Journal of Innovative Research in Engineering and Sciences 4(1), February, 2013.
ISSN : 2141-8225 (Print); ISSN : 2251-0524 (Online)
http://www.grpjournal.org/Journal/Category/JOIRES.aspx.
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E-Marketing for Nigeria Agricultural Products

(pp. 455 - 465.)

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Abstract: One of the problems facing Agricultural farmers in Nigeria is how to market their products beyond their locality. Information technology tools have been tested and accepted widely and can be used to solve the problem of marketing faced by farmers. This paper explores the background of the study relating to agricultural practice and marketing of the agricultural products in Nigeria. It proposes the use of merchant to act as a middle-agent between the farmers and consumers for the marketing system. This paper explores the use of web application to market farm products which includes tubers, grains, and so on. An interface is provided on the web application to allow the customers select their preferred products to their carts and an invoice will be generated electronically based on the goods selected. Thereafter, a two-way payment is made available; online payment using e-transacts and local payment to the merchant account directly.

Keywords: Agribusiness, E-marketing, E-payment, Merchant, Interface

INTRODUCTION

In the present era of globalization, trade liberalization and privatization, Information Technology (IT) plays a vital role to make a produce competitive in the global market through all it's manifestations like e-mail, multimedia electronic banking, internet, World Wide Web and so on. (Talathi, 2007). Agriculture has tremendous influence in all spheres of human activities because without food, human being cannot exist. Agriculture in Nigeria is one of the largest sources of livelihood of her population, a component of domestic products and touches almost every sphere of economic activities (Alatise, 1979). Agribusiness, as a concept, encompasses the whole range of activities from agro input manufacturing to marketing the processed food for the ultimate consumer. Effective communication is the key to successful business (Naik, 2007). Internet is the fastest growing communication medium on earth at present. Doing agribusiness on-line through internet is generally referred to as "E-agribusiness". It is also referred to as application of e-commerce in agribusiness;

basically, it is Information Technology (IT) based agribusiness (Boone and Kurtz, 2001). Technically, agribusiness is arm of e-commerce which is can be defined as any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. (Ernst and Ehmke, 2000). Farmers through various part of the country can sell their produce on line since one of the problem agriculture is facing is improper marketing.

Considering the weather conditions in Nigeria, production is really encouraging but still the condition of marketing of farm produce is not yet meeting the expectation of the farmers. Looking at the present forms of marketing of farm products in Nigeria, we are still operating traditional form of marketing. There are so many defects in the present marketing system such as the ways of making the prospective customers know the products the farmers have, locating the right farmers that have the actual needed products, marketing the products to remote customers and problem of not paying for what they bought. A case of a virtual market that was launched by a Nigerian student in 2010 (www.virtualmarket.com) but collapsed due to improper payment method. To overcome these defects, new techniques and trends should be adopted that will involve standard institution such as banks that will ensure the integrity in buying and selling transactions of agricultural products online. Therefore, this paper provides solution to the afore-mentioned problems by creating a working and robust web application to market farm produce. The agro-market web application integrates the e-transact payment system, a popular platform that is operational in Nigerian banks for most e-payments in Nigeria.

Agriculture is the reason why we have food on our table at our homes every day. The agriculturists are doing what they can in studying and research on new methods to deliver quality crops in the market. Agriculture is by far the most important sector of Nigeria's economy, engaging about 70% of the labour force but often characterized by simple tools and shifting cultivation. These small farms produce about 80% of the total food (CBN, 2000). Nigeria has different climatic conditions, ranging from the tropical in the south to the arid zone of the north which makes it possible to have nearly all agricultural products in the country.

Presently, agricultural holdings are generally small and scattered, farming is often of the subsistence variety, about 30.7 million hectares (76 million acres), or 33% of Nigeria's land area, are under cultivation (CBN, 2000). The economic benefits of large-scale agriculture are recognized, the government favours the formation of cooperative societies and settlements to encourage industrial agriculture. Despite the abundant supply of water, a favourable climate, and wide land mass for cultivation, productivity is still low due to

the inefficient methods of cultivation because most farmers are nor literate, therefore, not aware of modern agricultural framing methods. Some of the literate ones that are venturing into agriculture are not finding it enjoyable because of the traditional method employed in marketing of their products.

The agricultural products of Nigeria can be divided into two main groups; food crops, produced for home consumption and tree crops for export. The most important food crops are yams and cassava in the south, sorghum (Guinea corn) and millet in the north. In 1999 according to CBN publication, production of yams was 25.1 million tons (67% of world production), cassava 33.1 million tons (highest in the world and 20% of global production), cocoyam 3.3 million tons, and sweet potatoes, 1,560,000 tons. The production estimates for major crops in thousands of tons are millet, 5,457; corn, 5,777; rice, 3,399; peanuts, 2,783; palm oil, 842; sugar cane, 675; palm kernel, 565; soybeans, 405; and cotton lint, 57. Many fruits and vegetables are also grown by Nigerian farmers. Despite all these production, there has not been effective marketing maens till date.

E-marketing constitutes an aspect of electronic commerce that encompasses the areas of information management, customer service, public relations as well as sales (El-ansary, Frost and Strauss, 2005). E-marketing previously emerged as a channel for sharing product information to potential customers (Schlueter, 1998). Today, there are a lot specialized organizations that are helping other companies to advertise varieties of products and services. The e-marketing soars with the widespread of internet connections through different platforms ranging from wired to wireless and mobile. Today, governments at all levels in Nigeria are canvassing for more participation of our youths in agriculture since it is the quickest means of generating employment.

E-marketing holds a number of benefits such as a wide market reach coupled with the reduction of cost, however, there are some challenges such as the difficulties experienced by the farmers to connect consumers as a result of the crude means employed in marketing their produce. Security of information sharing especially finacial trasaction is also of great concerns. Despite these difficulties, benefits of e-marketing much more surpass the challenges and most of these difficulties are addressed in this paper.

The marketability of a product depends upon a lot of factors, but, the main objective of marketing a product is to bring more visitors to the site. The focus of bringing more visitors can be done through quantitative approach or qualitative approach (Ogunjobi, 2011). The more visitors you have, the stronger the marketability of your products. Also, more the quality of products you have, the more

is the chance of making these visitors your customers. The focus area of this paper is to market agricultural products electronically. The architecture has agent or merchant as the middle-man that owns the e-commerce web site. The duty of the agent involved is to make contacts with the farmers by supplying fertilizer and the necessary tools needed by the farmers. In turn, the agent returns to the farmer during the harvest period to bring all the farm products from farmers to their warehouse as seen in fig 1. This agent should be an organisation that is duly registered by the government to carry out such businness. There is an input supply agency in Ondo state that supply seedlings, drugs and other farm implements to farmers, such agency's scheduled could be broadened to include buying the products from the farmers. Also, there is an agency in the Federal Ministry of Agriculture that is managing the silos of the Federal Government located in the six geopolitical region of Nigeria. It could be made to be involving in this type of business. Also, this sector should be deregulated so as to allow private investors duly registered by the government to participate fully. Upon the arrival of all products in the agent warehouse, advertisement is placed on the agent's website about the new products to their customers. The buyers will have to contacts this web in order to purchase these products, made necessary payments including transportation.

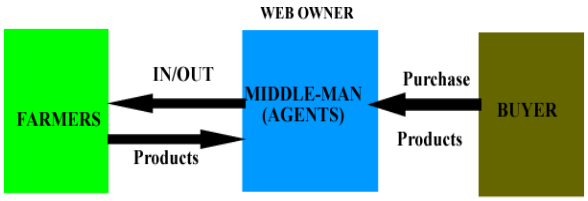


Figure 1: Flow of products

PROPOSED MODEL DESIGN

The proposed system is a secured web application for agricultural products. This section describes the design details of the electronic market place for agricultural products and also a secure transaction mode. This application is designed taking into consideration the following:

- Establishment of payment transactions that provide confidentiality of information.
- Authentication of customer's payment to ensure integrity

In achieving this, the following parties are involved;

- Customer
- Merchant
- Merchant Bank
- Inter-switch system

Database Design

The store house for the data that are used for various processing by the system are defined in the various tables available in the Mysql database server used for the design. The Merchant's site has interfaces that are available through which online customers can access the various information in the server. This is done through processing of the various queries

sent to the server by the customersvia these interfaces. The tables and their attributes are listed here.

- **The User profile Table**
  This keeps the detail information of registered customers. It contains the following fields, UserID, email, password, firstname, surname, gender, dateofbirth, phoneNo, strAddress, city, country and statues. Making userID as primary key
- **The Items Table**
  This table holds the information of the merchant's goods on the web site. The fields are Itemid, ItemName, ItemPrice, ItemCategoryid, ItemImage and ItemStatus.
- **The Category Table**
  This contains the categories of products available online. The fields are categoryid and categoryname.
- **The Order Table**
  This keep records of each transaction. The following fields are presents: OrderId, Userld, itemld, Quality, date, status and price. Orderld is made primary key.
- **The Payment Table**
  This keeps customers payments details. It includes the following fields, PaymentID, Amount, Account No, AccountName, and Bank Name.
- **The Admin Table**
  This table consists of fields like, FullName, ID, Email, and Password
- **The Bank Table**
  This table keeps all records that involve transaction. The fields present are BankID, BankName, AccountName, AccountNo, Balance and Status.
- **The Cart Table**
  This contains the attributes of various goods selected bybthe customers. The fields are Id, sessionId, ItemId, ItemName, Itemprice, Itemqty, ItemImage, Date

System Implementation and Documentation

System implementation is the realization of the proposed system based on the specification in the analysis and design stage of this project. It basically involves the steps to put the new system into operation. The system is implemented using client- server architecture. On the client side, Hypertext Markup Language (HTML) is used to display the content of the web Pages in the web browser. The Server side is implemented using Mysql and PHP technology. Apache server is used as the control centre for all other technology. The extended capacity of PHP is used to process the dynamic web pages that work with database to create an effective realtime processing. Mysql relational database is used for the creation of the database that holds the tables. Hypertext Markup Language (HTML) is the text mark-up language used on the World Wide Web for display of contents in browsers such as Internet explorer.

DISCUSSION OF THE RESULTS

User Login

On this page, user or customer will supply his email and password to gain access into the system. New user will have to register by clicking on the sign-up link.

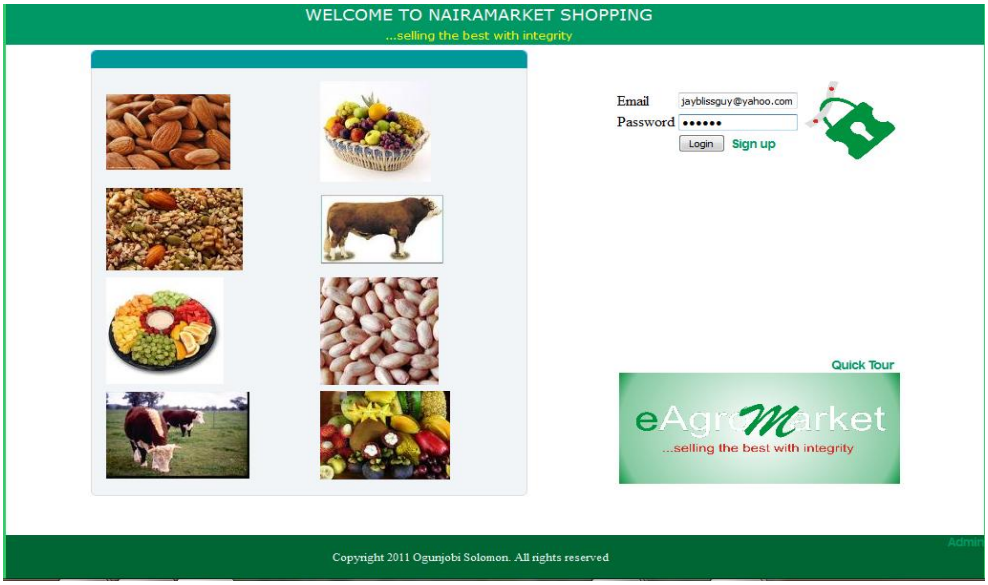


Figure 2. User Login Page

- **Sign –Up Interface Page**

New user fills in the necessary information that is needed to register with the merchant. Thereafter, a successful notification will be display to the registered user

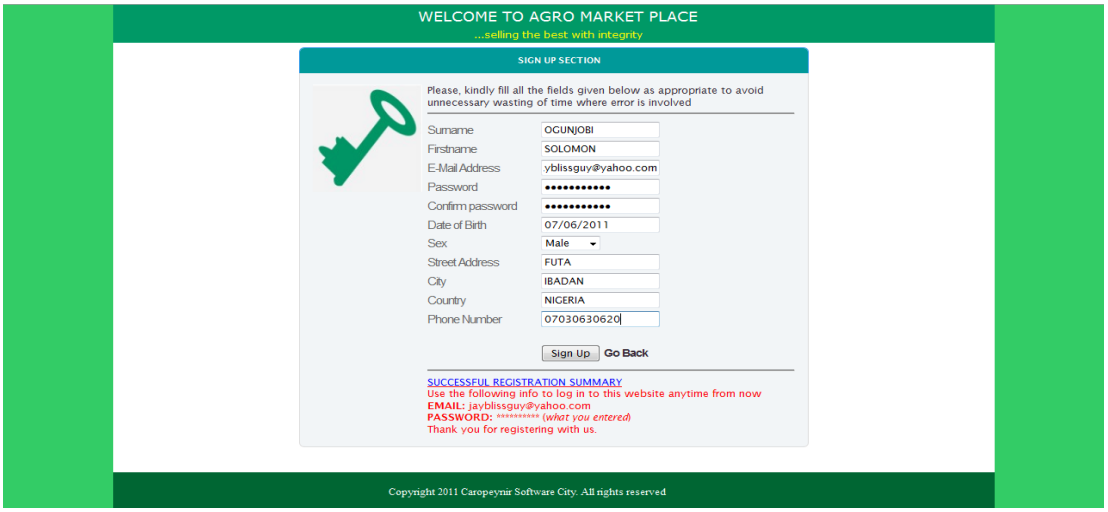


Figure 3: Merchant site/Selection page

This page displays the different kind of goods the merchant want to sell to his or her customers. The goods are being selected by clicking on each category of products, filling in the number of quantities to purchase and add them to the cart.

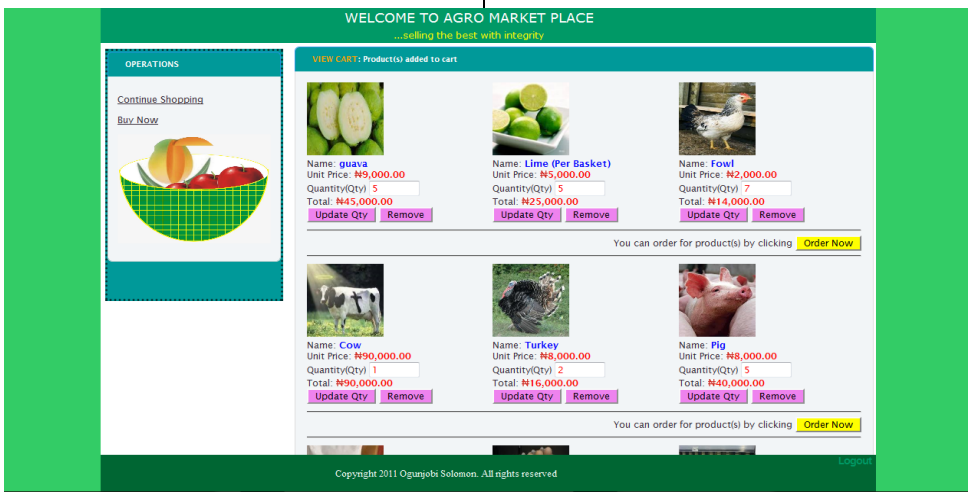


Figure 4: Merchant Page

- **Invoice Page**

This page display all the products selected by the customer, which include the unit price, quantities, and the total price of all goods.



Figure 5: Invoice Page

- **Category Page**

This page is the main section where the merchant can add categories and the items available. This is the control area where unit price is fixed items are added or deleted from the database.

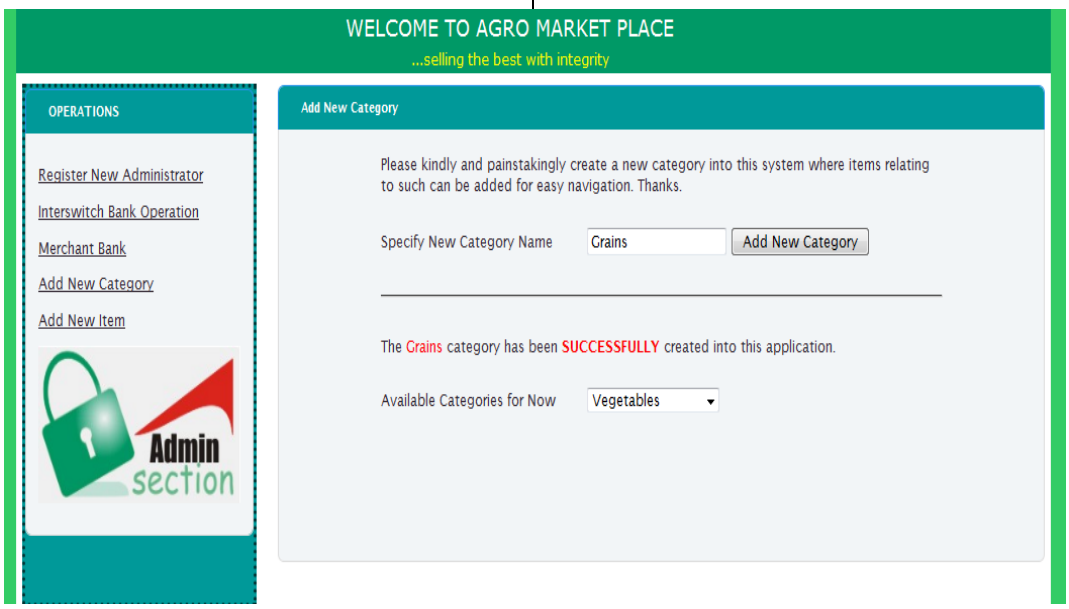


Figure 6: Category Page

- **Merchant Bank**

This page simulates the bank payment operations in Nigeria. As long as the customer has an account with any Nigerian banks, he or she automatically has an account with inter-switch for the purpose of e-transact operation. In the course of payment, the customer goes into any of the banks with merchant account name and account number given at the point of product selection. Upon the payment at the bank, a pin code will be given to the customer to be used for the authentication purpose on the system.

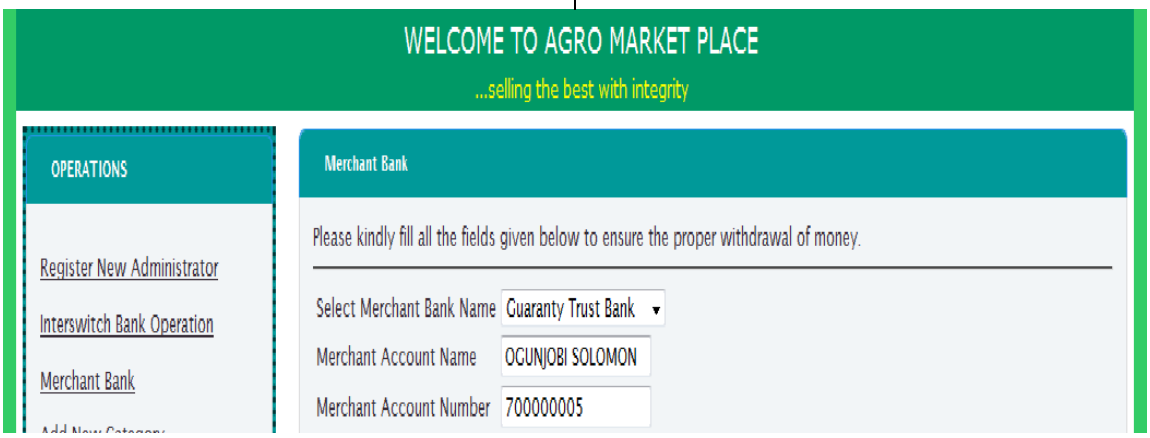


Figure 7: Merchant Bank

- **Transaction Page**

This is the page where the real transaction takes place. It consists of two sections, namely the online mode and Local Mode.

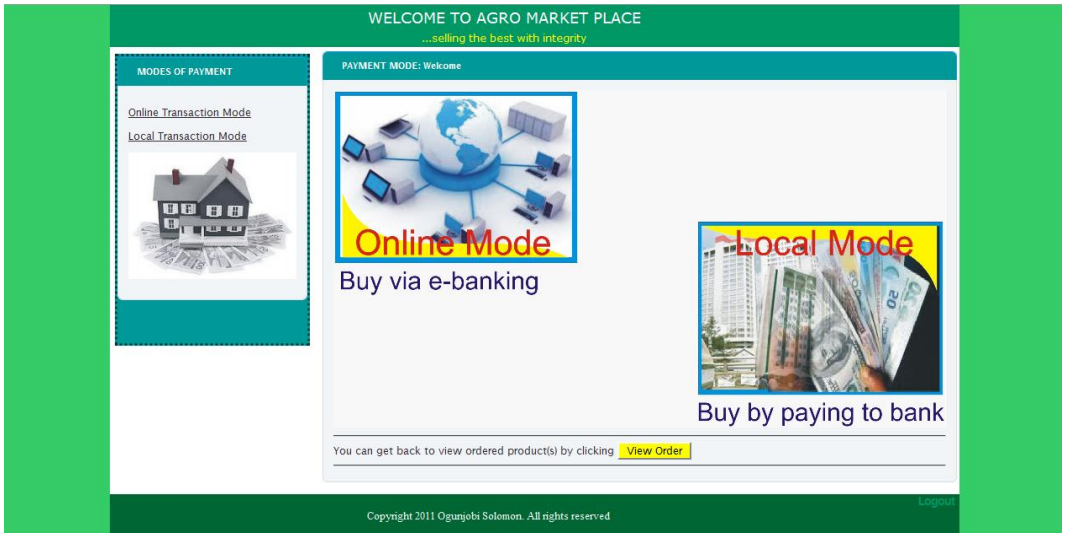


Figure 8: Transaction page

- **Online Transaction Page**

The Online transaction is shown in fig 9, this page shows how customers can make payment online rather than paying to the bank. During payment process customers must have a bank account, bank account pin code and the bank name. When all these are provided the total sum of all selected goods will be deducted from his or her account automatically.

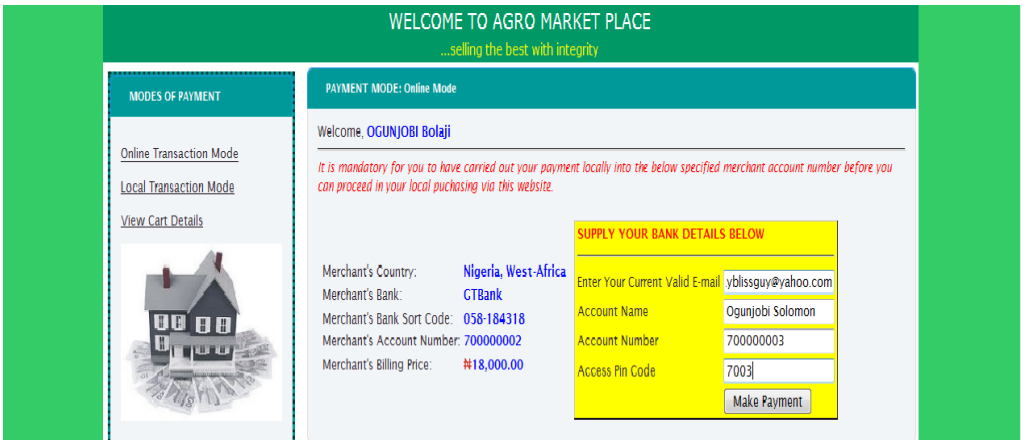


Fig.9: Online Transaction

- **Local Transaction Page**

This page displays all merchant bank payment details, which includes Merchant Country, Merchant Bank Name, Merchant Account Number and Merchant billing price.

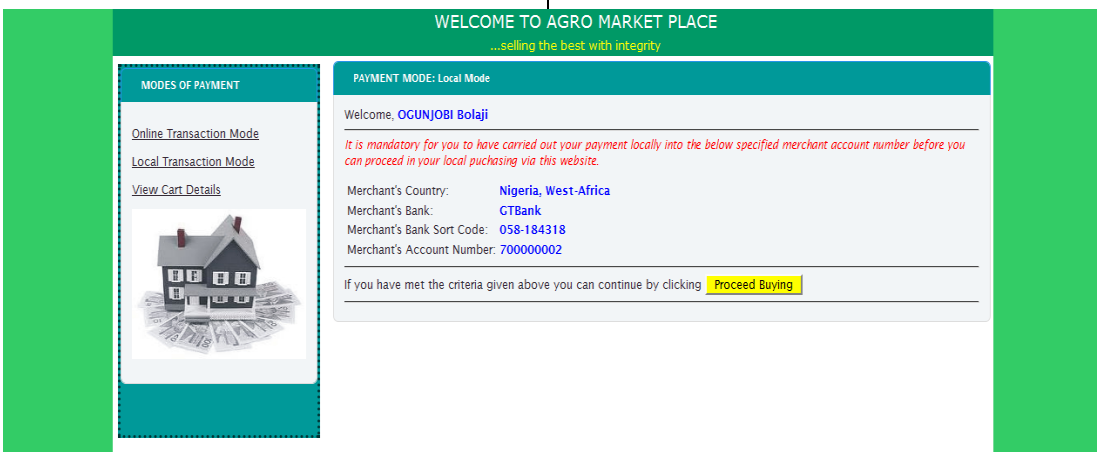


Fig 10: Local Transaction

- **Local Payment Verification Page**

When all necessary payment have been made by the customer, a payment pin code will be generated for each customer which will be use to verify his or her payment.

CONCLUSION

In this paper a detailed research was carried for the successful development of an e-market web application. The system was designed based on Nigeria Agricultural Products and also implemented using both online and offline mode of transaction, to ensure easy payment for goods. Privacy of transactions and authentication of all parties involved were considered for achieving the level of trust that allowed the transaction to be successful. It is absolutely necessary that Nigeria Agro based Industry gets ready to do business using this medium.

There will be tremendous potential of e-agribusiness and enormous opportunities would be created in the business of agricultural sector if the e-marketing model analysed here is adopted by individual farmers, goverment and private organisations. I thereby recommend that individual or private organization that wants to get involved in an online business should registered with the appropriate authority, so as to increase the level of trust among the customers which will directly increase the interest of customers in purchasing the products displayed online.

REFERENCES

Alatise, S.O (1979). E-marketing in Nigeria: experience in a developing"

Boone, L. E. and D. L. Kurtz (2001). Contemporary Marketing. *Port Harcourt College Publishers*, 10th edition.

CBN (2000). The Changing Structure of the Nigerian Economy and Implications for Development. *Realm Communications Ltd. Lagos*, CBN.

Ernst, S. and C. Ehmke (2000). E-commerce in Agribusiness research project. The Ohio State University.

El-Ansary, Strauss, J. and R. Frost (2005). E-Marketing. *New Jersey: Prentice Hall*, 2nd edition p.3-6.

Naik (2007). E-marketing Strategy Research. *South-Western College Publishing*, Cincinnati.

Ogunjobi S.B. (2011). E-Market Place for Agricultural Products. *Bachelor of Technology degree Project in the department of Computer Science, Federal University of Technology,* Akure, Ondo state, Nigeria.

Suhlueter, (1998). Electronic Commerce: Strategies and Models for Business-to-Business.

Talathi J.M (2007). Marketing agricbusiness. *Department of Agric Economics*. Dapoli, Dist. Ratnagiri

www.virtualmarket.com, 2010