IMPROVING HOME REQUEST SERVICES WITH WEB-BASED ANDRIOD APPLICATION

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ABSTRACT

The challenges experienced domestically requires immediate service attention of various sub professionals. These challenges and analytical features draws an insight to an epileptic services of this home demand services and also high increase of wears and tears of domestic appliances and equipment. This however is as result of difficulties in easily accessibility of these sub-professionals (artisans) to assist in their maintainability. This paper is aimed at designing and implementing an enhanced home demand services system using web-based android application with web automation. This was achieved using the object oriented methodology in-line with the necessary universal modeling diagrams for the system design. The work was implemented using Java programming language in android studio as the software development kit. The new system was hosted locally and tested using furry analytic toolbox (instrument tool for testing mobile applications), and the result was recorded and compared with the characterized existing system. The result showed that the new system performs better with limited bounce rate, low packet loss and average app response time of 2 sec.

Keywords: home-based, services, android, sub-professionals, computerization

INTRODUCTION

Globally various domestic activities which demand the attention of professional services takes place. This activities lead to tears and wears of appliances and equipment, which tends to disrupt these activities. They also cause malfunctioning and dilapidation of this goods and services at home. This situation results to constant need for professionals that will assist in alleviating the domestic needs of home services.

This was initiated using popular systems like handy, merry, maids, home joy and slate as the main home service apps. However, this apps lack automated features and are limited to domestic home cleaning and services activities (Cook et al., 2019).

A killer app, for market dominance was introduced for goods and services (Larry and Chunka, 2018). However the killer app is not automated, despite the huge benefits it presented. Some other popular delivery systems such as grofers and Jumia were designed to solve problem of marketing stress and not service rendered home challenges. (Cardoso et al., 2014)

Web-based Home Demand Services System (HDSS) involves the use of mobile application to provide a platform for people to request services of professionals to meet up with these domestic needs. These professionals include the plumbers, electricians, mechanics, barbers, house cleaners, laundry men, water tankers, carpenters, transporters etc. The platform provides an advertisement medium and provide the locations of the professionals as well as that of the home service users. The home service users will have the opportunity to hire these professionals for all domestic services within a limited time in this platform via the internet.

The internet is a link that connects billions of individual together over a network, thus making human desires more easily attainable and offers convenience. Its convenience is basically achieved by speed and cognitive ease i.e. quality of service (Williams, 2017).

The Android operating system is known for its OS touch inputs that correspond to real world actions such as tapping, swiping, pinching and reverse pinching (Java, 2014). Android mobile application development is used to create innovative and dynamic third-party

applications through various development kits, such application includes the proposed Web-based mobile application which addresses emergencies at home which requires urgent professional services. The application empowers the users with the flexibility to choose the service on their desired set time and on the other hand allow professional to manage the services. The home demand services with its advancement and convenience will definitely accelerate trade and increase profitability for businesses. This is due to the versatility of the design structure that integrates various professional services on one platform. This is a great advantage over the previous traditional method with its challenges, the traditional methods include going to the centers of the professionals to demand for the service and looking for phone numbers of these professionals to contact them for their services. Moreover, the system will cause the user to stay at home or office or anywhere to book an appointment for any domestic demand to be performed at his/her convenience. When the professional requested is not available, the system searches for an available person to schedule the appointment.

MATERIAL AND METHODS

Hardware and software specifications

The hardware and software specifications used in this work include:

Software Specification

Language: Java, Database: MySQL, Operating System: Android, Android Version: 9.0

Hard ware Specification

Phone RAM: 2GB and above, Phone Type: Samsung

The new system was developed using the following processes presented below in the block diagram.

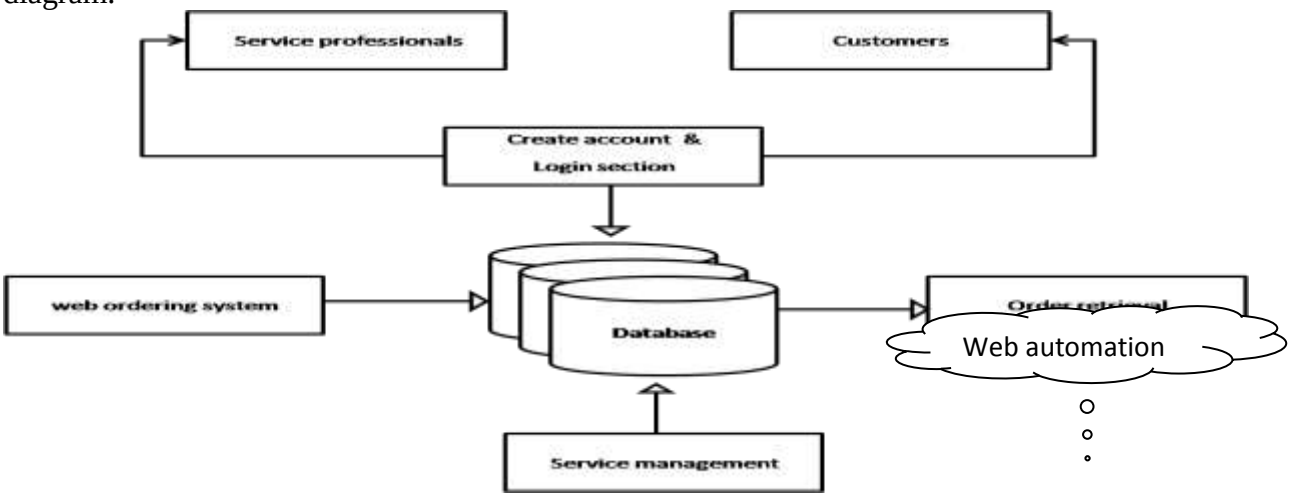

Figure 1: System Block Diagram

From the diagram in figure 1, the users (professional and customer users) created account and then logged into the main system menu to request for service as a customer or service management by professionals. When the user request for service, the service professionals access the request notice via the service management platform.

The Web Ordering System

This section provides the following functionalities for customers as shown below;

- Log in to the system

- Navigate the categories of professional services to request service
- Select a service from the menu
- View available professionals to render the service and their profiles
- Review current service order selected
- Request for professionals
- Automatically connect available professional for the service selected
- Provide confirmation notification from professionals within at a timely manner
- Provide confirmation notification to professionals
- Receive confirmation notice by customers.

Service Management

The features of the service management system include;

- Add/Update/delete additional information (description, photo, services, address etc.)
- View request orders from clients
- Make decision on request to either accept, reject or ignore
- Send decision feedback notification to user

Order Retrieval System

The section will be designed using a web automation technique (codeless automation approach) to intelligently manage the functionalities of both clients and professionals to provide the desired response and customer satisfaction. This section will provide the following functions;

- Retrieve new orders from the database
- Manage the functionality response between the clients and professionals
- Ensure customers request are attended using the available or next available professional
- Display the orders in an easily readable, graphical way.

Web Automation

This is application of automated intelligence to pilot the functionality of the clients and the service providers. This will be implemented using the codeless automation approach (explained below). The implication of this section on the system is to monitor the request order of the client and the response time it takes to confirm the request. When an order for service is requested and not confirmed after 40 seconds, the customer receives notification of the not accepted order, and then is requested to re-apply for other available professionals which will be provided

Codeless automation

This process of web automation is adopted to take out the frustration and challenges identified in the existing systems. It is a process which uses a Robotic process automation toolbox (Selenium) with a user friendly graphical interface structure. This robot is the most popularly used web automation toolbox worldwide due to its vast automation intelligence. The selenium application programming interface (API) employed for the web automation process is the WebDriver. This is a robot that monitors and records the professional actions and then creates an automation script via an

intuitive drag and drop interface to repeat the process when required. The recording process monitors and records the action of the professionals using PHP Language. To run this on an android operating system, Appium is used via JSON wire protocol to enable the operation.

System Design

The development of the system will be designed using the necessary universal modeling diagram. The conceptual design model will be divided into two sections which are the data model for the design of the database structures and the process model

RESULT AND DISCUSSION

This section will present the result of the android application developed using the universal modeling designs and the necessary implementation toolbox like selenium toolbox, appium tool, Xamp server and Android studio. The system as designed using the dataflow model which starts with the user registration platform. This is designed for both customers and service professionals respectively as shown in figure 2a and figure 2b. This is so because the professional registration platform requires more detailed information about the service provided and work experience, unlike the customer registration platform which requires basic biometric information data of the customer.

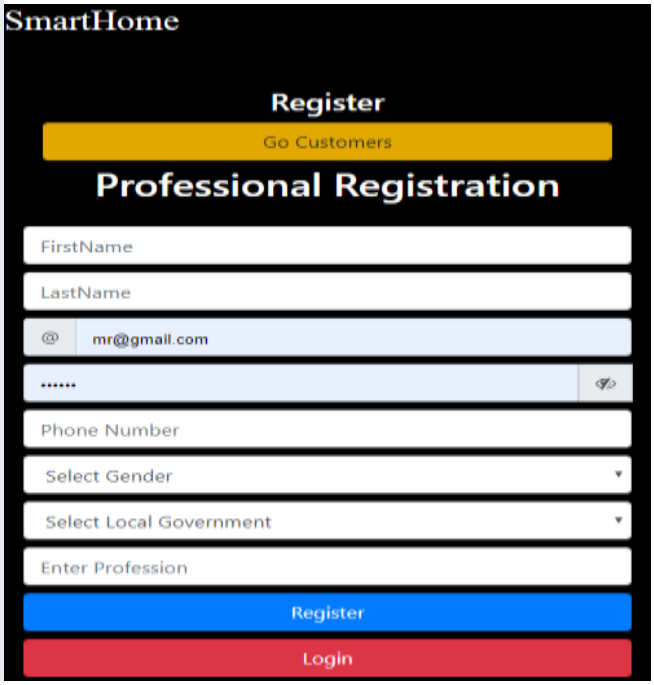

Figure 2a: registration for customers Figure 2b: registration for Professional

Also from the dataflow diagram used in modeling the system design, the login section seconds the registration section. The output implementation results are presented in figure 3a for the customer login and figure 3b for professional service provider login.

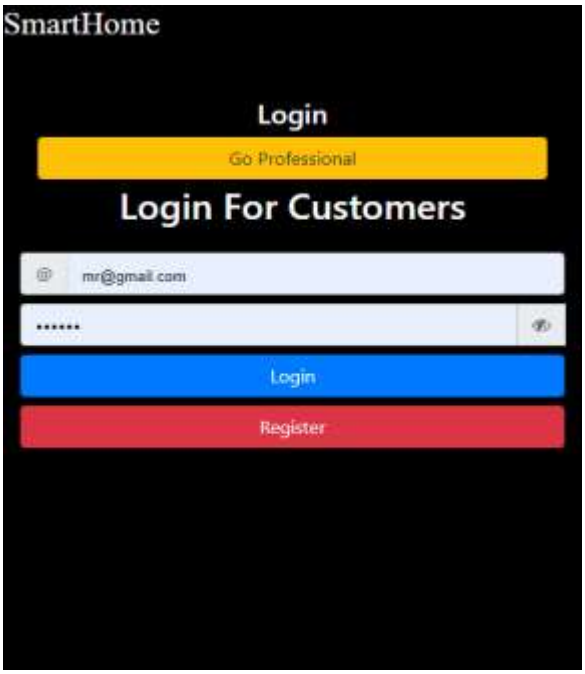

Figure 3a: login for professionals figure 3b: login for customers

Now that the registration and the login framework have been explained, the resultant dataset which manages the professional details as they are registered is presented in figure 4;

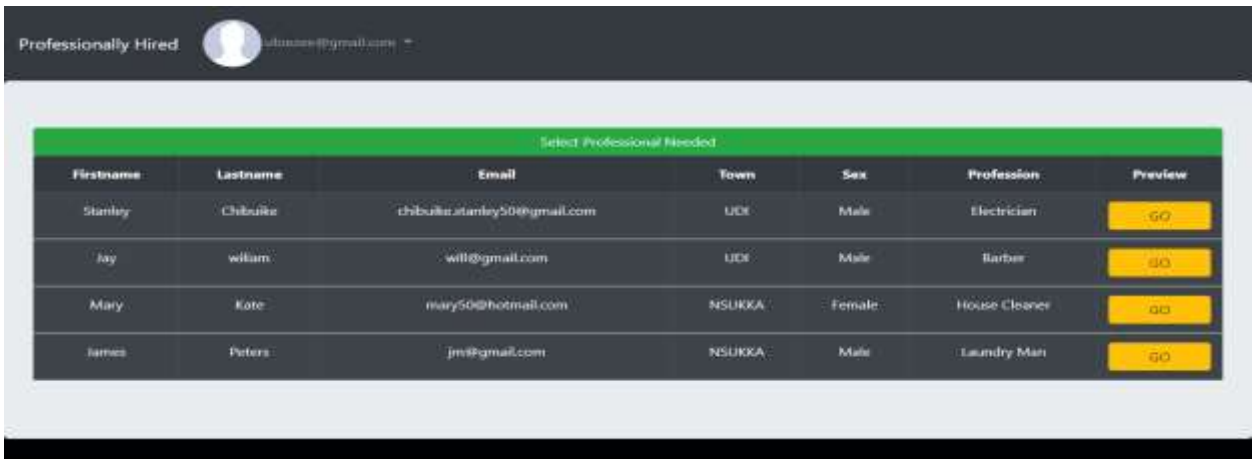

Figure 4: Dataset of professionals registered

In figure 5, new service demand is requested by customer “James Peters”, demanding for laundry service as shown in the customer login page below;

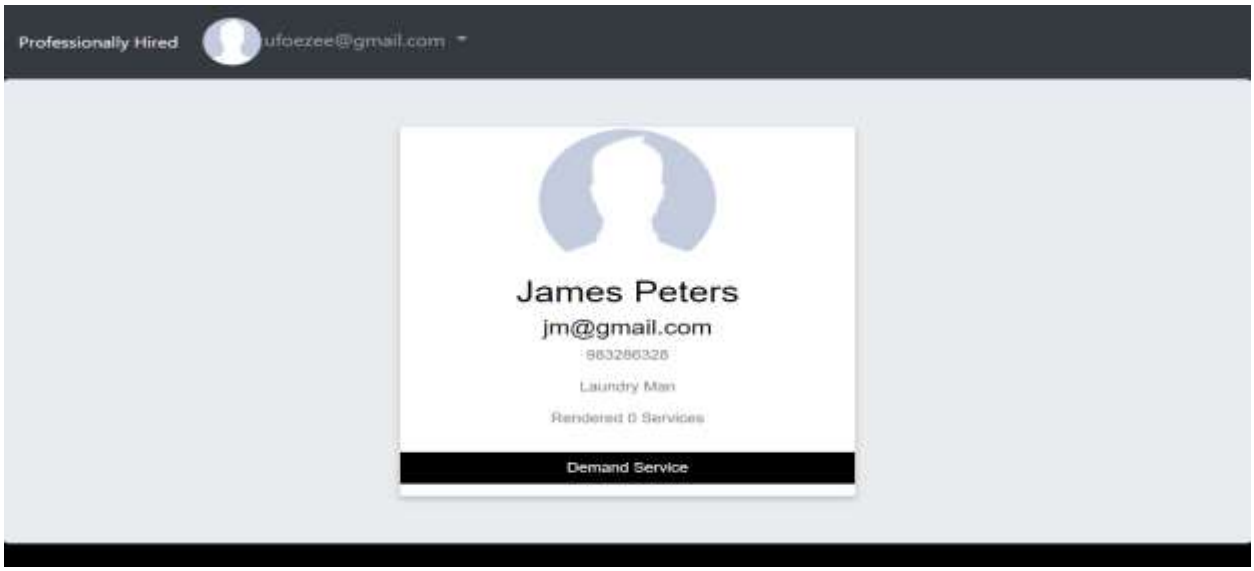

Figure 5: customer login to demand service

In figure 6; it was observed that the professionals available for the laundry service which receives the demand request ” Emmanuel Peters” is automatically times(40 secs) to confirm request order, else the demand will be cancelled by the system and permits customer to re-order for another professionals.

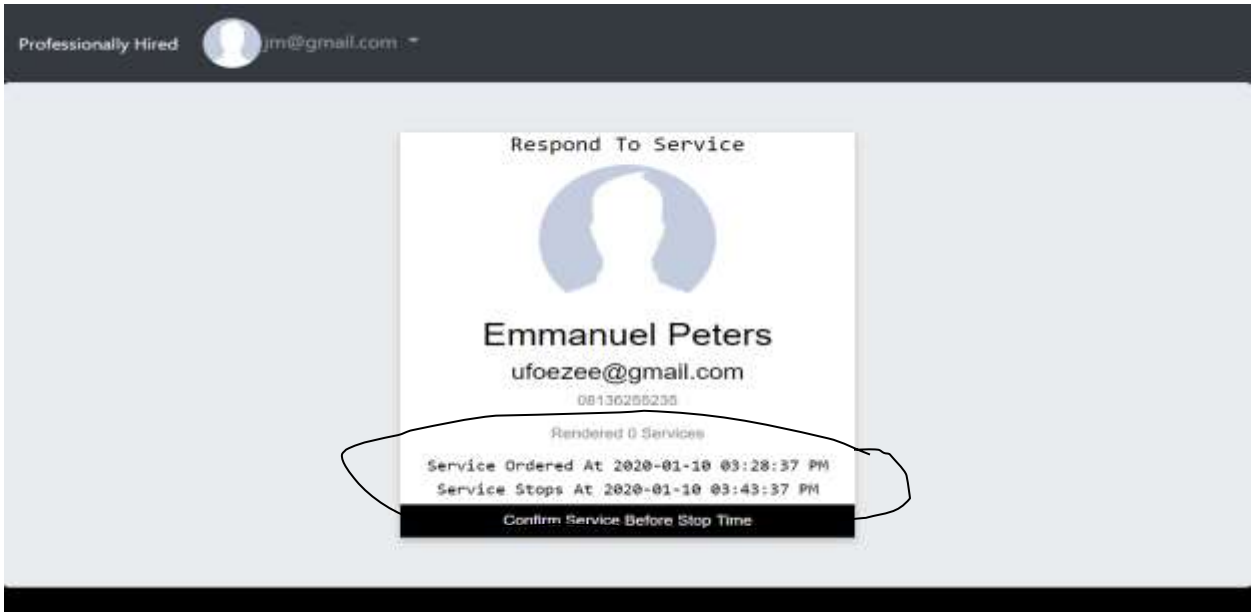

Figure 6: service order confirmation frame work for professional

In a case where the order is not accepted within the specified time as shown in the modeling design with the use case diagram of the cancelled order, the system automatically cancels the request, sending the professional the notification below as shown in figure 7; however as the

demand is cancelled, the customer simultaneously receives another notification to re-order for another demand service as shown in figure 8.

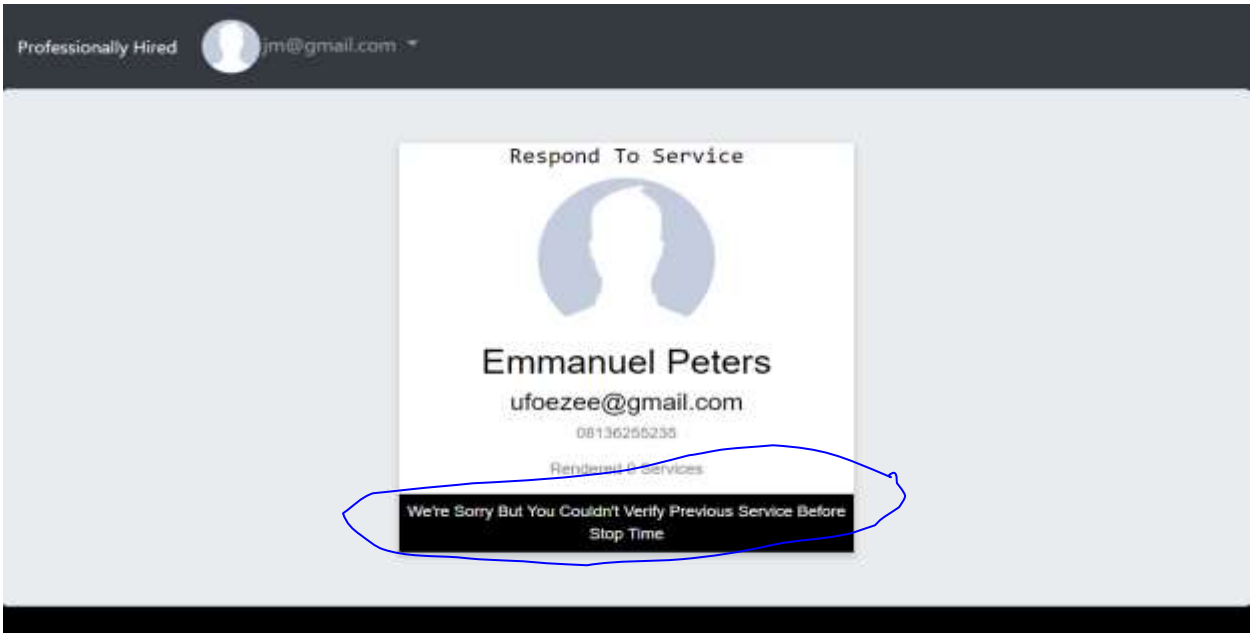

Figure 7: Cancelled order notification by professional

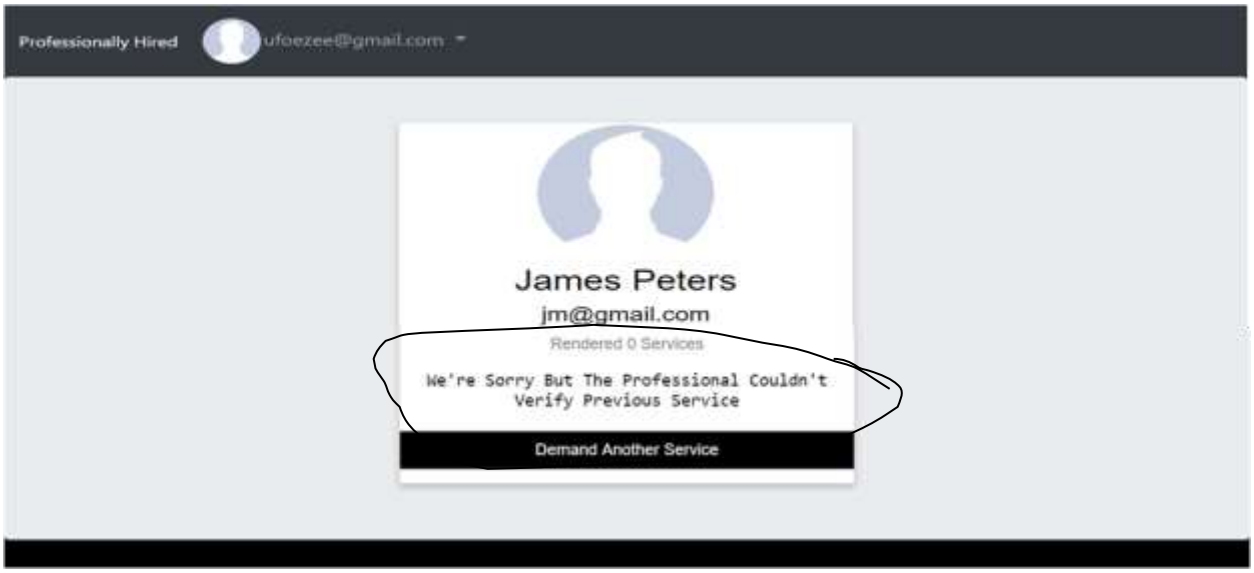

Figure 8: customer notification to demand another service

CONCLUSION

This work has successfully developed an enhanced home demand system, with the capacity to render domestic service of all forms in real time. The work was develop to bridge the gap

experience in the existing system analysis like the slow step response, bounce rate and lots more. The work was designed to accommodate various artisans with easy to use interface and automated features. The comparative analyses have been used to validate the system performance, comparing the new system and the existing system using app analytical toolbox. It was observed that the new system is far more efficient despite the increase professional applications

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