Novel Approach for E-Business in Agriculture

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Abstract- The vital backbone of India is agriculture. The community responsible for this backbone are farmers which are poor and categorical. This community because of illiteracy and unawareness about the various governmental schemes, even after working hard they are cheated by agents in market. In this paper we have proposed and implemented model for the farmers. The model provides facilities like marking updates, of different commodities provided by central government and new business tactics. By using this model the farmer can sell their products to the merchant under the direct supervision of government and government can see all the transaction happening between merchant and farmers. The system uses the algorithms to provide the required details to the famer.

Keywords- Web application, Product Rating, Weather forecasting, Agriculture marketing.

I. INTRODUCTION

The farmer community are unaware of techniques and new arrival of products in the market this results in losing the great deal. If they are aware enough this input cost the benefit to farmers in ethical way. Even after working hard they are cheated by middlemen and agents in between. After harvesting the crops the farmer goes to agent an agent in turn of greed it takes more money for the crops here we have introduced of new concept of advancement and well educated idea of business between farmers and merchant directly and agent ask the farmer to visit the market after specific time to collect the money earned out of sale product. Agent try to take commission out of money by selling farmers crops. Farmer are unaware about this dirty business. An also there is no computerised system for farmers to sell there products. This project tends to make farmers more savvy about there actual rate of product and make them open for business. As mission of digital India, this paper proposed that farmer should know Electronic Business and entrepreneurship.

Today, there are some applications provides access for community to access the agricultural information for making farmers technology aware so that they can easily solve the problems faced in day to day life [4]. There are a mobile based applications for farmers which help them in their farming activities like updates of the different agricultural commodities, weather forecast updates, agricultural news updates can be provided [1].

Some application provides commodity-wise, market-wise daily report, commodity wise price during last week, community transaction below MSP(maximum sale price), date wise prices for specified community [5]. But the prices of crops are vary through the market prices of those commodities.

There should be such applications which provides prices of crops according to the government. So, that the farmer will get the beneficial prices of there crops.

Hence, we focus on government to settle the prices according to which the merchant set there own product price and display it publicly on website so that farmer can choose the reasonable merchant. The farmers can see total available neighboured merchants with distance and travelingcost. The transactions between farmer and merchant are done under the supervision of government.

II. LITERATURE SURVEY

Many studies have been conducted to implement the concept of E-Business Agriculture to make enhancement of agriculture and rural development with the deployment of website will help farmers from Indian villages to sell their products to different city Agents, under the supervision of the government. Some of these are reviewed as under:

[1] Deploys a mobile based application for farmers which would help them in their farming activities. Updates of the different agricultural commodities, weather forecast updates, agricultural news updates can be provided through system proposed in this paper.

Agriculture boost up and to maximize profit of farmers by SMS updates using variation/category of cloud computing named Data-as-a-Service (DaaS) and Community Cloud has been explained [2].

The author [3] Explained the concept of making farmer aware of e- agriculture platform and new technology that will help to maximize profit and to compete with farmers of developed countries in today's globalised market.

Author Proposed methodology of developed interface for the Indian farmer community to access the agricultural information from the global internet repository and store them into local repository. Making farmers technology aware so that they can easily solve the problems faced in day to day life has been done [4].

For improving productivity in agriculture advice is given to the farmer by Author. It give commodity-wise, market-wise daily report, commodity wise price during last week, community transaction below MSP(maximum sale price), date wise prices for specified community in timely and personalized situation is explained [5].

III. SYSTEM ARCHITECTURE OF GOVERNMENT

The system architecture consists 3 modules: Farmer, Merchant and Government. Farmer and Merchant have to register him. After Farmer login, Farmer can add products details i.e. crops income in quintal and after Merchant login, Merchant can add product price per quintal. System gives information of Merchant who gives best price to Farmer from

nearest AMPC. Also system gives information of Farmer who sale the product which are purchase by particular active Merchant from nearest APMC. Government module has responsible to add products and its base price into the system. Government has an authority to view all Farmers and Merchants information in all APMC'S. Also he has authority to check transaction details of all Farmers and Merchants to stop black marketing.
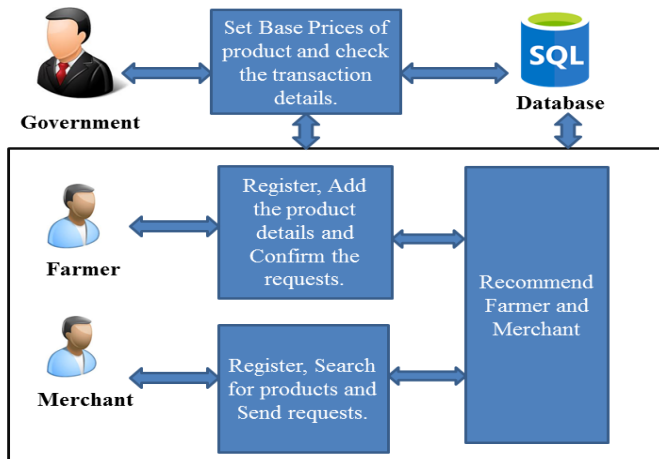

Fig.1: System Architecture

IV.   PROPOSED SYSTEM

E-Business in Agriculture for better communication between Merchants and Farmers is the web application that will help the farmers to perform the E- Business leading to achieve success and increase in their standard of living. E- Business in Agriculture will serve as a way for the farmers to sell their products across the country just with somebasic knowledge about how to use the website. The main approach of this project is to prohibit the black marketing of the granary products. By using this system, farmer will get full profit of their product without bargaining with Merchants.

Farmer's Module: In farmer`s Module, First Farmer have to register himself with id and password they can access the E-farming will serve as a way for the farmers to sell their products across the country just with some basic knowledge about how to use the website. Farmers have to register themselves. Next step is to add the product he is willing to sell along with the product quantity and quality. Nearest merchant is searched by using KNN algorithm. He is able to view all the prices availed by the merchants who are interested in buying the products. Farmers and merchants can send and accept request inorder to carry out transactions. Farmer's add Product Details, View Merchant, View Request, View Transactions Details Window.

Merchant's Module: Merchants provide their prices for respective products based on the government base price. Validations are provided so that the merchants cannot enter the price value more or less than the government prices. He can view farmers and send request for carrying out the transaction. Firstly he should register as a merchant. After

transaction all the details are available to the merchant as a proof. Merchant's add Product Details, View Merchant, View Request, View Transactions Details Window.

Government Module: Government can see and modify the rates of the product with the help of his login as well as can see all the transaction which are happening through the merchant and farmer.

A. Execution Process of Proposed System
1) At Farmer and Merchant Module:
Step 1: Farmer and Merchant have to register in the system by entering there detail information**.**
Step 2: Now Farmer and Merchant can login into the system.
Step3: After login the farmer and merchant home page will be displayed in which the base prices of crops according to government has been displayed.
Step 4: On the basis of base prices the farmer and merchant decides the prices and do the transaction. The merchant sends request to farmers and then farmer confirm the request.
Step 5: After the transaction. The all transactions details will be displayed to the government.
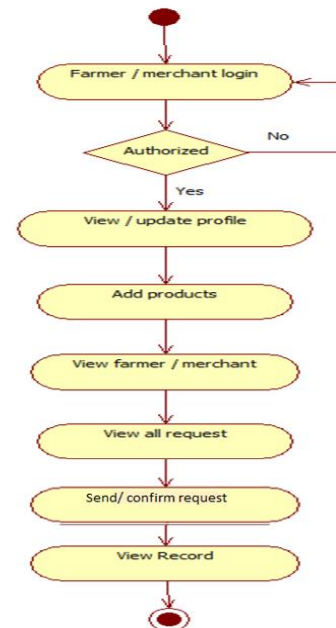**Step 6:** Now the user can logout from the system.

Fig.2: Execution process

2) At Government Module:
Step 1: The government doesn't need to register. They have their own credential through which they can login into the system.
Step 2: Now the government can set/modify the base prices of the product.
Step 3: Check the details of farmers and merchants.
Step 4: Check the transaction details of farmers and merchants and can take print of it for their records.
Step 5: Now the government can logout from the system.

V.   IMPLEMENTATION

To implement the proposed system the following are the minimum requirement of software and hardware.

a.   Software required:

Operating System: Windows7
Application Server: Apache Tomcat7.0
Coding language: JAVA, JSP, JS, CSS
Database: MySQL Query Browser
Tool: Eclipse

b.   Hardware required:

CPU Speed: 2 GHz
RAM: 512 MB
Hard disk: 20 GB

VI.   ALGORITHM

a.   K- MEANS

K-means clustering is a method of vector quantization, originally from signal processing, that is popular for cluster analysis in data mining. K- Mean's algorithm is used to make the group of the farmer and the merchant. The following steps are used to make cluster.

Step 1: APMC market whose data is to be analysed is selected.

Step 2: Data is to be clustered from selected APMC according to different crops available in that market.

Step 3: K-means algorithm generates k clusters from database. Where k is equal to thenumber of

crops in database i.e. if there are n crops in database then n clusters will be   formed, such that each cluster contains data related to one crop.

Step 4: For K-means algorithm k < d, Where k = number of clusters to be formed and d = number of data records.

Equation:

$$F=\sum_{j=1}^{k}\sum_{i=1}^{n}\parallel x_i^{(j)}-c_j\parallel^2 \quad …(1)$$

where,

k= Number of Clusters
n= Number of Cases
x_i= Case i
c_j= Centroid for cluster j
$\parallel x_i^{(j)}-c_j\parallel^2$= Distance function

b.   APRIORI ALGORITHM

The Apriori Algorithm is an influential algorithm for mining frequent item sets for Boolean association rules. Apriori uses a "bottom up" approach, where frequent subsets are extended one item at a time (a step known as candidate generation, and groups of candidates are tested against the data.

Apriori algorithm can be used to search whether particular farmer present in the dataset or not.

When Farmer/Merchant wants to sell/buy crops then crop names will be selected by them.

Step 1: This set of crop names is used as the input to the apriori algorithm.

Step 2: Algorithm will check for the input set Records in database.

Step 3: If any record is found in database having all or any of the input record match then the entry that record is added to result array.

Step 4: Again next records are searched from database for match these records are entered in result array set.

Step 5: Same procedure is followed throughout until complete database is scanned.

Step 6: The result string now contains all the Farmers/ Merchants having crops similar to input string.

Equation:

The support of X with respect to T is defined as the proportion of transactions t in the dataset which contains the itemset X.

$$sup(X)=\frac{|\{t\in T;X\subseteq t\}|}{|T|} …(1)$$

$X\Rightarrow Y$, with respect to a set of transactions T, is the proportion of the transactions that contains X which also contains Y. Confidence is defined as:

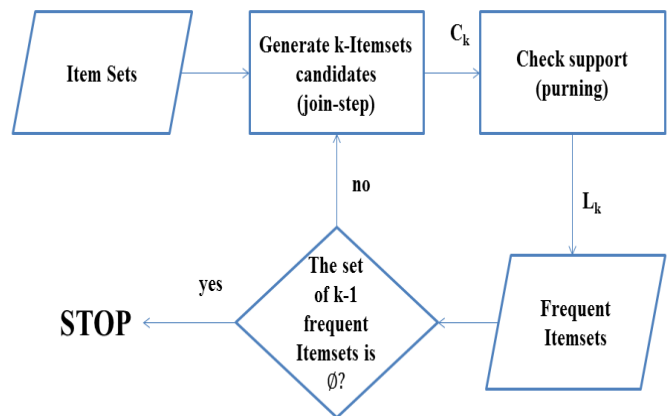$$Conf(X\Rightarrow Y)=sup(X\cup Y)/sup(X) \quad …(2)$$

Fig.3: Apriori Algorithm

VII.   DATA SETS

The database contains the above datasets/tables as shown in the table given below:

TABLE I DATABASE TABLES

Table Name	Attributes	Description
Farmer Registration	Id, Name, Email Id, Password, Mobile No, Gender, Address, Taluka, District, Profile_Pic, Latitude, Longitude, APMC.	It holds all the general information of all Farmer. Primary key of this table is Farmer Id.
Merchant Registration	Id, Name, Email Id, Password, Mobile No, Gender, Address, Taluka, District, Profile_Pic, Latitude, Longitude, APMC.	It holds all the general information of all Merchant. Primary key of this table is Merchant Id.
Government	Id, Email Id, Password	This table will hold the login name and password for Government. Primary key of this table is Government Id.
Product (Crop)	Id, Name, Base Price.	It holds the information of Product i.e. Crop. Primary key of this table is Product Id.

a. Registration

The same data set is used for merchant and farmer registration. The table shows the attributes required for registration.

TABLE II REGISTRATION

Field	Type		Null	Key	Default	Extra
id	int(10) unsigned	🔍🖿	NO	PRI	NULL	auto_increment
name	varchar(45)	🔍🖿	NO		NULL	
emailId	varchar(45)	🔍🖿	NO		NULL	
password	varchar(45)	🔍🖿	NO		NULL	
mobileNo	varchar(45)	🔍🖿	NO		NULL	
gender	varchar(45)	🔍🖿	NO		NULL	
profilePic	longblob	🔍🖿	NO		NULL	
profilePicName	varchar(45)	🔍🖿	NO		NULL	
address	varchar(45)	🔍🖿	NO		NULL	
APMC	varchar(45)	🔍🖿	NO		NULL	
taluka	varchar(45)	🔍🖿	NO		NULL	
district	varchar(45)	🔍🖿	NO		NULL	
latitude	varchar(45)	🔍🖿	NO		NULL	
longitude	varchar(45)	🔍🖿	NO		NULL	

b. Login

This dataset is used for government login. The table shows the attributes required for login.

TABLE III LOGIN

Field	Type		Null	Key	Default	Extra
id	int(10) unsigned	🔍🖿	NO	PRI	NULL	auto_increment
emailId	varchar(45)	🔍🖿	NO		NULL	
password	varchar(45)	🔍🖿	NO		NULL	

c. Product details

The following attributes are considered while entering product details.

TABLE IV PRODUCT DETAILS

Field	Type		Null	Key	Default	Extra
product_id	int(10) unsigned	🔍🖿	NO	PRI	NULL	auto_increment
name	varchar(45)	🔍🖿	NO		NULL	
basePrice	varchar(45)	🔍🖿	NO		NULL	

d. Transaction

The following attributes are considered while displaying the transaction details to the merchant and farmer.

TABLE V TRANSACTION

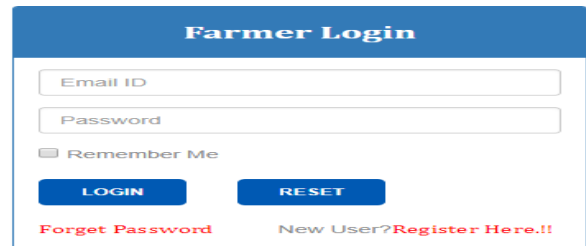| Field	Type		Null	Key	Default	Extra
id	int(10) unsigned	🔍🖿	NO	PRI	NULL	auto_increment
f_name	varchar(45)	🔍🖿	NO		NULL	
f_email	varchar(45)	🔍🖿	NO		NULL	
m_name	varchar(45)	🔍🖿	NO		NULL	
m_email	varchar(45)	🔍🖿	NO		NULL	
price	varchar(45)	🔍🖿	NO		NULL	

VIII.   SNAP SHOTS

Fig.3: Home page

Fig.4: User Login
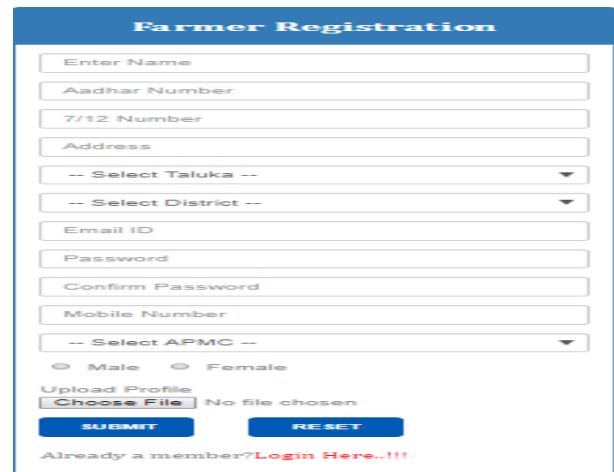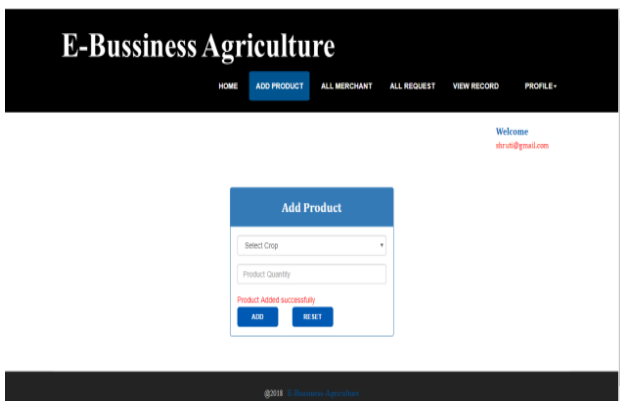

Fig.5: User Registration

Fig.6: Home Page of User

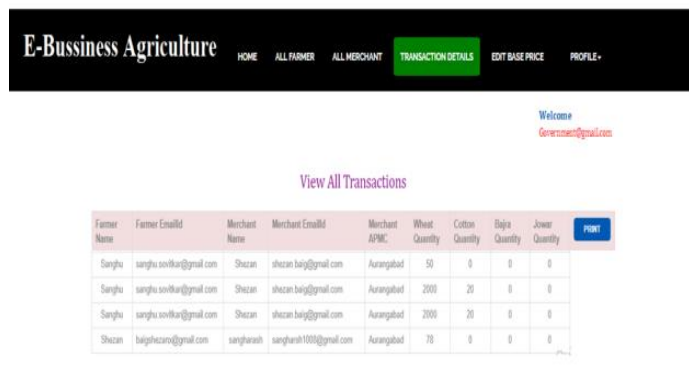**INTERNATIONAL JOURNAL OF RESEARCH IN ELECTRONICS AND COMPUTER ENGINEERING**
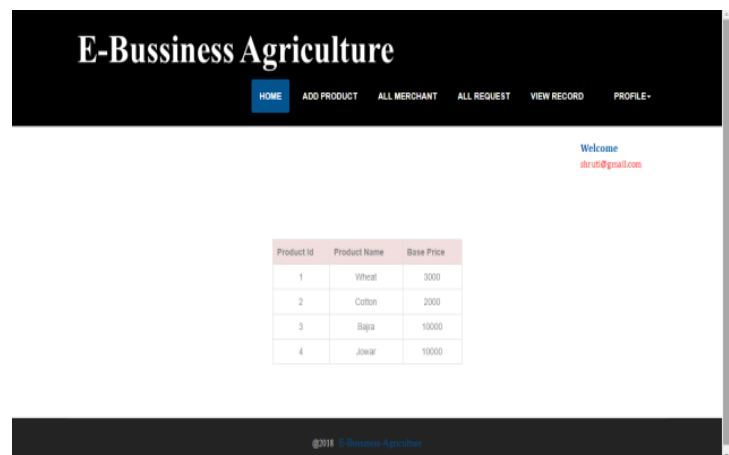
Fig.7: Add Product details
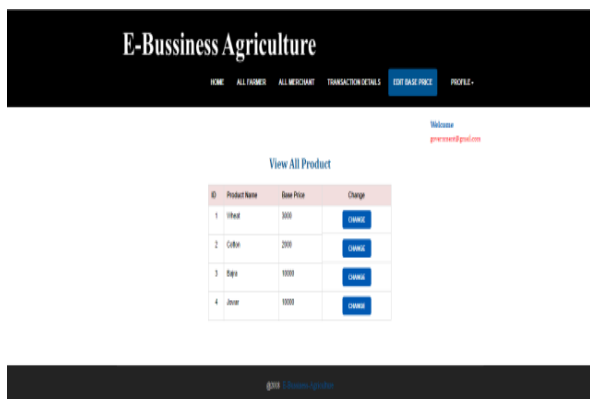
Fig.8: Edit Product Base Prices
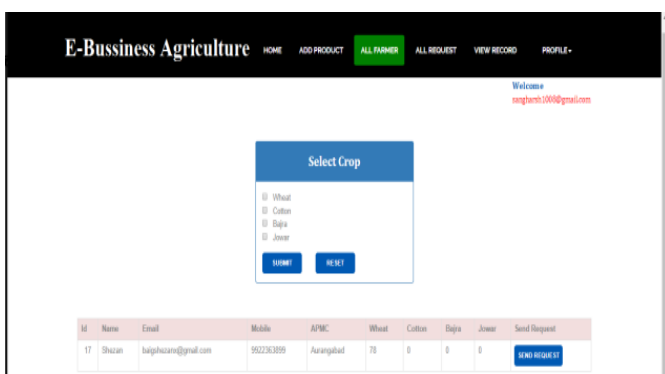
Fig.9: Merchant Sent request

Fig.10: All Request

Fig.11: Transaction details
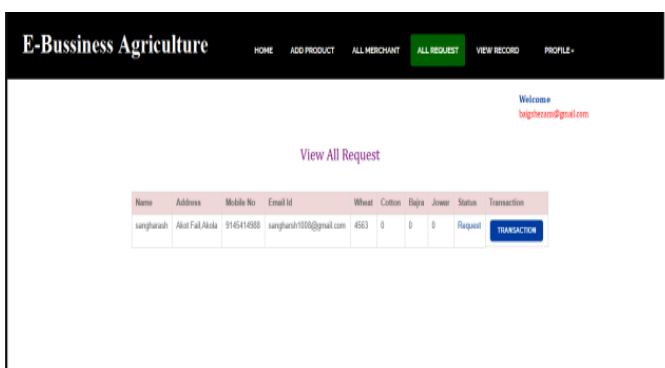
IX.   CONCLUSION

In this paper, we have exhibited E-Business Agriculture for providing more help to all farmers and to stop black marketing. This project will be helpful for farmers to know more about market information. The site will guide the farmers in all the aspects, the current market rate of different products and the earned profit for the sold products, access to the new farming techniques through E-learning and centralized approach to view different government's agriculture schemes including the compensation schemes for farming. The main approach of this project is to prohibit the black marketing of the granary products. The government authorize person has easy see the whole transactions between the farmer and the merchant.

X.   REFERENCES

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