E-COMMERCE APPLICATION FOR AGRICULTURAL MARKETING

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Abstract— Internet has become increasingly strong and widely used. Various industries are facing a new situation in market development expecially in the agricultural sectors on how they can effectively use the internet on strengthening their agricultural enterprises so that they can seize the opportunity to get the highest return in value of their agricultural products At present, many agricultural E-Commerce applications are operative but are still in its inception.

Various features of E-Commerce are not yet implemented and many strategies are not considered in agricultural products. my research application will provide better and effective ways of dealing with e commerce websites. Many E-Commerce portals are operational and varieties of products are being traded, but vegetables are yet to get success. Stakeholders are reluctant to utilize this online system for selling and purchasing of agri-products. Very few people are using this new marketing system for which the achievement of success is taking time.

This E- Commerce website provides business to farmer service, aimed to link the businessman with the farmer. It simplifies the purchase of a farming product of the farmer as well as ease the marketing of their yields.

1 INTRODUCTION

Buying and Selling are two principal cycles of exchanging business, labor and products. In the time of industry upset, there is an adjustment of the exchanging plan of action. In the seller, consumer and vender meet in physical presence. These days, there is great importance in having knowledge based on Information and Communication Technology (ICT). This exchanging model is known as web based business. Internet business is a knowledge including buying, selling, and trading products, administrations, and data through PC organization furthermore, web. Internet business plan of action advances quickly in some nations on the world.

This plan of action offers some benefits, either for seller and purchaser. Some problems associated with the current system of using e-commerce on agriculture are as follows: one issue is that there is no real-time information on the movement of stocks. There is no way of capturing information about the different types of stocks in the real time, thus will not be presenting you investment opportunities to grow your wealth.

Price determination: Seller in the conventional market meets with other sellers and set price of the product based on supply, demand, competitors' price, quality and freshness of the products. In many application on marketing sellers are unaware of total supply, competitors' price and cannot estimate the demand for the product, the seller gets difficulty in determining the selling price.

The E-Commerce application will determine the selling price on behalf of the seller by taking into consideration the above mentioned factors. The issue of agriculture, rural areas, and farmers is currently the focus of the Central Government. Under the current fierce competition in the international market, how to promote faster and better development of agriculture and improve the overall strength and overall quality of the agricultural product industry chain are issues that need to be considered in current agricultural development.

Some advantages of using the proposed system are:
I. operational costs where buyers can save time in shopping and get flexibility at certain levels in shopping

II. The ecommerce application uses Dynamic System Development Model (DSDM).The usage of this method is based on the advantages of DSDM as agile development models The current Agriculture e-Commerce system contains two main modules thus the purchasing module and selling module. This article discusses development of an ecommorce system for agricultural marketing intended for buyer of agriculture products offered. This system is developed using PHP and HTML5 and database engine MySQL. Purchasing module user are buyers. This module has some functions, including goods selection, discussion with sellers, and buying directly using system

2 LITERATURE REVIEW

2.1 E-COMMERCE APPLICATION FOR AGRICULTURAL MARKETING

There has been much evidence that e-commerce offers an important opportunity for cost reduction and demand enhancement. Although the characteristics of some agri- food

products present a few challenges for those wishing to market products throughe-commerce, there is still much optimism about the potential success of e- commerce in agriculture (Leroux et al., 2001). The high level of fragmentation in the food supply chain reinforces the expectation for Agri-food E-commerce (AE) (Montealegre et al., 2007). The provision of food builds on a vertical chain of subsequent production, service and trading processes that span from the production of agricultural inputs to the delivery of final food products to consumers. AE means introducing e-strategy into the interaction and trading activities between participants in the food sector and changing the configuration and relationships at various stages and linkages of the food supply chain (Fritzet al., 2004; Giustiniano and Fratocchi, 2002). In the developing world, smallholders in agriculture are considered disadvantaged in the agri-food supply chain and income growth poses a common and critical issue for policymakers (Wiggins et al., 2010). It is important for smallholders to successfully gain access to the market; however, they face many difficulties in this area. Due to their small scale, unit transaction costs are high in almost all transactions (Poulton et al., 2010).

The pervasive imperfections of markets in the developing countries, such as lack of information on prices and technologies, lack of connections to established market actors, distortions or absence of input and output markets, and credit constraints, often make it very difficult for smallholders to take advantage of market opportunities (Markelova et al., 2009). To help smallholders address the inefficiencies and barriers to market access, two main approaches have been put forward. The first concerns taking collective action by establishing farmer organizations such as agricultural cooperatives (Hazell et al., 2010; Markelova et al., 2009). Acting collectively, smallholders may be in a better position to bargain with buyers and intermediaries, reduce the procurement cost of inputs, and obtain more market information and policy support. The second approach is to promote contract arrangements between smallholders and agribusiness firms (Abebe et al., 2013; Guo and Jolly, 2008; Key and Runsten, 1999). In contract farming, smallholders arrange their production and sell the primary products to processing or distribution firms at a prior agreed price according to the signed contract.

2.2 AGRICULTURE IN E-COMMERCE

Agriculture e-Commerce is an e-Commerce implementation for agriculture sector. In particular, agriculturee-Commerce involves internet usage, including mobile phone to provide information and bring together supply and demand in Agriculture sector. In the farmer's point of view, e Commerce is selling and buying activity for agriculture product by using internet. Agriculture e-Commerce is important to be developed since this system is needed to:
1) grow economic development in agriculture sector
2) accelerate agriculture information flow;
3) spread market for agriculture sector 4) promote industrialization process for agriculture.

There is some models to implement agriculture e-Commerce, including Business to Business (B2B), Farmer to Customer (F2C), Farmer To Association To Business (F2A2B), Online to Offline (O2O), Business to Business to Customer (B2B2C), Peasants to Customer to Business (P2C2B), and Peasants to Government to Business (P2G2B) [9][10]

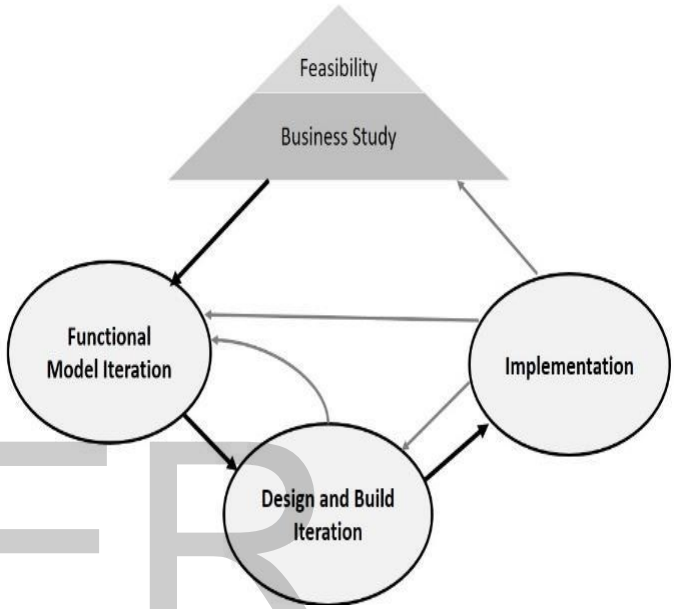

FIGURE 1
E-COMMERCE APPLICATION FOR AGRICULTURAL MARKETING MODEL

I. RESEARCH METHODOLOGY

The creation and use of the e commerce application for agricultural marketing has mainly 3 stages in development process of Purchasing and selling module: 1) feasibility study; 2) functional model iteration; 3) design and build iteration

A. FEASIBILTY STUDY

This is the first stage in developing agriculture eCommerce. In this stage, it is identified some problems that for research background. There is no e-

Commerce that particularly provides agriculture tools, materials, and product. This system has important roles in expanding the market for trading agricultural product that will provide bargaining power for farmers and actors involved in agricultural business.

B. FUNCIONAL MODEL ITERATION

Functional Model Iteration is an iterative stage that is conducted to do modelling for system functionalities. Specifically, this step is to model functionalities in purchasing module of agriculture e-Commerce. There are two main functions: 1) Purchasing transaction management; 2) Reporting management. Those two functions are mapped and shown in table 1 below:

TABLE I. MODUL FUNCTIONALITY MAPPING

Functional Model	Module
Purchasing Transaction Management	Buyer Login
	Material, Tools, and Product searching
	Material, Tools, and Product Purchasing
	Payment
	Payment Verification
Reporting Management	Seller Reporting
	Admin Reporting

C. DESIGN AND BUILD ITERATION

Use case diagrams are used give explanations to users roles as well as its functionalities. The application has two main factors namely:farmer and consumer

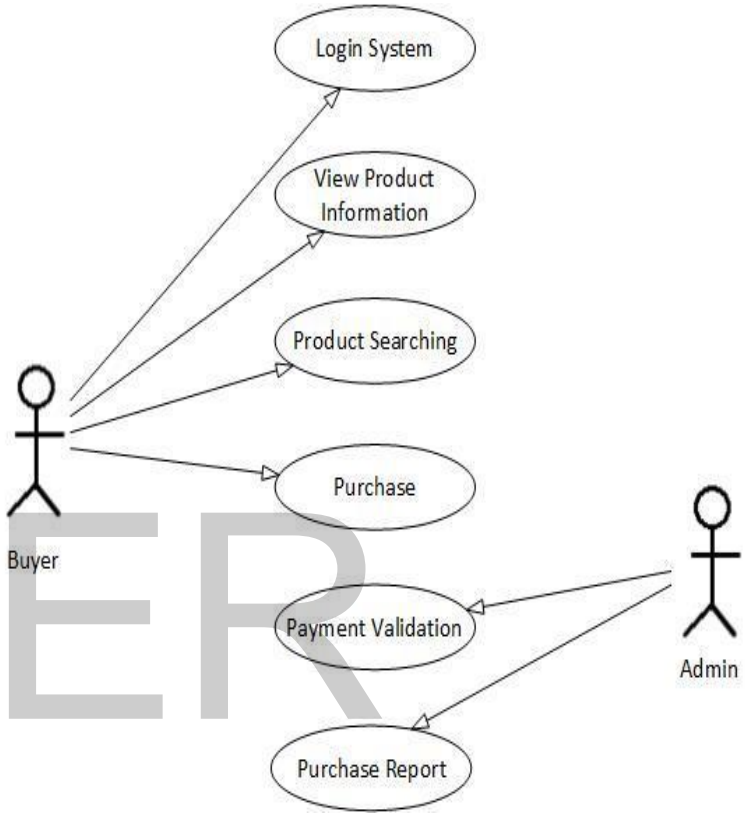

Figure 2

The figure above shows that there are two main actors: buyer and system administrator. Each user has its use cases. Buyer is able to 1) login to system; 2) material, tool, and product searching; 3) see information related to the product offered; 4) buying agricultural material, tools, and product; and 5) processing payment. On the other hand, system administrator(farmer) is able to validating payment and generates purchasing report.

PURCHASING TRANSACTION PROCESS

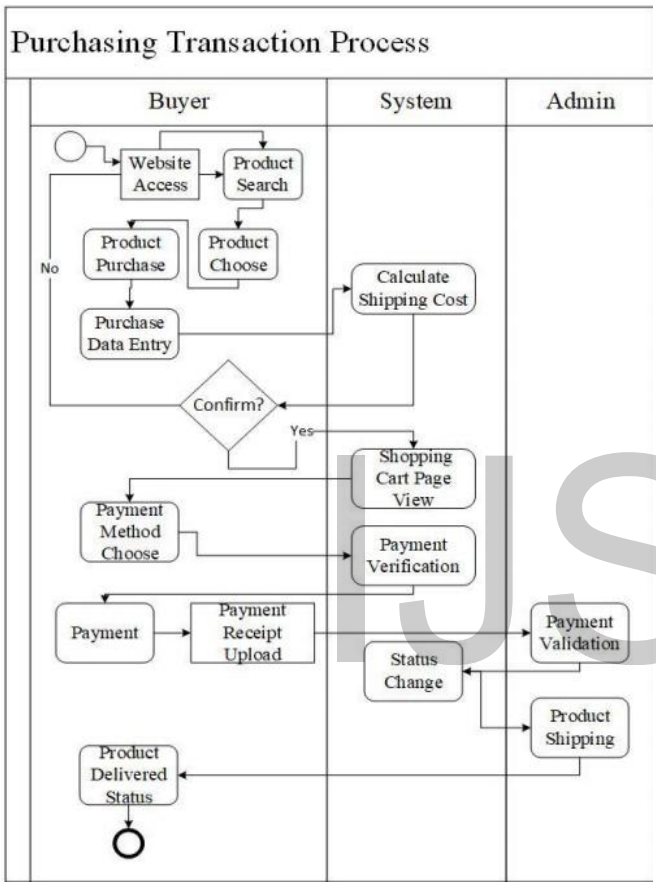

Figure 3

The above diagram shows the process shows the process of login user. User input id and password, after that system will check user id and password on user data. If data conform then user will be directed to purchasing page

It also assists in verification of the payment

IMPLEMENTATION AND ANALYSIS

THE E COMMERCE APPLICATION FOR AGRICULTURAL MARKETING HAS THE FOLLOWING SITEMAP

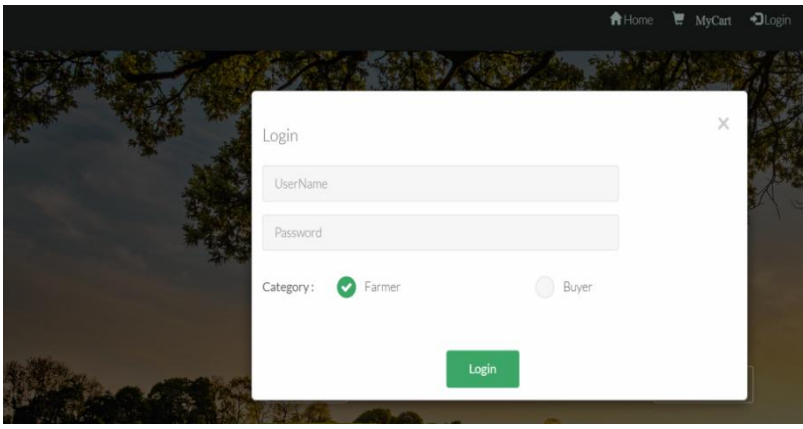

FIGURE 4

The figure above shows user login page for user authentication.

User should have an account to login. If the user does not have

an account, user should register it and the system administrator

will verify the registration.

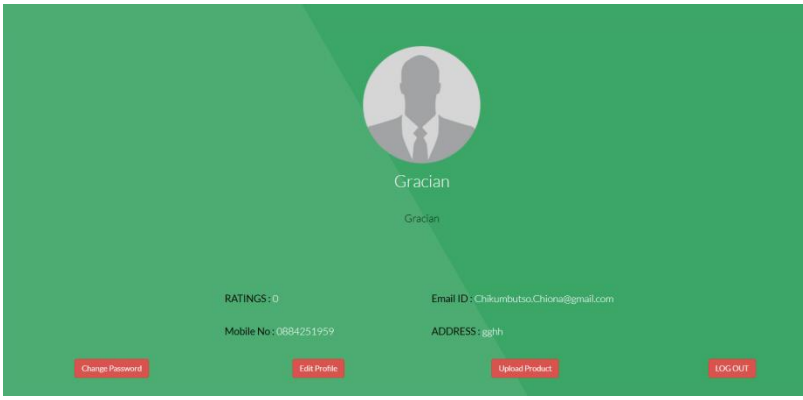

FIGURE 5

shows the product page information. This page gives the product information, price, and the seller. User is able to see the detail information by clicking the product picture or product name.

CONCLUSION AND FUTURE WORK

A. CONCLUSION

This study concludes that

:1) Ecommerce application for agricultural marketing is successfull with the creation of all the modules.

2) Purchasing module for agriculture e-Commerce has two main users: purchasing system management and reporting management; and 3) Testing results shows that module papplication runs well in according to defined functions

B. FUTURE WORK

Future work that is going to be done is integrating purchasing and selling module, system usability testing, and implementation to the farmer community and agriculture industry

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