Journal of Experimental Research

March 2021, Vol 9 No 1

Email: editorinchief.erjournal@gmail.com
editorialsecretary.erjournal@gmail.com

Improving Home Request Services with Web-based Android Application

***Nwobodo Nzeribe H.N[1], Chibueze K.I[1]**

[1]Department of Computer Engineering, Enugu State University of Science and Technology, Enugu, Nigeria

***Author for Correspondence:** nnenna.nwobodo-nzeribe@esut.edu.ng

ABSTRACT

The challenges experienced domestically require immediate service responsiveness of various sub-professionals. These challenges and investigative landscapes draws an awareness to an epileptic services of this home demand services and tends to an increase of wears and tears of domestic appliances and equipment, hence deceasing their downtime and production. This outcome however is as a result of the hitches in accessibility of these sub-professionals (artisans) to assist in their maintainability. This paper titled "Improving Home Request Services with Web-Based Android Application" is aimed at designing and implementing an improved home demand services using automated web-based android application. This study was realized using object oriented methodology in-line with the necessary universal modeling diagrams for the system design and was implemented using Java programming language in android studio as the software development kit. The improved developed system was hosted locally and tested using furry investigative toolbox (instrument tool for testing mobile applications), and the result was recorded and compared with other services rendering system. The result showed that the developed home request services with web-based android application alleviated the problem of moving about searching for sub-professional (artisans) to render domestic services.

Keywords: Home-based, Services, Android, Sub-professionals, Artisans

INTRODUCTION

Generally, various domestic activities encounter some challenges that demand the attention of sub-professional services. This activities lead to tears and wears of appliances and equipment, which tends to interrupt these accomplishments. They lead to malfunctioning and dilapidation of goods and services at home. This state results to constant need for sub-professionals that will assist in alleviating the domestic needs of home services. These sub-professionals in this context are artisans include the plumbers, electricians, mechanics, barbers, house cleaners, laundry men, water tankers and carpenters. Currently, traditional home request services exist, with its challenges of going to the centers and hubs of these artisans in search of them. Sometimes they are not there with hope that no work for the time being and never operates all day.

Web-based Home Demand Services System (HDSS) involves the use of mobile application to provide a platform for people to request services of artisans to meet up with domestic needs.

This was initiated using popular systems like handy, merry, maids, home joy and slate as the main home service apps for only house cleaning (Cook et al. 2019). A killer app, for market dominance was introduced for goods and services (Larry and Chunka, 2018). 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).

This study is aimed at designing and implementing an improved home demand services to alleviate this traditional way of sourcing for the services of artisans. This will unquestionably accelerate work and increase productivity as the system will allow the user to stay at any place and at any time to demand for an appointment for any domestic request to be performed at their suitability. The system has the ability for the most available artisan for any domestic assistance needed to be sourced.

MATERIAL AND METHODS

Hardware and software specifications

The hardware and software specifications used in this work include:

Software Specification

Java programming Language (Java, 2014 micro edition retrieved from Oracle and Sun Microsystem) MySQL 8.0, Android Operating System (Version: 9.0). The Implementation tools

Bitbar tool, Selenium tool, Appium tool, Xamp server and Android studio. All the software used was online open-sourced version).

Hardware Specification

Samsung Galaxy ® Phone (Exynos 7 Octa 7884), 2 GB RAM, 32 GB internal storage, 3400 mAh battery, 13 MP Rear, 5 MP Front Camera rear, 6.2 inches (15.75 cm) Screen, Dual, Nano-Nano SIM and Android 9.0 (Pie)

The Diagrams of the System

This system is designed using data model (data base design structures) and the process model (Donald, 2013). The data model was modified and used to develop an Entity-Relation Illustration while the process model was used to structure the data flows and processes using the functional decomposition diagram and data flow diagram. Figure 1 shows the data flow diagram while figure 2 displays the block diagram of the system processes. Here, customers and artisans will create an account to be used in logging into services platform and utilize them. This gives them access to request for service as a customer or service management of the artisans.

Figure 3 depicts the flowchart of the system. It shows the sequence of the Web Ordering System (WOS) from logging in to navigating through the categories of services and artisans available for selection until the request is attended to service management or order retrieval system.

The service management system features include Add/Update/delete additional information (description, photo, services, address etc.), View request orders from clients, Make decision on request to accept, reject or ignore and Send decision feedback notification to user while the Order retrieval system intelligently manages the clients and artisans to provide the desired response for customer satisfaction. It retrieves new orders from the database and ensures those requests are attended using the available or next available artisan of each demand. Web Automation using the codeless automation approach was implemented to monitor the request order of the client and the response time to confirm the request. Where the response time elapses after 40s, the client is allowed to request for another person for the service.

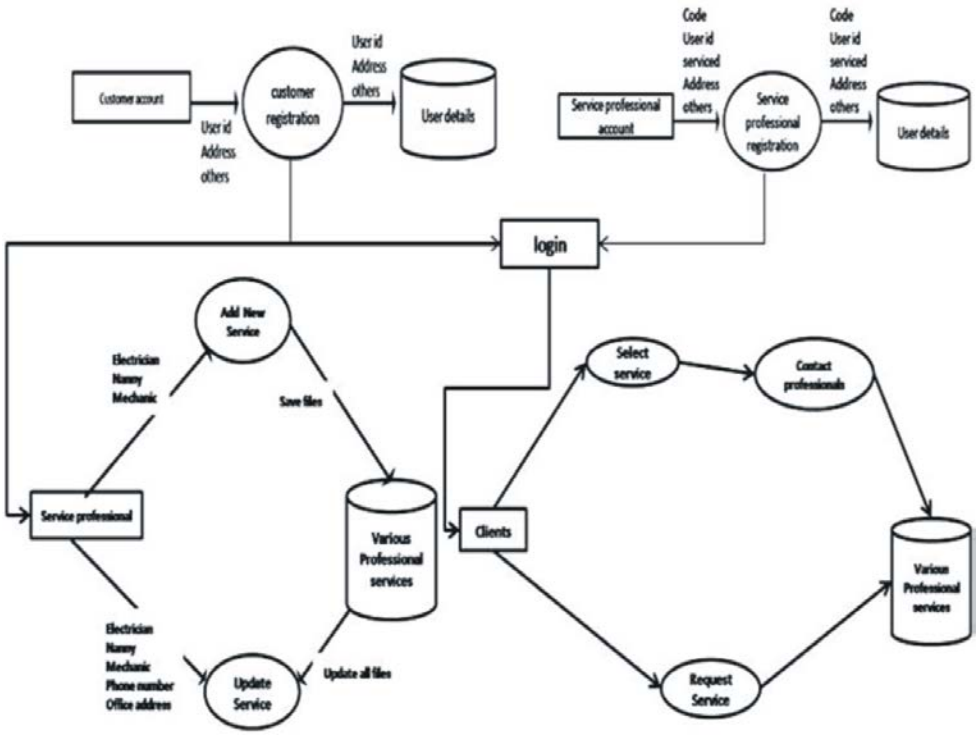


Figure 1: Detailed dataflow diagram

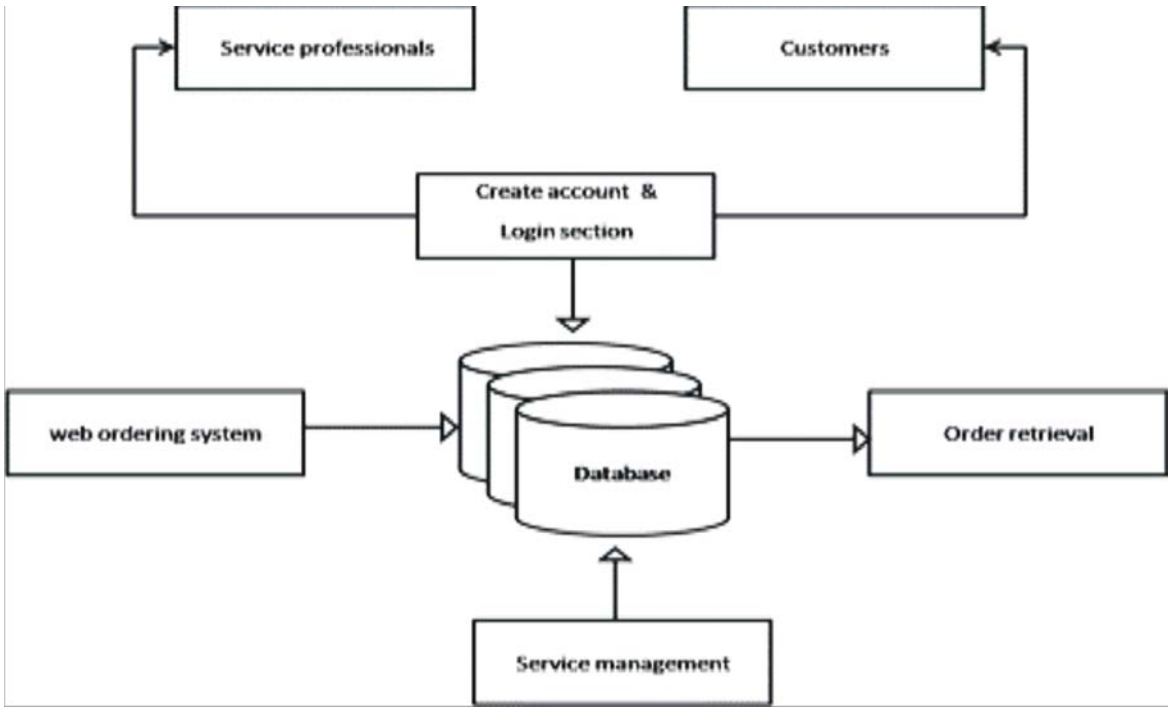


Figure 2: System Block Diagram

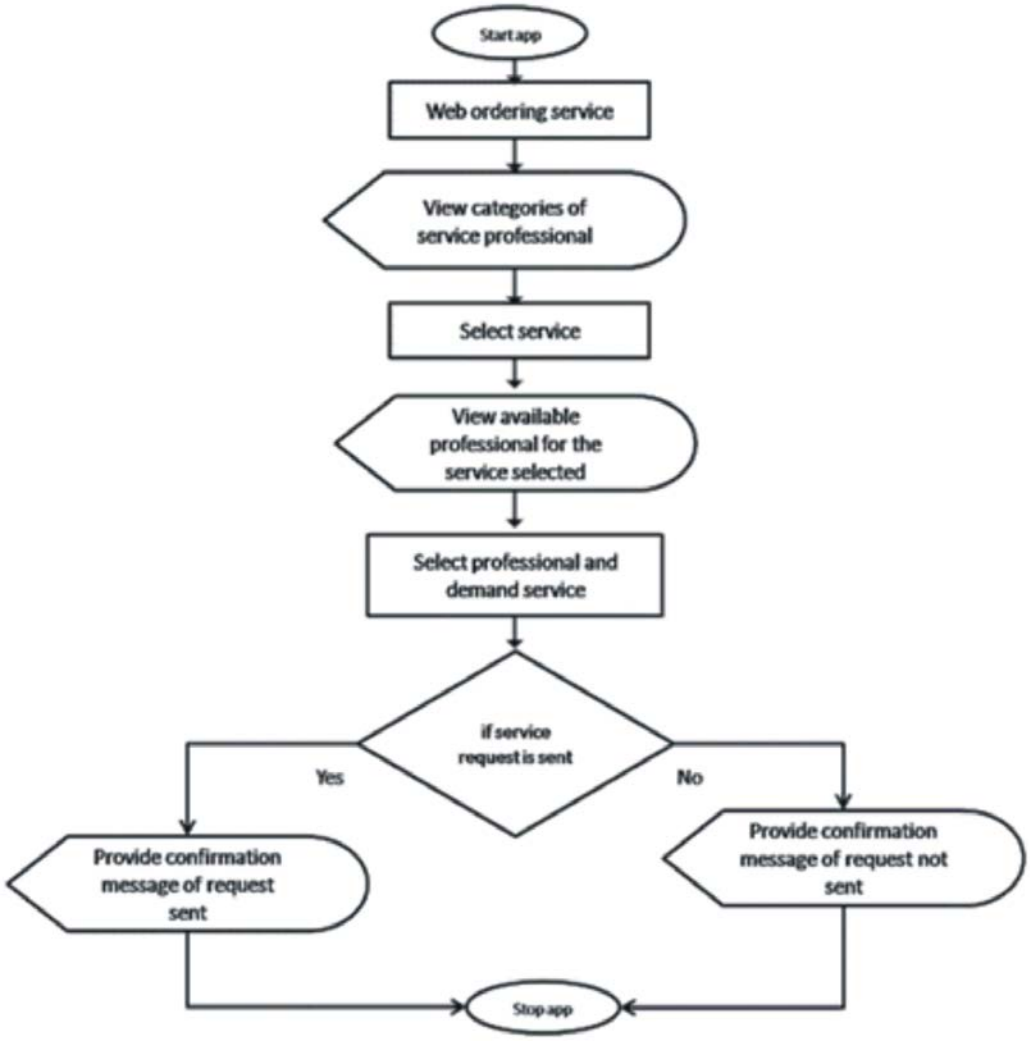


Figure 3: Flowchart of the System.

RESULT AND DISCUSSION

Figure 4a and Figure 4b displays the Registration interfaces of the customers and artisans respectively.

Figure 4a: Registration for customers

Figure 4b: Registration for Sub-Professionals

Figures 5a and 5b shows the login interfaces while figure 6 shows the resultant dataset of registered artisans. In this implementation result "James Peters" and "Emmanuel Peters" are registered laundry men. A client with the home service app in his android phone is requesting for the laundry man services. Figure 7a shows that "James Peters" laundry services were demanded but the user did not get a positive response as shown in figure 7b. The system allowed the user to search for another client after 40s of negative response. In this case "Emmanuel Peters" laundry services were demanded. Figure 8 shows that "Emmanuel Peters|" accepted to render the service.

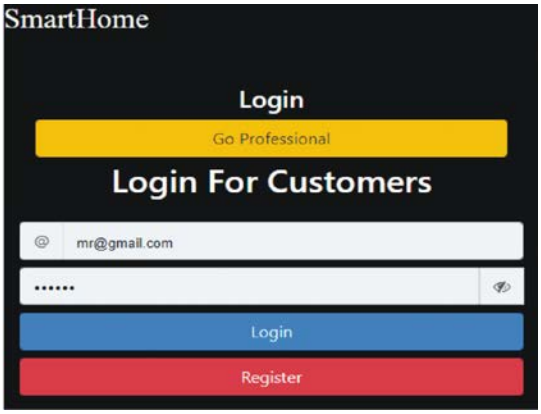
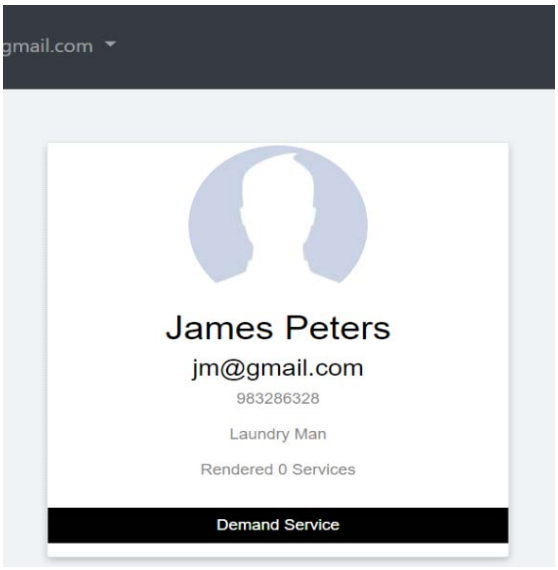


Figure5a: Login for professionals **Figure 5b: Login for customers**

Figure 6: Dataset of registered artisans



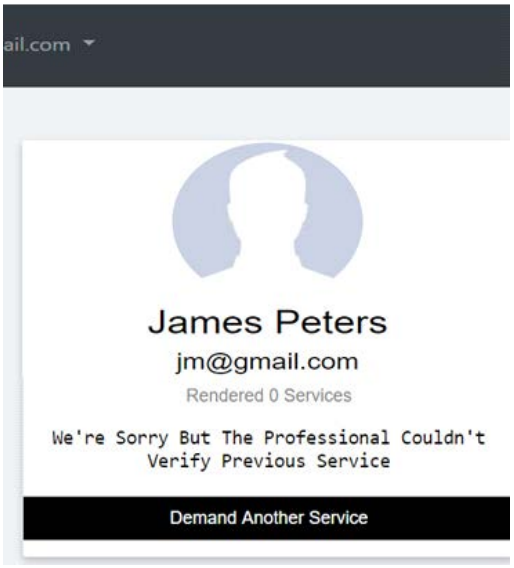


Figure 7a. Demand service **Figure 7b. Demand another service**

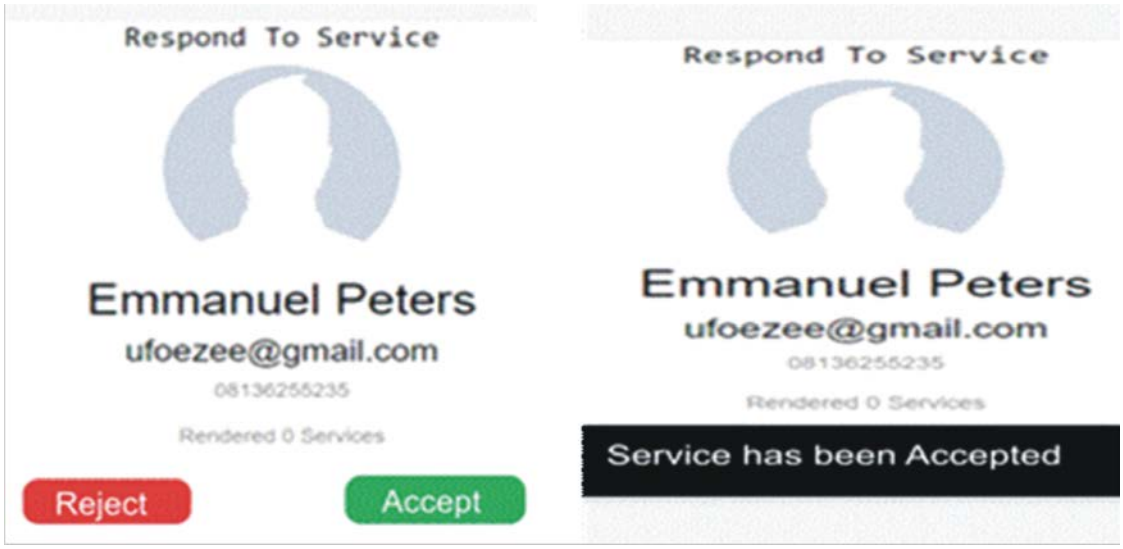


Figure 8: Demand service of "Emmanuel Peters".

The performance of three apps app A (merry and maid app), the app B (killer app) and the new system were evaluated and analyzed comparatively considering the application response time, time to load, bounce rate and packet loss within the specified time.. This was done from the results generated from the dash board of the instrumentation toolbox (furry analyzer and bit bar analyzer). The results of the three apps were evaluated considering the step response performance; this was done using the instrument analyzer tool. From the analyzer, it was observed that the step response time of the newly developed system is less than 2 min, unlike the existing app A and B which is almost 5 to 20 min to response to user input. The reason for this is because the new system is developed with a central entity management system, making the structure simple.

The loading time of the three apps were also analyzed, it was observed that the new system loads within 2 minutes unlike the existing systems which takes about 30 to 45 min to load. However, it was also observed that the new system function and responds better in terms of bounce performance as shown in the analyzer. The result shows that the packet loss of the new system is negligible; the implication is that the app is designed to produce high quality of service performance like the limited bounce rate experienced in some of the existing system. The new system was designed with web automation features; the implication is to intelligently control service demand functionalities when request are been made by

users, so as to ensure service delivery on time when requested. However, this was a novel system developed exclusively for home demand services of artisans.

CONCLUSION

In conclusion, this work has successfully developed an enhanced home demand services system, with the capacity to render domestic service of all forms in real time. The work was develop to bridge the gap experienced in the traditional home demand services of going out to hub and centers in town in search of artisans to render domestics services. This system also is a 24hours all day system to be operated from anywhere and at any time. The needed artisan services can also be contracted from any location, unlike the other method that is time and location bound.

REFERENCES

Cardoso J, Lopes R, Poels G. (2014). Service Systems: Concepts, Modeling, and Programming. Springer Briefs in Computer Science Id 5699132. New York: Springer. ISBN 9783319108124.

Cook DP, Goh CH, Chung CH. (2019). Service Typologies: Scientific Research, An Academic Research. A State of the Art Survey. Production and Operations Management. 8;(3): 318-338.

Donald B. (2003). An introduction to the Unified Modeling Language https://developer.ibm.com/technologies/web-development/articles/an-introduction-to-uml/ Retrieved: 20 march 2020.

Larry D, Chunka M. (2018). Unleashing killer app, digital strategy for market dominance; Harvard business school press. https://hbswk.hbs.edu/archive/unleashing-the-killer-app-digital-strategies-for-market-dominance Retrieved: 20 March 2020.

Mahapatra L. (2013). Android vs. IOS: What's the most popular Mobile Operating System in your country? http//www.ibtimes.com/android-vs-ios-whats-most-popular-mobile-operating-system 1464892. Retrieved: 20 March, 2020.

Williams EJ. (2017). Twitter Founder Reveals Secret Formula for Getting Rich Online from Wired. https://www.wired.com/2013/09/ev-williams-xoxo/. Retrieved: 20 May 2020