E-Agriculture Market

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Abstract— Agriculture is the main occupation in India. More than half of the population of India is engaged in agriculture sector, majority of farmers in India are economically inform. Indian Farmers are unaware of the new techniques and new arrivals in the agriculture sector and because of this they are unable to compete with farmers of developed countries in globalised market. Though the farmers work hard, they are cheated by agents in today's market. Information a communication technology can play important role in agriculture sector to increase income and economical standard of farmer. In this paper we are interested to introduce a new concept useful for farmers who are adopting latest technologies and are having basic knowledge about technology. Our aim is to provide easy and efficient platform for agriculture market transactions and to bring accuracy and transparency in agricultural marketing system through e-agriculture. Our project intend to provide reliable and efficient communication and interaction environment between different stakeholders of market, farmers can search merchants who are giving highest price for his crops. Similarly trader can also find farmers with required crops. Government authorized person can watch all the transactions happened between merchant. Our system will also provide helpful information like minimum support prices of different crops their market prices, different facilities provided by the government, weather forecasting information to farmers. We are trying to develop a system that will help to solve problems currently faced by the agriculture market.

Key words: Data Mining, K-Means, Apriori Algorithm, APMC

I. INTRODUCTION

E-agriculture is the System that will help the farmers to perform the e-marketing of their crop products leading to fair price transactions and increased profit and standard of living. In India trade of agriculture product is regulated under the state APMC (Agriculture Produce Marketing Committees). Trade in APMC market are carried as direct auction by licensed commission agent, and details are manually noted by commission agent, hence government does not have exact and accurate on time trade records. Agriculture is an information intensive industry which is spatial in nature. In proposed system of this paper we will try to establish an e-governance on these market yards. In system we will have different login for farmer, trader and administrative login for government authorized person. Farmer will be able to add his crop information; farmer can see base prices declared by government for different crops. On the basis of this information he can search for merchant who is offering highest price. Merchant can also find a farmer with required crops. Administrative login will have access to all the transactions happened in system. With the help of System interested farmers can also know about new agriculture technologies and techniques which will help them for earning higher profit.

II. EXISTING SYSTEM

e-NAM (National Agriculture Market) is launched by ministry of Agricultur and Framer's Welfare, Govt of India, to facilitate farmer, buyers, exporters and processors with a common platform for trading comodities. Liberal licensing of buyers and commission agent by state autoritie without any Pre-condition of physical presence or possession of shop is the market yard. In our country there are some government web sites related to the agriculture market. These websites provides the basic market information such as market prices of different agriculture goods and their availability in the markets. But there is no system to keep watch on every transaction in the market.

Agricultural marketing is mainly the buying and selling of agricultural products. In existing system of the Agricultural produce market committee (APMC) transactions are carried at market places by direct auction, and details of these transactions are manually recorded by market agents. Because of the government does not get time to time and accurate data of market. In current market system farmers has to communicate with merchants through market agents hence present APMC market system makes farmers vulnerable to traders' and marketing agents' price manipulations. Farmers are levied with different taxes and charges in this system.

III. PROPOSED SYSTEM

In proposed system we are developing an interactive platform for communication and information exchange in between farmer and merchant. All these three users will have their own registrations and logins. Farmers and merchants will be able to do transactions from system. Farmers can search for traders in market who are giving higher prices for farmer's crop. In similar way trader can also search farmer from database with required crops. Farmer and Trader can communicate with each other about selling and buying products. All the transactional data between farmer and merchant will be stored in database. We will be using different data mining algorithms like k- Means, Apriori.

In our system, it have to complete access of transactional database which will be helpful for bringing transparency in the agriculture market. This will help government for minimizing and controlling black marketing of food grains. System will also provide helpful information like weather updates.

IV. METHODOLOGY

A. K-Means

K-means algorithm is used for clustering purpose. K-means algorithm is used in government module. K-means algorithm is used for forming crop wise clusters of farmers

and merchants. We are applying this methodology in government side so that by clustering data into separate cluster it will become easy for analysis purpose.

K-Means algorithms generates k clusters from database. Where, k is equal to the number 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.

B. Apriori

Apriori Algorithm is used for finding frequent item sets from database. This methods is for finding all frequent item sets efficiently. The apriori algorithm is at core of various algorithms for data mining problems. We have used this algorithm for finding lists of merchants buying the selected crops by farmer. And also for finding farmers having crops required by merchant.

1) Mathematical Model:

(a) Let S be the system.
S = {I}
Identify I as input, Set of users
I= {F, T, C}
F-> Farmer Details
T-> Trader Details
C-> Administrative
S= {I}
(b) Identify P as a process.
P= {D, R, A, G}
Where,
D-> Details uploaded by users.
R-> Request from users.
A-> Acknowledgement from system.
G-> Government Authority which updates governments schemes or
S= {I, P}
(c) Identify O as output.
O= {p, q, r}
Where,
p->store details of Farmers , Trader.
q-> All the transaction is done successfully.
r-> Farmer sell their product.
S= {I, P, O}
(d) Identify A as case of success.
A= {L, M}
L-> successfully generate details.
M-> Transaction failure.
S= {I, P, O, A}
(e) Identify F as case of failure.
F={x,y}
x->Farmers detail not generate
y-> Government do not access all transaction
S= {I, P, O, A, F}

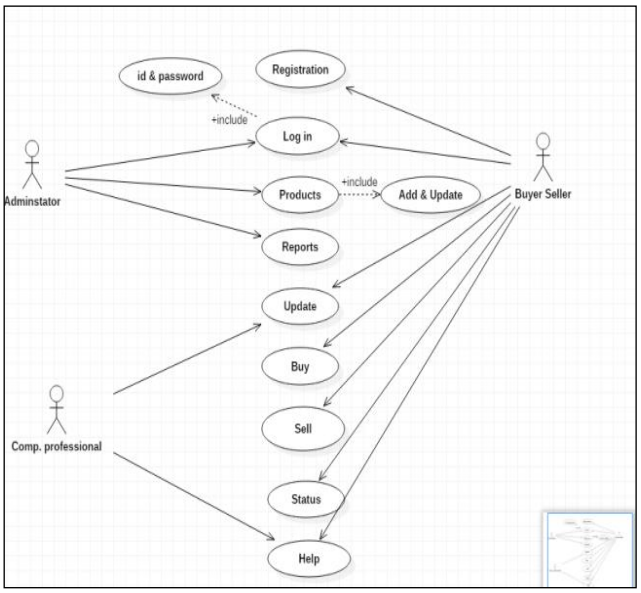

Fig. 1: Use Case diagram

C. Project Flow

1) For Registration (sign up)
2) Login (Farmer & Merchant)
3) Enter Details of Product & Product type.
4) Apply predefined Algorithm
5) Display nearest neighbour/high rating Merchant.
6) Sell or Buy Product.
7) Logout

D. Project Execution

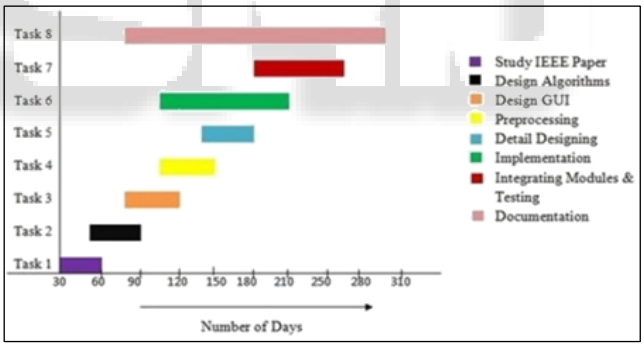

Fig. 1.1: Timeline Chart

V. FUTURE SCOPE

There are wide range for enhancement in E- agriculture system. This system can be connected with bank accounts of farmers and merchants. System can also include warehouse information, agriculture expert, veterinary services, fertiliser dealers. Government can also provide different schemes and notification through system.

VI. CONCLUSION

Thus we can conclude that proposed system of "E-agriculture Market" will be helpful for farmers to gain fair price for crops and other market information time to time. As we are providing unique id to each user it will be helpful for government to keep eye on market which will improve the transparency of market. System will help to make overall procedure easier and less time consuming.

