Farmeist-Online Agriculture System

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Abstract— In the agriculture industry, e-commerce has not evolved and hence does not have a significant influence. The manner in which individuals purchase agricultural goods is a major source of worry. Customers must frequently travel long distances in order to get agricultural products, and the quality of these items is not always guaranteed. Using a computerized method, our initiative intends to assist farmers and buyers in buying and selling agricultural products throughout the country. This online platform will assist farmers in learning new agricultural practices, comparing current market rates for various items, as well as the overall sale and profit gained from the products sold. Through end-user dialogue, the website provides a platform for farmers to increase their profits. The website will be a one-of-a-kind and safe way to conduct business.

Keywords— e-commerce, computerized approach,end-user dialogue,agricultural products

I. INTRODUCTION

Agriculture is the most important sector in India.It contributes about 18-20 % of GVA in the country. Most of India's employment is also dependent on agriculture.More than 70% of the rural population in India is dependent upon it.
Significance of Agriculture sector:
1) Affect the National Income
2) Generation of employment
3) Supply of the food for increasing demographic dividend
4) Contributes to the capital formation
5) Greater competitive advantage
6) Supply to agriculture based industry and industrial products.

Though technology is advancing day by day,Agriculture seems not to be much benefited from industry 2.0 because of non availability of research and innovation in this field. This sector possesses different challenges in itself like Instability,Cropping pattern,Leakages in organizations,inadequate transport , infrastructure,lack of awareness about hybrid seeds and genetically modified crops.If all problems are satisfied then there exists an exploitation by the middleman.

In order to tackle this problem there must be an ecosystem that will provide all the services like seed, machinery,fertilizers,etc without middlemans intervention, thus saving a farmer's time and doubling the income.

II. LITERATURE SURVEY

The author explains the inventory management system for agriculture which makes it agriculture pattern accessible.The data collected from the village about the machinery [1] the inventory that is needed for agriculture makes it easy for the policy makers for formation of comprehensive policy for the farmers.Data mining services and online warehouse services ,land consolidation that can harm the farm can be managed and controlled by the control center. In this period of the internet ,the internet system can be a best option for the ecology farm using a precision agriculture management system (PAMS).This can be advantageous in reducing the cost of development and can also improve the system's efficiency[2].

The study discusses the advantages of using the internet in the realm of agriculture.Farmers need the various inventories and bringing it from nearby areas like district or inventory takes too much time. This problem needs to be addressed order to utilize the time of the farmer in production [3].The paper talks about the case study in Vietnam about agriculture production.Agriculture contribute to the GDP of Vietnam and in crisis this impacted a lot.The paper discusses the management system model for better absorption of shock and the way forward in this regard [4].The IOT in agriculture can impact the productivity without manpower in the field.This can attribute to the farmers income indirectly also[5].Evolution of internet can be extended to agriculture sector using a best online platform. [6].

Whether the online system benefits the farmers or not?,this question is addressed in the paper which talks about the preference choice of famers either online or local based parameter like time constraints,farmers loyalty to a local merchant which keeps a comprehensive picture of the agriculture market [7].The paper discusses a model of website for the mobile phone user in agriculture university.It depicts about the problem ,how to address the developmental issue and compatibility of architecture [8].There are many factors that are contributed by an e-commerce website,this paper focuses on factors of agriculture food products in business to consumer transactions [9].

According to the study, the use of e-commerce is particularly beneficial for farmer's business operations, such as customer service, collaboration with suppliers, information, and so on [10].This study was important as it tries to establish a link between information technology in farming and environmental management.. This research is an early attempt to give farmers a market full of options and

data, as well as knowledge to help them make decisions [11].

This study presents an agriculture online service (AOS) system. The AOS provides a single site for retrieving ontologies, which would be useful for providing knowledge related to agriculture management.The paper explains how to build a multilingual agriculture ontology system and describes how we can use AOS. AOS architecture, as well as the theory behind it and technology,is depicted in great depth [12].It is necessary to make crop prediction algorithms more sophisticated so that agricultural productivity can be increased even when climate patterns change [13].The goal of this article was to assure a fair price for farmers by developing innovative approaches and utilizing the internet market [14]. The Web service composition framework (WSCF) is offered to provide agricultural marketing with effective business connectivity [15].Agriculture marketing may be made more effective if it is seen through the lens of collaborative and integrative efforts from a variety of sources, including farmers, intermediaries, researchers, and administrators [16].

The author created an app called Agro-Appwhich is a smartphone application designed with farmers and the average person in mind,who wishes to grow vegetables for everyday needs . It brings a farmer up to date on the latest agricultural, pesticide, insecticide, and financial sector news [17]. This study aims to create a web based mobile application for rolling out agricultural information that can be used by farmers [18]. The main purpose of this article is to propose a created app that would connect farmers with merchants and the food processing business.It takes into account everyone's needs and provides them with fair and transparent farm business [19]. The objective of the article and the study is to familiarize farmers with a handy mobile application and a website on which they can receive all of the necessary data they need about the government's agricultural initiatives [20].

The IFarm system for cultivation and cost management is meant to help farmers run their farms more effectively. Smartphone apps, a cloud server and Web browsers make up the system. Farmers on the farm can easily manage their work schedules, enter on-site field data into the cloud server, and interact with the real-time office in charge using cellphones [21]. The modern techniques used in this platform will assist in the crops sales at various levels of the market with multiple options . It will help users to detect and analyze market conditions using KNN algorithm. For crop marketing, it also employs the Haversine algorithm to validate latitude and longitude using a GPS system. The system employed includes an Android -based mobile application for agricultural users and merchants, as well as a website application for accessing information related to government schemes, as well as a common database system that supports data storage, such as SQL and PHP for connection [22].

The proposed system is an unified approach where different problems studied as per research are taken into consideration. The system provides selling/buying of products without interference of the middleman.

III. PROPOSED SOLUTION

'Farmeist' is an online agricultural trading system. Farmers benefit from this website since it provides them with a vast online market to sell their produce. They may also recruit farm laborers and stay updated on the latest agricultural news. Wholesalers and merchants gain as they may purchase from a bigger market. They can readily shop for farming equipment. Consumers can also purchase fresh vegetables , seeds , etc. from farmers directly.

This technology assists farmers in selling their agricultural products online and recommends best-in-class farming methods. As a result, they will have access to a larger market and will be less reliant on the local market. It allows distributors and merchants to purchase products from a greater number of growers. As a result, wholesalers and retailers may increase their businesses. It offers online purchasing for fertilizers, insecticides, machinery and tools, and other agricultural supplies. It assists farmers in keeping track of their agricultural productivity with features such as a virtual calendar, weather forecasts, and the ability to employ laborers, which in turn assists farm laborers in finding modest jobs through the website's work profile.The following block diagram depicts the overall view of the system.It has article page,login page,worker and contact page.Either customer,farmers or retailer login to the system and use the system for trading.
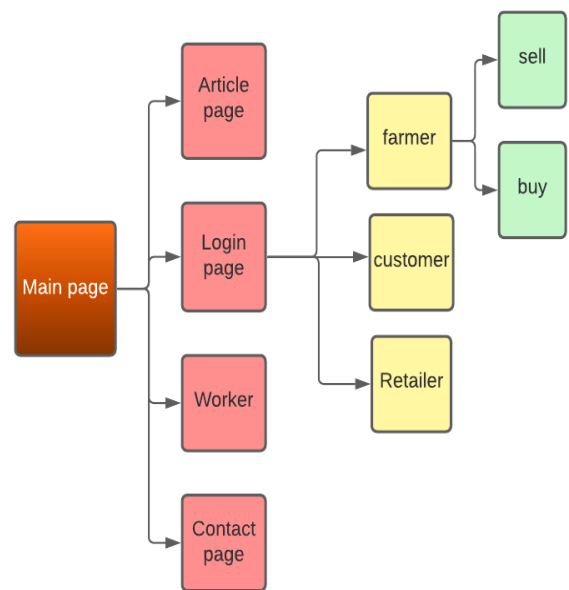
A. Block Diagram

Fig.1 :System Block Diagram

B. The system is divided into different sections:

1)Login section: This is the basic page for managing the individual account as per category like farmer,customer and retailer/wholesalers.

2) Customer section:The customer needs to register first in order to avail the facility.The customer is able to send the request for farmers.If the price is well defined then the farmer may accept the request to sell.In this way the farmer is saved from being exploited.The following flow graph depicts the same.
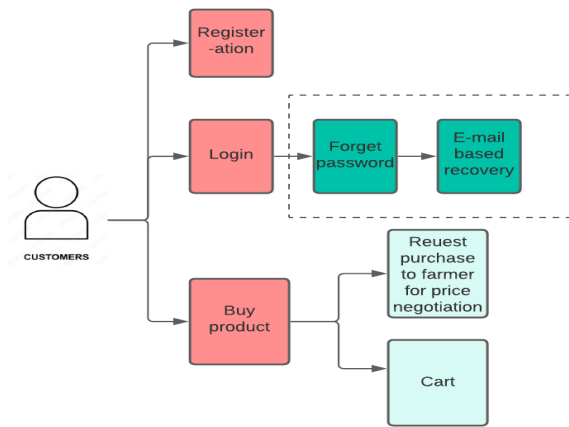

Fig 2:Customer Flowgraph

4) Worker section:In order to make an organized sector approach in worker hiring,this section proposes the worker to register themselves and make the advertisement as per their availability and the cost of work.This will create competition among the workers and hence reasonable price will be offered to the farmers based on the different opportunity
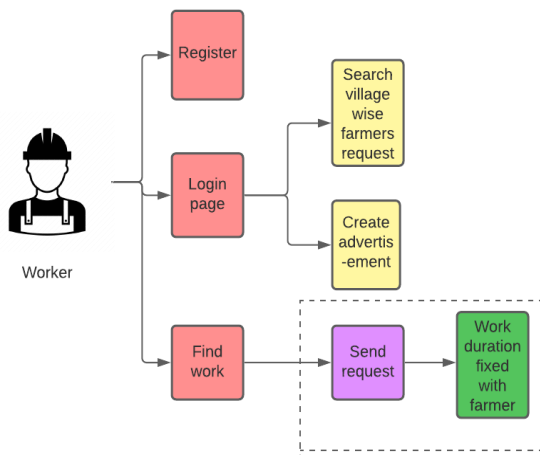

Fig. 4:Seller Flowgraph

3)Farmer section: Farmers have given explicit access to this section.where they can sell their any product category wise with the price bidding option.Farmers can put their produce on the sell.Their is a chart to show the sales hence helps in analyzing the overall productivity.

The farmer can buy the fertilizer,machine,tools or can trade with the other farmers also without intervention of the middleman.Thus the farmer is provided with a lot of options in order to get the best price of their produce.The functionality to farmers available are shown in the flowgraph.
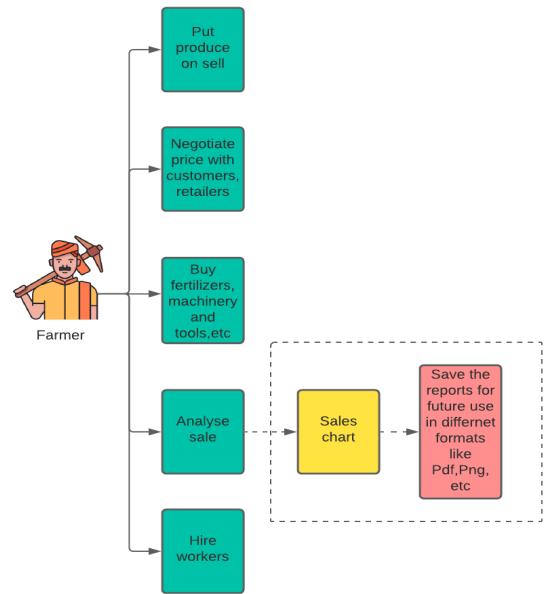

Fig. 3:Worker Section Flowgraph

5)Dashboard section: This section is concerned with admin.In order to control the whole system,admin has access to all the sections.This also checks if any discrepancy in the system.
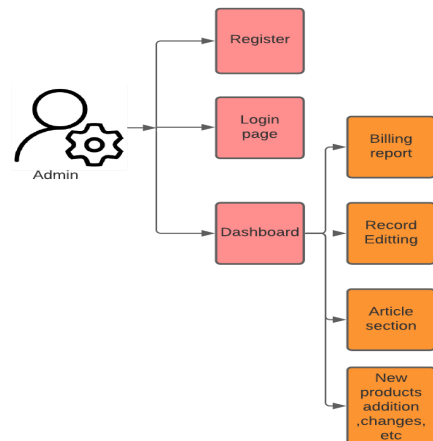
Fig. 4:Admin Dashboard Flowgraph

6)Article section: Information which is proper and authentic can be put in the form of blog or News.The news and blogs are only published by the admin.The admin has to put out the authentic news and blogs related to agriculture after searching from various resources.

This page will hence cater to all the important agriculture related articles which benefits the farmer and farmers do not have to buy different publications in magazines in order to gain the knowledge to improve farming.
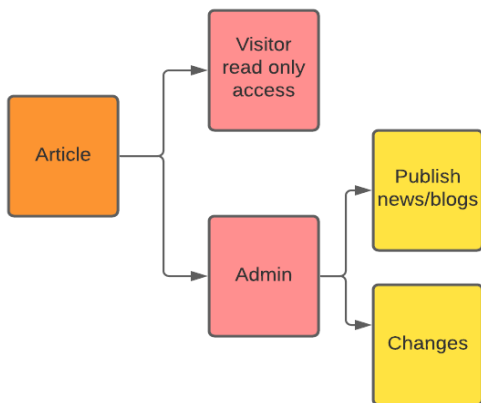

Fig. 5:Article Flowgraph

7) Category section: If there's a new type of category of product ,machinery & tools , etc. if admin finds it to be added either on individual level or specific request from the farmer then that can be added by the admin through login by the suggestion from farmer/customer.
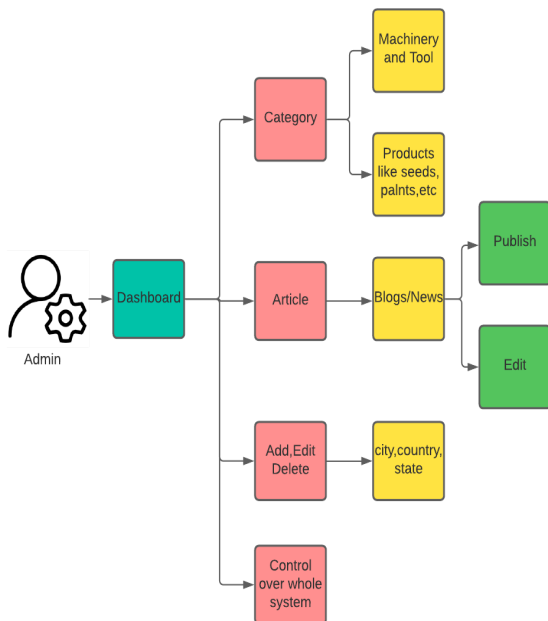

Fig. 6:Category Flowgraph

8)Purchase receipt: After purchasing a product, the system creates a purchase receipt. The technology automatically estimates the entire cost.It shows the graph of the sales. Customer contact information, billing information, and bought product information are all displayed in the receipt.The three options available are shown in the flowgraph.
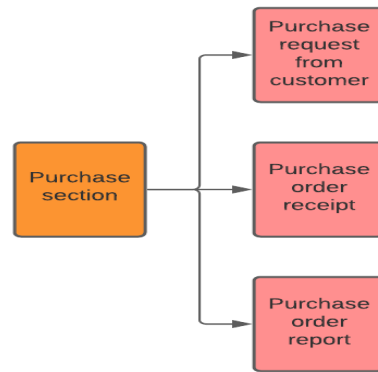

Fig. 7:Purchase Receipt Flowgraph

C. Hardware requirements

1)Processor**:** Pentium or Higher.
2)RAM**:** 312MB or Higher.
3)Operating System: Unix, Linux, Mac, Windows, etc.

D. Software requirement

1)Development tool: PHP,Hypertext Preprocessor, JavaScript, Ajax
2)Scripting server: Apache server
3)Database server: MySQL

E. Proposed system Features

1)Shopping with add to cart functionality:The customer is able to select the product in the card.There is a facility to change the quantity and accordingly the changes in the price will be reflected.

2)Contact page for queries:If any customer/farmer/seller has any queries related to the system then they can contact the admin and solve their issues.

3)User friendly design;The design of the system is kept simple as the majority of the target area is farmers which enhances the easier they can buy/sell.

4)Email based password recovery:If anyone forgets the password then by choosing a recovery method the password will be recovered.

5)Responsiveness:The website is fully responsible that s is why it can be accessed from any devices like tablet,Android mobile and computers.

IV. TESTING

Testing is very important for analyzing the flaws in the system that we have designed .Testing determines whether the system appears to be working according to the specifications. It is the phase where we try to break the system and we test the system with real case scenarios at a point.we tested our system at 3 levels.

I.   Section wise testing:

Every section of the system was tested individually and the error was rectified as it was found.

1) Customer/farmer/retailer login,sign-up,registration
2) Admin module
3) Worker registration
4) Blog/news posting

II.   IntegrationTesting:

As all the sections are unified together that may result in some non-matching of the code or the database . In order to comply with the error free, there is a need to conduct an integrated testing . All the errors were rectified in this step and hence all individual sections working matched with the all the system as a whole.

The admin section tested with blog/news publishing,producing reports,bills,accepting, deleting workers and their management testing with connection with all other 3 sections.

III.   System Testing:

The requirement specification document that is the entire system is to be tested to see whether it meets the requirement or not.

For testing purposes, we have considered certain parameters sections wise like input value,authentication etc. Parameters varied according to section-to-section based on the functionality of the section.The following table describes the parameter and the tested results.

Table 1:Sections wise testing remarks

Sr. No.	Section tested	Test parameter	Expected output	Remarks
1	Customer	input values, authentication	input values, authentication	SUCCESS
2	Farmer	selling,buying ,report generation	selling,buying ,report generation	SUCCESS
3	Admin	control over all	control	SUCCESS
		the section	over all the section	
4	Worker	registration,request	registration,request	SUCCESS

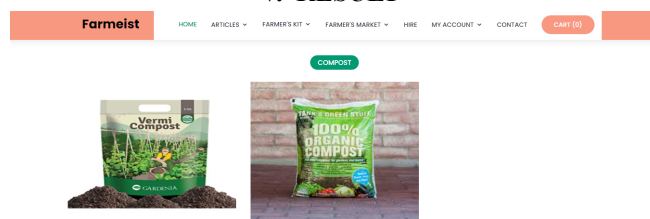Thus the testing phase resulted into numerous errors when combined the all system

V. RESULT

Fig. 8:Online system interface

V. CONCLUSION

'Farmeist' as a whole offers its consumers a virtual agricultural commerce idea. To give technology and services to farmers, merchants, and agricultural laborers in order to assist them develop their businesses and reach a larger market. As a result, enhance current farming procedures and give information on current agricultural challenges.To lend a hand to farmers and farm laborers in improving their lives via the use of technology, ultimately boosting the Indian economy's agricultural sector.

VI . FUTURE SCOPE

There is always an improvement that can be done in a system. The system proposed in paper can be improved by collaborating with shipping companies for delivery of farmer's products to customers. If the IOT is integrated into the system,that will gather different data from sensors like soil moisture,temperature ,etc. which would result in a comprehensive system. Also adding sms alerts using GPS, when a purchase request is placed,will enhance the model.

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