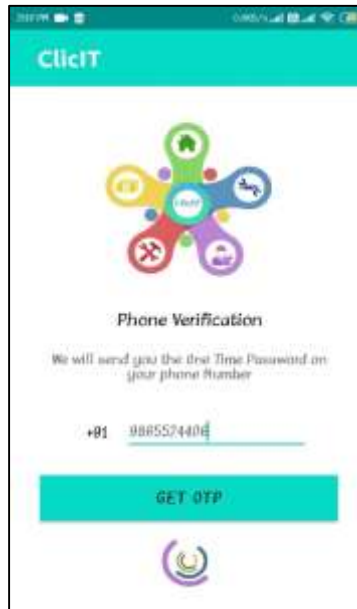
As we previously mentioned. In this application, we will have the same login for both users and workers. We are using OTP based authentication to get into to the application.

DIAGRAM 8.2: PHONE AUTHENTICATION PAGE-2

OTP will be sent to phone number and this application will automatically read the OTP.

DIAGRAM 8.3: USER MAIN PAGE

If you are the new user you will be asked to fill profile which includes basic details like name, address, and date of birth and you will be asked whether you are willing to work or not. If you accept you will become a service provider and need to fill in occupational details and pay scale. If you are an existing user, Home page (Diag. 8.3) will be displayed.

DIAGRAM 8.4 : GROCERY BOOKING PAGE

The user can create their own customized grocery list which will be sent to nearby grocery stores to check availability of stocks, based on price and availability user can place the order with particular shop. (Diag. 8.4)

DIAGRAM 8.5 : CARPENTERS PROFILE LIST PAGE

If you need assistance for carpenter work in your home you can click carpenter modules then the user can choose workers based on ratings.

DIAGRAM 8.6 : SPECIFIC WORKER PROFILE PAGE

Once the worker is selected, the user will have options to book now or book later based on the user's convenience.

DIAGRAM 8.7: WORKER BOOKING PAGE

After booking, it will show you an alert stating booked successfully. Whereas the same will be notified to worker as an in-app notification.

CONCLUSION

This paper established the factors that led to the improvement of household and other services which help us in our busy and hectic lifestyle of this generation. To reduce burden and facilitate user in finding in-house solutions for the services, the proposed system provides several services by providing experienced and skilled worker just in one click. A user-friendly mobile environment to users provides ease in accessing our services in a more comfortable way.

REFERENCES

[1]. Shahrzad Shahriari, Mohammadreza Shahriari, Saeid gheiji. " ECommerce And It Impactson Global Trend And Market".International Journal of Research – Granthaalayah. Vol.3 (Iss.4): April, 2015.

[2]. L.RichardYe, Yue Jeff Zhang, Dat-DaoNguyen, James Chiu,"Fee-based online services: Exploring consumers'willingness to pay ". Journal of International Technologyand Information Management.

[3]. Bo Zhang, Ruihan Yong, Meizi Li, Jianguo Pan, Jifeng Huanglaa, " A Hybrid Trust Evaluation Framework for E-commerce in Online Social Network: ". 2169-3536 (c) 2016 IEEE. Translations and content mining are permitted for academic research

[4]. Chenggang Zhen,Peng Cheng. "Construction of campus trading platform based on third-party online payment " 2nd International Conference on Industrial and Information Systems,IEEE,2010

[5]. Sujit Kumar Basak,Irene Govender."Examining the Impact of Privacy, Security, and Trust on the TAM and TTF Models for Ecommerce Consumers: A Pilot Study",IEEE, 2009.

[6]. CAl Yrnn-ping, WANG Yu-ying, "Simple Said about Online Payment Risks and Preventive Measure ", China located International Conference on Infonnation Systems for Crisis Response and Management,IEEE,2010

[7]. Dejan Kovachev and Ralf Klammadriano, " Beyond the ClientServer Architectures: A Survey of Mobile Cloud Techniques ",workshop on mobile computing in 2011.

[8]. Teddy Mantoro, Admir Milišić, Media A. Ayu, " Online Payment Procedure Involving Mobile Phone Network Infrastructure and Devices ",IEEE 2010

[9]. Haizheng Li and Han Zhang, " How People Select Their Payment Methods in Online Auctions? An Exploration of eBay Transactions " ,Proceedings of the 37th Hawaii International Conference on System Sciences – 2004.

[10]. Cong Yin, " An empirical study on users' online payment behavior of tourism website ",IEEE 12th International Conference on e-Business Engineering,2015.

[11]. M. Hills, P. Klint, and J. J. Vinju, "An Empirical Study of PHP Feature Usage: A Static Analysis Perspective," in Proceedings of ISSTA 2013.ACM, 2013, pp. 325–335.

[12]. Mark Hills Evolution of Dynamic Feature Usage in PHP,East Carolina University, Greenville, NC, USA IEEE, 2015.

[13]. M. Hills, P. Klint, and J. J. Vinju, "Static, Lightweight Includes Resolution for PHP," in Proceedings of ASE 2014. ACM, 2014, pp. 503–514.

[14]. Mohammed Sayagh, Bram Adams Polytechnique Montreal, Multi-layer Software Configuration: Empirical Study on WordPressSCAM 2015, Bremen, Germany.

[15]. Luo Zhaohui, Hao Jhi,Zhang Fhang "Research on location based service implementation. Available: https://ieeexplore.ieee.org/document/6268594

[16]. Sandeep Kumar, Archana Gupta,Mohammad Abdul Khadeer "Location based service using Android". Available: https://www.researchgate.net/publication/224127685_Location_based_services_using_android_LBSOID

[17]. Ravi Bhandakanavar "Location based Service using Global Positioning System." Available: https://krazytech.com/technical-papers/location-basedservices-through-gps

[18]. Manav Singhal,Anupam Shukla "Implementation of Location based services in Android using GPS and Web Services."Available:

[19]. Location based Services ,Introduction and Postion Papers

[20]. Seema Vanjire, Unmesh Kanchan "Location based services on smart phones using android application". Available: https://ijarcce.com/wpcontent/uploads/2012/03/IJARCCE3B__A_unmesh_Location. pdf

[21]. Asit Kumar Parida "Android Application Deevelopment for GPS based Location Tracker".Available: http://ethesis.nitrkl.ac.in/4693/1/109EC0228.pdf

[22]. GPS Services. Available: https://gssc.esa.int/navipedia/index.php/GPS_Services

[23]. Afshan Mulla,Amol Bhaviskar,Jaypal Bhaviskar "GPS assisted standard positioning service" Available: https://ieeexplore.ieee.org/document/7087165

[24]. Dadong wan "Virtual handyman: Supporting Micro Services on Tap through situated sensing and web services."Available: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196. 8113&rep=rep1&type=pdf

[25]. Bernard kasamani,Denis Gikundi "A Location based service for handyman order placement." Available: https://www.researchgate.net/publication/322653219_A_LocationBased_Service_for_Handyman_Order_Placement

[26]. Luo Zhaohui, Hao Jhi,Zhang Fhang "Research on location based service implementation. Available: https://ieeexplore.ieee.org/document/6268594

[27]. P.Barna,J Houben "Building Web Information System using Web Services". Available: https://ieeexplore.ieee.org/document/1678495

[28]. Snehal Mumbaikar, Puja Padiya "Web Services Based on SOAP and REST principles."Available: http://www.ijsrp.org/research-paper-0513/ijsrp-p17115.pdf [14] J.Cui, X. Wang "Research on Google map algorithm and Implementation." Available: https://www.researchgate.net/publication/288639976_Research_on_Google_map_algorithm_and_implementation.