

Design of a Web-Based Artisans Services Platform (*Artisans-Connect*)

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Abstract: There is usually a wide gap between artisans and their prospective clients in the cities especially when these prospective clients are new to the city and are in need of some basic crucial services. Over the years, they have always been a need for a new entrant or a visitor to an environment to meet artisan that would provide specific services and this had been a challenge. Artisans Services Platform presented in this paper enables clients to meet artisans in an online matching platform. The system bridges the wide gap between artisans and their prospective clients by allowing customers even if they are new in town to connect to the available artisans within their locality to attend to their needs through the internet platform. Data for this work was collected through a primary source using oral interview with structured questions and physical observation. Population size of 150 was used for the oral interview and 170 for physical observation of artisans, the results and analysis showed the essence of this research. Object Oriented Analysis and Design Methodology (OOADM) was used to design the solution which was implemented using PHP, JavaScript and MySQL for database. The result is a Web-Based Artisans Services Platform (*Artisans-Connect*) that connects local artisans with their prospective clients in Abakaliki capital territory.

Key words: Artisans • Clients • Database • Online Payment • Internet Platform

INTRODUCTION

Artisans all over the world are known and identified as skilled manual workers who create their wares mostly from the raw materials gathered within their environment. They are sometimes regarded as low cadre laborers because most of them may not have attended any form of formal education. At most, primary education is their highest academic qualification. Their non attainment of formal education do not really play any role in their chosen endeavors as majority of them can be said to be successful in every meaning of the word success.

Artisans constitute about 30-35% of the population and create much of the beauty, grace, fun and excitement the rest of the people in the society enjoy in life. Artisanry and technical skills and services are critical to the development of nations. Skills acquisition is key to grassroots empowerment [1]. Adaptive skills develop both the personality and manipulative skill capability of youth [2, 3]. They rescue street youth, ghetto youth and the destitute from gangsterism, drug abuse, crime/violence and other vicious involvements that mar the

social, cultural and economic development of countries [4]. They address unemployment by providing the youths with self-sustaining job skills [5].

Artisans are major players and components of any growing economy. Growing economies like that of Nigeria can be said to have been stunted or growing at snail speed because of the relegation of a sector as vital as the artisans to the background. Schumpeterian theory provides that the entrepreneur is the prime cause of economic development, hence the disappearance of technical labor skills and services could spell doom for the country's future development because master artisans are entrepreneurs.

Development theoreticians and practitioners appear oblivious of this serious problem, as there are no concerted and concentrated researches and policies geared towards mechanizing this very important subsector (the artisans' subsector). This gave birth to this research. There is a gap between the artisans and customers who may be in need of their products or services. The focus of this project is to bridge the wide gap between artisans' service-providers and service seekers (clients/customers).

This research developed a web-based platform that creates a meeting point for both the artisans and the client by:

- Creating an online database of artisans on the basis of their sector for ease of identification,
- Integration of PayStack, a secure online payment gateway to encourage ease of transaction,
- Creating a module for subscription and updates by the artisans and
- Creating a module for interactions and feedbacks between all stakeholders in the system.

Artisans require appropriate channelization for the display of their products and services to encourage them and also stem the tide of the dwindling fortunes of the country. Also, artisans would feel more encouraged to give their best when they are able to do their trade at their own comfort knowing that there is a market constantly waiting for their products. Their social lives would be greatly affected in the most positive way. The younger generation, haven grown to see the luxury in the craft, would also be encouraged to step in as the older ones gets weak and aged. Thus, the trend of transferring knowledge continues to grow.

Literature Review: About 70 per cent of jobs created across the economy are said to have come from SMEs [6]. However, they are hindered by inadequate capital, limited market access, poor infrastructure, inadequate knowledge and skills and rapid changes in technology. Some of them have closed shops, while the existing ones are complaining about a hostile business operating environment. Consequently, SMEs have shown mixed results in their performance in recent years. This has attracted government's attention to consider developing policies and initiatives that will enable them survive, make profit and create jobs [7]. This way, jobs are created both directly and indirectly thereby improving the livelihood of the populace which in turn improves the life expectancy of the people in general as they are happily engaged and their needs met.

Vocational and technical skills enhance the relevance and functionality of individuals in the society, promote their economic survival and vibrancy and thereby, play a vital and indispensable role in the development of the society [8]. Skills acquisition boost labour market by empowering unskilled, poor and unemployable youth for sound social living, thereby, curbing restiveness, crime and poverty [9]. Skill acquisition is an antidote for idleness and makes for self-reliance, hence the society could be a safe place [10].

Technical apprenticeship training is an age-long indigenous approach to manpower development, which has implications for schooling and out-of-school programs [11]. Younger generation of this country could be said to have lost interest in this apprenticeship and in its place, chosen a destructive path of get-rich-quick. They derive their encouragement from the society as people celebrate wealth without questioning the source. With this mindset, no one would wish to spend long years learning a trade or craft as the few who are in it are seen as failures because they do not live in affluence nor exhibit flamboyance. Hence the older generations age out with the knowledge and possibly die with them without being transferred.

With the gradual disappearance or aging of older artisans, Nigerian government could do well in creating an enabling environment and good implementable policies to encourage the large younger generation into venturing in skilled labour. Artisans Hub could be a good start. In recognition of the important role of artisans in development, the Oakland Artisan Marketplace was established to support local artisans and spur Oakland economic development [12].

Also, in recognition of the importance of job for all, Nigerian governments have always had both policy and structure for the creation of a pool of artisans and entrepreneurs among the unemployed through skills acquisition [13]. By establishing secondary school laboratories, Trade Centres, Monotechnics, Polytechnics, Vocational Education departments and Student Industrial Work Experience Scheme (SIWES), Nigerian governments also provided for the integration of skills into school programs for the creation of middle technical manpower. All these noble programmes of the government could have been a lot more successful if there were consistent and strategic implementation just as it was done in Oakland years ago.

[14] in his study illustrated that in many developing nations, handicraft production is a major form of employment. According to him, handicraft constitutes a sizeable portion of domestic and export contribution in an economy. Aside agriculture, artisans have been seen as the second largest sector of rural employment in many countries of the world. Due to negligible start-up capital, flexible work hours, the ability to work at home and freedom to manage one's own business, handicraft production has crossed all sectors of the modern global economy as postulated by [15]. In their study they opined that artisans productions flourished because handicraft offer unique advantages like funds for those who have limited

access to the cash. Unlike many other forms of labour, handicraft artisans enjoy the benefit of some level of independence.

[16] stated that artisans are basic integral part of cottage industry. An industry dominated by underprivileged labor class that provides more employment to the lower and uneducated classes of the population. They also provide employment to the extremely low income of the people of the cottage sector. [17, 18] explained that the sector of handicraft is largely environmentally friendly, hence, so much energy need not be expended in its consumption and consciousness. Furthermore, they stated that this sector thrives in the possibility of fair trade practices as such, its growth is fast in contrast to other sectors of the economy. All those factors, in their wisdom, contribute in making the sector big player in the economy of the country and a vital tool for tackling unemployment.

[19, 20] discussed that artisans sector is a pivotal source of rural, as well as the urban employment and sustenance as their development and improvement can result in creating better jobs and improved income for their livelihood. Thereby resulting in the reduction the rural to urban migration. [21] looks at this artisanship differently. He opined that the government of any nation takes the responsibility of providing attention towards strong Small and Medium Enterprises. This according to him, is the basic commitment of any nation towards the upliftment of the less privileged group. He further stated that the policy of any nation towards such enterprises must be to providing adequate mechanism through which the demography of small and medium enterprise sector will grow to provide safety net to its populace.

[22] is of the opinion that developing this sector would play a critical role in the development of a country especially in the tourism sector of the nation as it can generate enormous jobs for natives. [23, 24] in his paper presentation explained the strength of artisans and tourism sector within the scope of the socioeconomic growth. He discussed the strategy of implementing the tourism and artisans development as a vital project of any country. [25] in his study analyzed the craft sector alongside other small scale industries. It was shown that there was a double-digit growth within his research period of ten years. This, according to him, was not displayed in majority of the players of the economy. Globalization, in his submission, has both opportunities and challenges for this sector. In order to quell those challenges, there should be deliberate effort by the government towards providing better strategies, good governance, sufficient

and easy-to-access finance, suitable infrastructure and competitive environment in craft and small scale industry as they are capable of growing any nation. [26-28] emphasized that the main strategies for shielding any economy from collapse is the mindful check against the destructive effects of fluctuation in prices and constant instability in the market. Artisans products and services have the capacity to stabilize the price of other machine made products. Artisans sector, in his study, has the capability to generate enough constant foreign earnings. This sector is equally friendly to the economy as it improves both the social and economic existence of the country together.

Important aspect of this sector is that there is no discrimination on the basis of sex as it provides employment to the mixed population of both male and female [29]. Further, they stated that it is high time the government recognized and encouraged technical trainings of the artisans to encourage self employment for the sustainability of their survival [30] explained in his research, the benefits of promoting modern design in handicrafts as it has become the important option for career and profession for modern age of the people.

Categorizations of Artisans Subsector: Figure 1 shows the compositions of the sectors and subsectors of the Artisans.

Analysis and Design Methodology: Investigation was carried out to find the series of procedures or modes employed by different artisans in Abakaliki township in getting people to know what they are capable of doing. This research work studied the print media specifically. This investigation involves a careful examination and study of how the artisans advertise their products and services using the print media. This is aimed at identifying its efficiency in the promotion of artisans services and products as they hope to connect with people who are in need of their services. Inadequacies inherent in the existing system were considered which formed the basis of the development of the new system. We structured charts and diagrams to analyze the proposed system as shown in the sections that follow [31, 32].

Block Diagram of Artisans'-Connect

The Block Diagram in Figure 2 Shows the Fundamental Components of the System, Their Functionalities and Relationships. The Artisans'-Connect: Has many subsystems which are connected based on their corresponding functionalities.

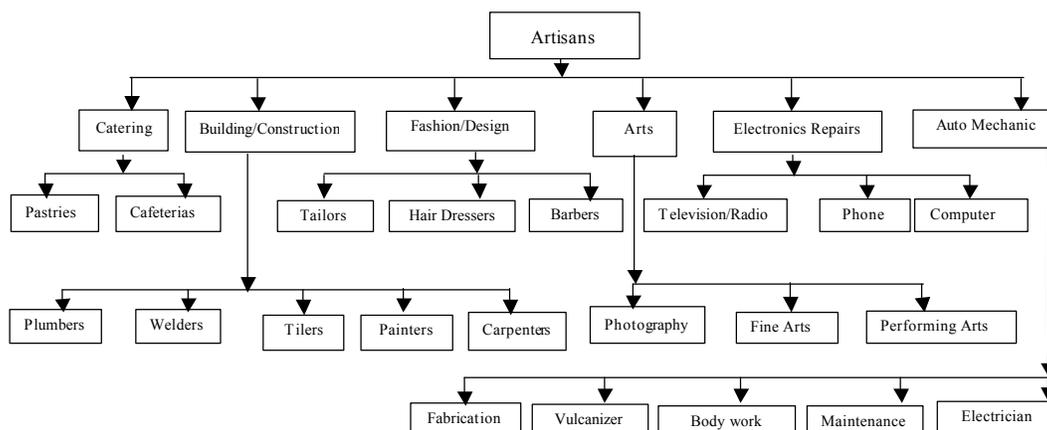


Fig. 1: Categorisation of artisans subsector

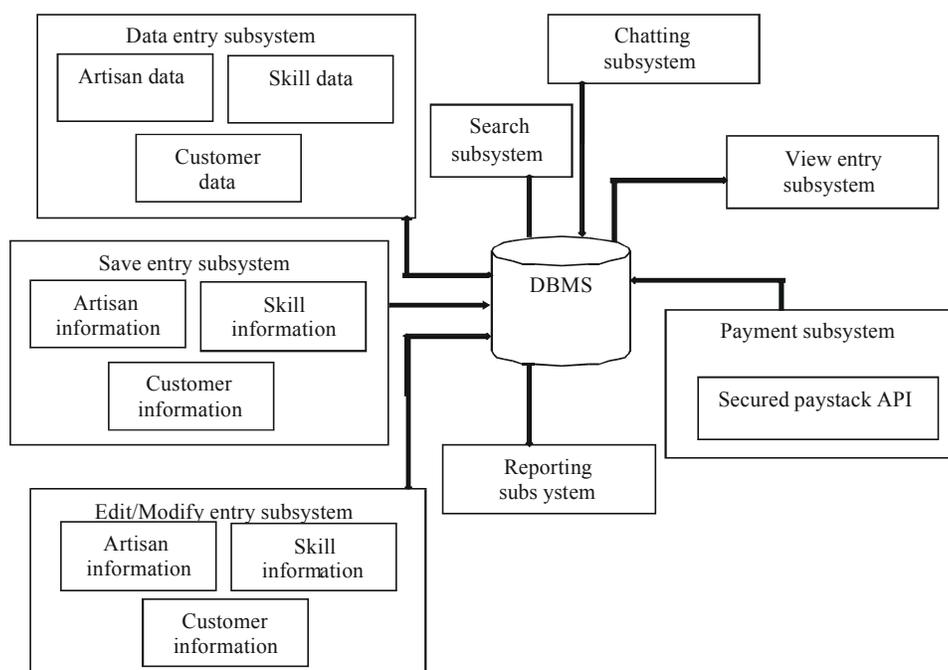


Fig. 2: Block Diagram of Artisans'-Connect

Activity Diagrams: The activity diagrams shown in Figures 3 and 4 illustrate the major operations of both the artisans and the administrator of the platform.

Entity Relationship Diagram (ERD): Entity relationship diagram display the individual entities and how they interact/interrelate with each other. This is shown in Figure 5

Use Case Diagram: The use case diagram shown in Figure 6, displays the major stakeholders on the platform and their activities. A possible link between them is also displayed.

System Design: The *Artisan-Connect* employed Object Oriented Analysis and Design Methodology (OOADM), using Unified Modeling Language (UML) which is a software design that aim at describing functionality at a very high level, then portion it recursively into more detailed level, one at a time to achieve the design of the systems.

Input Forms Design: The input forms capture information into the system database. We have established a sketch for the input forms in this design stage. The user (artisan or client) registration form design is shown in Figure 7. Request service

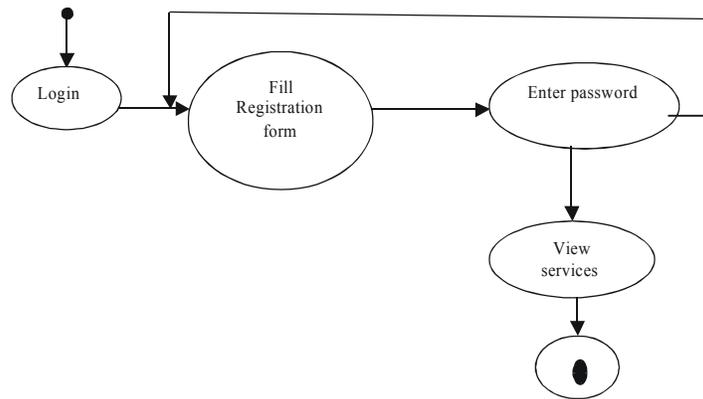


Fig. 3: Activity diagram for artisans

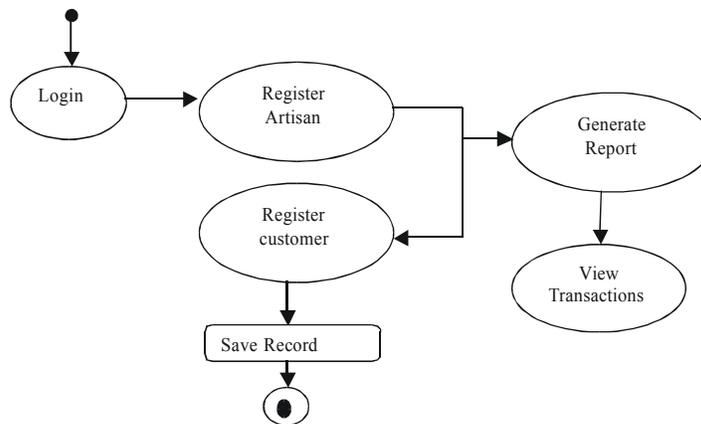


Fig. 4: Activity diagram for Administrator

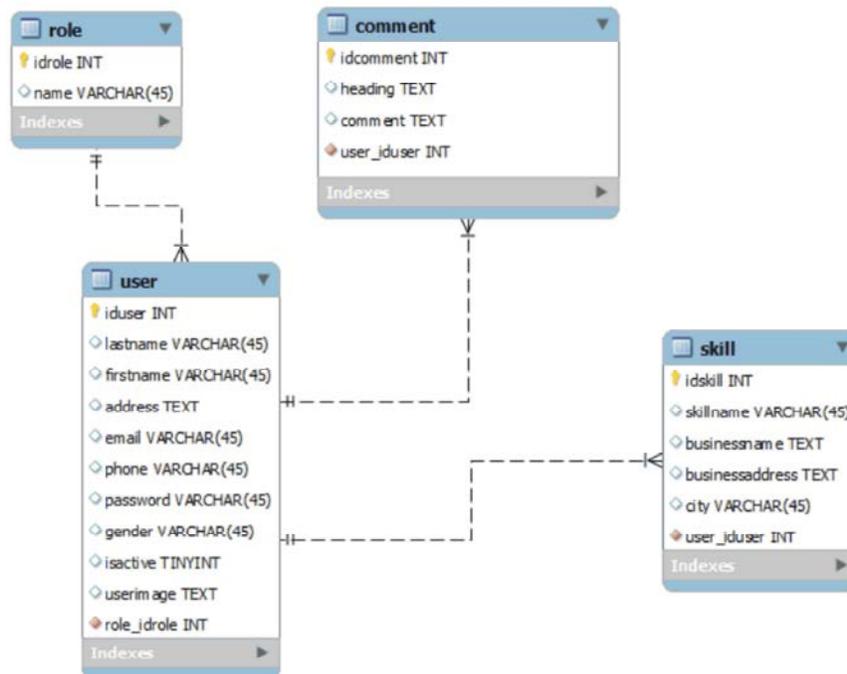


Fig. 5: Entity Relationship Diagram

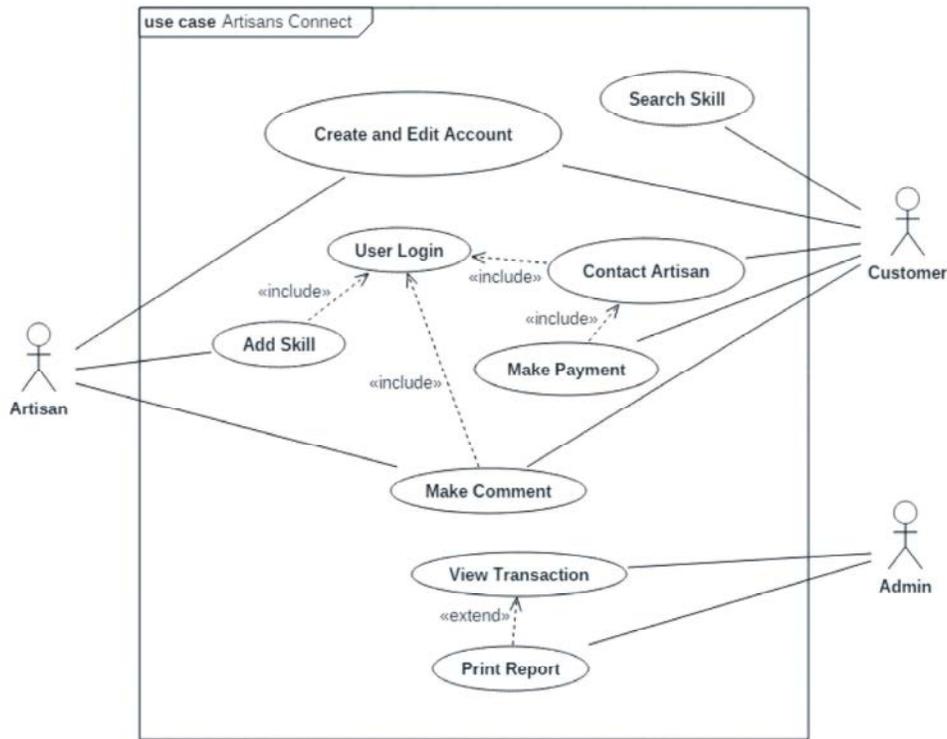


Fig. 6: Use Case Diagram

User Registration Form		
user_id		
role_id		
Lastname		
Firstname		
Address		
Email		
Phone		
Password		
Gender		▼
Isactive		
Userimage	<input type="button" value="Upload ..."/>	
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>	<input type="button" value="Cancel"/>

Fig. 7: User (Artisans/Customers) Registration Form

Service Request Form		
Service_id		
user_id		
Service_needed		
Request_Date		▼
Service_Date		▼
Service_address		
City		
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>	<input type="button" value="Cancel"/>

Fig. 8: Service Request Form

Table 1: User relation

Field Name	Data type	Length	Data Description
user_id	Integer	11	Auto-generated number for users
role_id	Integer	11	Stores role id for proper relationship
Lastname	Varchar	45	Stores user last name
Firstname	Varchar	45	Stores user first name
Address	Text	150	Stores user's address
Email	Varchar	50	Stores user email
Phone	Varchar	45	Stores user phone
Password	Varchar	45	Stores password
Gender	Varchar	45	Stores user gender
Isactive	Tinyint	1	Stores user status
Userimage	Varchar	45	Stores user image name

Table 2: Skills relation

Field Name	Data type	Length	Data Description
skill_id	Integer	11	Auto-generated number for skill
user_id	Integer	11	Stores user id for relationship
Skillname	Varchar	100	Stores skill name
Category	Integer	11	Stores category
Businessname	Varchar	100	Stores business name
Businessaddress	Varchar	100	Stores business address
City	Varchar	45	Store location of the business

form shown in Figure 8 enables a potential client to connect to an artisan by requesting for a service.

Database Design: The database design shows the different table structures. We have included the description for that data fields for better understanding. (Tables 1 to Table 5).

Table 3: Comment relation

Field Name	Data type	Length	Data Description
comment_id	Integer	11	Auto-generated number for comments
user_id	Integer	11	Stores user id for relationship
comment_heading	Varchar	24	Comment title
Comment	Text	150	Stores user comments

Table 4: Role relation

Field Name	Data type	Length	Data Description
role_id	Integer	11	Auto-generated number for role
Name	Varchar	45	Stores role name

Table 5: Request service relation

Field Name	Data type	Length	Data Description
Service_id	Integer	11	Auto-generated number for service request
user_id	Integer	11	Stores user id for relationship
Service_needed	Varchar	100	Stores the service needed by the client
Request_Date	Date/time		Stores date the service is requested
Service_Date	Date/time		Stores date the service is needed
Service_address	Varchar	100	Stores address the service is needed
City	Varchar	45	Store location where the service is needed

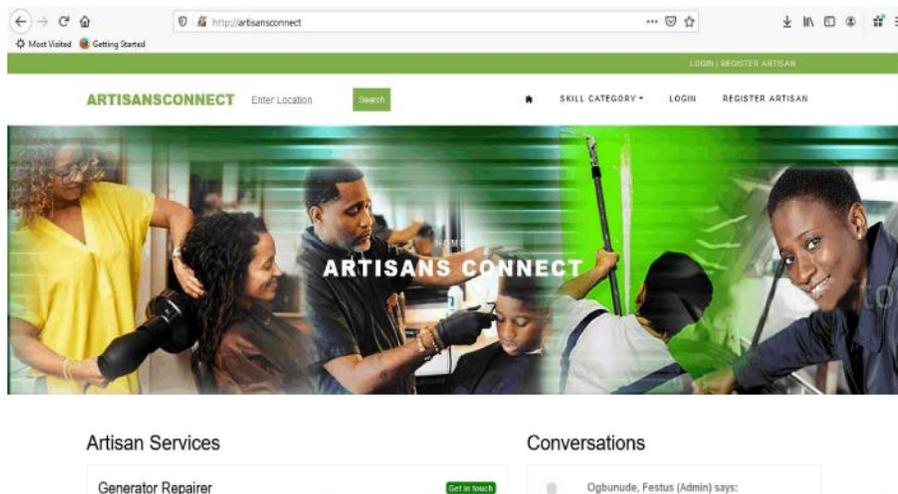


Fig. 9: Output display of the home page

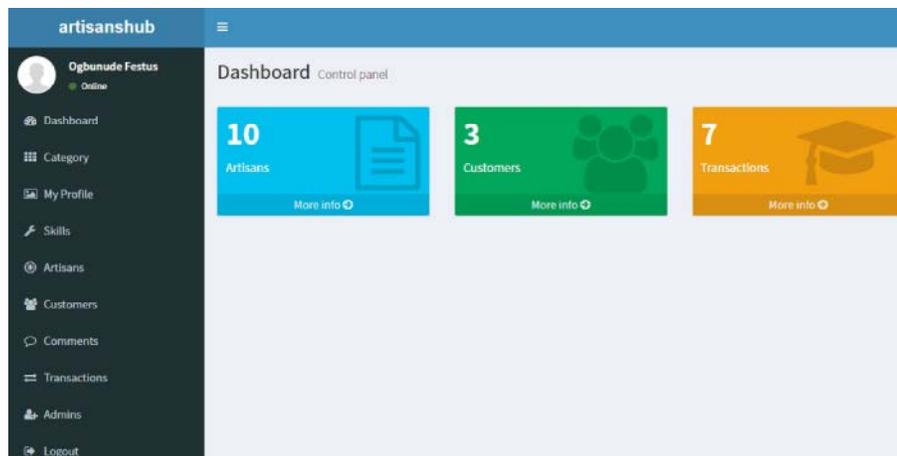


Fig. 10: Output display of Artisan's Dashboard

RESULTS AND DISCUSSION

The design of the Artisan-Connect was realized. The implementation of the system was done using PHP and Javascript for the client/server side scripting and MySQL was used for database. Figures 9 and 10 presents the output screens of the developed software.

CONCLUSION

The development of a web-based artisans services platform (*Artisans'-Connect*) to link artisans with their prospective clients has been successfully achieved. The system has presented the features to eliminate the difficulties encountered in using the paper-based method of business advertisement as well as word of the mouth, testimonials in Abakaliki capital city. The work took a thorough analysis of the existing system through oral interview with structured questions and observation methods.

This research work set out to develop a web-based artisans service platform that connects local artisan with clients. The work was able to successfully;

- Create a database of artisans based on their sector for ease of identification and connection which was of great importance.
- In order to key into the cashless policy of the government and also secure the finances of the artisans, a secure online payment gateway, PayStack was successfully integrated.
- Create a module where both the artisans and clients can subscribe and update their information at their own comfort.
- Integrate an interaction module where the administrator can converse with both the artisans and their prospective clients.
- Feedback and comment at the end of the transactions can also be sent between artisans and their clients.

With all these achieved, there would be increase in patronage for the artisans thereby improving their livelihood of their families. Also the artisans' economic impact in the state economy will be seriously be felt. There would also be a reduction in the problems encountered by the clients in their search for goods and services providers.

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