Advance Innovation In Agriculture Technology

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***Abstract*- Most of the farmers worried about not being able to sell their complete harvest. Day-to-day performance in selling the harvest is the most salient cultural enactment and the most labor-intensive task for the farmers as they don't have the knowledge about the technology. In the absence of sound marketing facilities, the farmers have to depend upon local traders and middlemen for the disposal of their farm produce which is sold at throw-away price In most cases, these farmers are forced, under socio-economic conditions, to carry on distress sale of their produce. In most of small villages, the farmers sell their produce to the money lender from whom they usually borrow money. So, it will efficacious to use a model based on the same issue which helps the farmer to sell their harvest in a most prominent way. A way in which farmers and retailers from different parts of the world are connected to same platform and share their views regarding the harvest.**

I. INTRODUCTION

Aim to design this model to kisan portal is to update the farmers and the retailers with the advance technology to make the selling of the harvest simpler, easier & convenient. In this model farmers are supposed to post the details of their harvest which they want to sell in the price which they want and the post are seen by the retailers and they show the interest in which of the farmer's post they want.

In the absence of an organized marketing structure, private traders and middlemen dominate the marketing and trading of agricultural produce. The remuneration of the services provided by the middlemen increases the load on the consumer, although the producer does not derive similar benefit. Storage facilities in the rural areas are either totally absent or grossly inadequate. Under such conditions the farmers are compelled to sell their produce immediately after the harvest at the prevailing market prices which are bound to be low.

Many market surveys have revealed that middlemen take away about 48 per cent of the price of rice, 52 per cent of the price of groundnuts and 60 per cent of the price of potatoes offered by consumers.

This clearly means that middle man plays a very important role in the cutting the profits of farmer which leads the farmer to cross over through worse circumstances.

This project is developed for two types:
1. Smart Phones users
2. Non-Smart phone users

Smartphone users can have direct access to system through our application (based on android). Application is user-friendly and easy to use and developed by keeping farmers knowledge about technology in mind. Non Smart phones users can access the system by portal hosted on web www.kisaanportal.com.in .

II. EXISTING MODEL

For the proper and effective sale of crops there are many applications in the market and our old system.

1. OLD SYSTEM

The old system consists of chain or hierarchy type levels where farmer produces raw vegetables which are purchased by levels of middlemen then transported to retailers and after that they are sold to consumers.

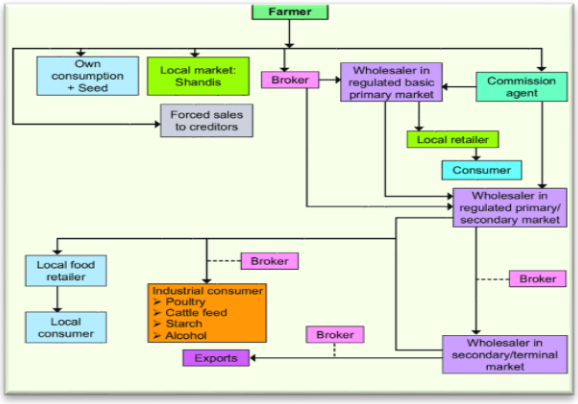

Fig.1

2. GROFERS

Grofers is an e-commerce marketplace for your daily shopping. It allows you to shop from your favourite store in your neighbourhood and get delivery within 90 minutes. You can shop for Grocery, Fruits & Vegetables, Bakery items, Flowers, Meats, Pet Care, Baby Care and Cosmetics products with just a few taps. Grofers is a HyperLocal On demand logistics system. The core service of Grofer is to deliver grocery, fruits, vegetables and much more daily use household items to you within few hours. Grofers does not own any grocery store or have no warehouses.

The company partners with grocery stores in the city and the delivery boys pick the items from those stores to fulfill the customer's order. You can place your order through the mobile application using your Android or iPhone or you can go to Grofer's website through your desktop.

3. D-MART

The idea behind launching D-Mart stores was simple – cater to the growing middle-class's daily household needs by purveying groceries, vegetables, electronics and apparel at ultra-competitive prices. On the lines of global retail giant Wal-Mart's everyday low prices, D-Mart also started offering Every Day Low Price and Every Day Low Cost. It proved to be its biggest unique selling point (USP) and till date is the sole reason behind housewives and other bargain hunters making a beeline for its stores.

This has resulted in high inventory turnover, particularly in the food segment which sees over half the demand, and thus even with low profit margins, the retail chain has managed to flourish. Further, D-Mart's tight and a relatively small assortment has also helped it arrest losses from wastage.

4. EASY DAY

Easyday is an Indian retail brand that runs chains of consumer retail supermarkets and convenience stores. Easyday is a consumer store related to retail department category and has targeted middle-income people as its customers. It was established in the year 2008 and its ownership is at the hands of Bharti enterprises limited and operations under one of its subsidiaries Bharti Retail Limited. Easyday is of Indian origin and has its headquarters base in New Delhi in India. Management and technical support are offered to the brand via Wal-Mart Stores, the largest retailer in the global market.

The company has adopted a penetration policy and to create new inroads it periodically offers an incentive to the customers so that they visit and buy, thus creating large sales figures and ultimately greater revenues.

III. PROPOSED MODEL

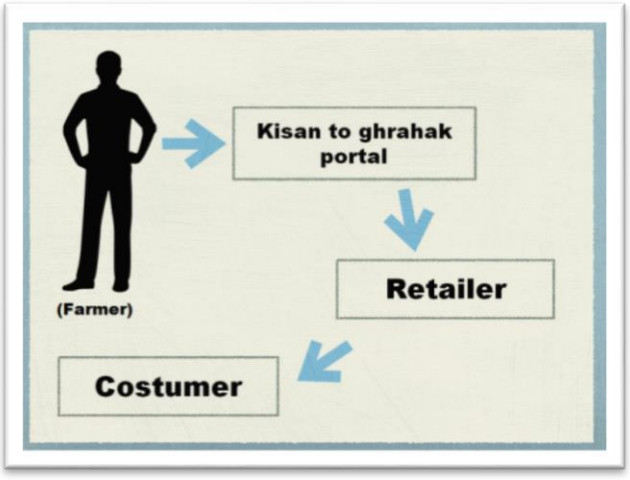

Fig.2 Block Diagram

According to this system farmers directly contact to retailers by virtue of application. This would omit the greedy middle man's system and will provide a digital approach for the sale of crops and other vegetation. Then the consumer can directly contact local retailers for better service and fresh food.

The main thing is that consumers would not feel any difference in service but the price of vegetables is cheaper than early. Now farmers can earn more thus the whole system will get profit.

A login account which give solution to farmers who don't have smart phone. They can go to the nearby cyber cafe and can ask the owner to make their account and teach them how to access it. A project which remove retailer and make a direct way for farmers to sell their products in an easy way and fair way

Retailer are the members who earn maximum amount in between in whole process. They buy fruits and vegetable at low cost and then sell them at the highest price updated in market. They disturb the economic status of market, create problem for buyers and sellers. Our project remove them and acts as a middle men. Solve the problem of market just by one app.

Costumer will have an easy way to buy fresh fruits and vegetables. Costumer always need an easy and best way to have products, so as our app do a job in a similar way. Website and app both provide fair price in market without giving profit to any middle person.

IV. SOFTWARE

1. MIT App Inventer

MIT App Inventor is a web application integrated development environment originally provided by Google and now maintained by the Massachusetts Institute of Technology (MIT). It allows newcomers to computer programming to create application software (apps) for two operating systems (OS): Android, and iOS, which, as of 8 July 2019, is in final beta testing. It is free and open-source software released under dual licensing: a Creative Commons It uses a graphical user interface (GUI) very similar to the programming languages Scratch and the Star Logo TNG user interface, which allows users to drag and drop visual objects to create an application that can run on mobile devices. In creating App Inventor, Google drew upon significant prior research in educational computing, and work done within Google on online development environments. Each component can have methods, events, and properties. Most properties can be changed by apps.

These properties have blocks you can use to get and set the values. One of the characteristics of working with App Inventor is that developers can see their creations while they are building them. This allows users to develop their apps incrementally and encourages them to test as they build. Whenever the user drags a new component to the designer, or creates new functionality through blocks, those new artifacts are automatically and readily available in the connected device or emulator.

Fig.3 Mit App Inventer

2. Google Firebase

Firebase is a mobile and web application development platform developed by Firebase, Inc. in 2011, then acquired by Google in 2014. As of October 2018, the Firebase platform has 18 products, which are used by 1.5 million apps. Firebase evolved from Envolve, a prior startup founded by James Tamplin and Andrew Lee in 2011. Envolve provided developers an API that enables the integration of online chat functionality into their websites. After releasing the chat service, Tamplin and Lee found that it was being used to pass application data that weren't chat messages. Developers were using Envolve to sync application data such as the game state in real-time across their users.

Realtime syncing makes it easy for your users to access their data from any device, be it web or mobile. Realtime Database also helps your users collaborate with one another.

When your users go offline, the Realtime Database SDKs use local cache on the device to serve and store changes.

Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to your app.

The Realtime Database can also integrate with Firebase Authentication to provide a simple and intuitive authentication process.

V. APPLICATION DESCRIPTION

The app provides a new modern and digital system for farmers to sell the crops directly to the retailers. This will help them to increase their cuts and share the omitted levels of a middleman.

The app enables the farmers and retailers connecting directly by simple login process and for security purposes the OTP (one time password) is asked, which comes through SMS to their respective phone numbers.

Farmers Sign up page is made by keeping their technical knowledge in mind. They just need to enter their respective names and their phone numbers. Farmers don't need any special training for using the app (some basic knowledge is sufficient).

As retailers have to sale thus they need to give there TIN no, and just after a simple sign up process he/she can do the direct trading with farmers. The bargaining process is also available in them. All the data would be safe and the privacy is also secured and private.

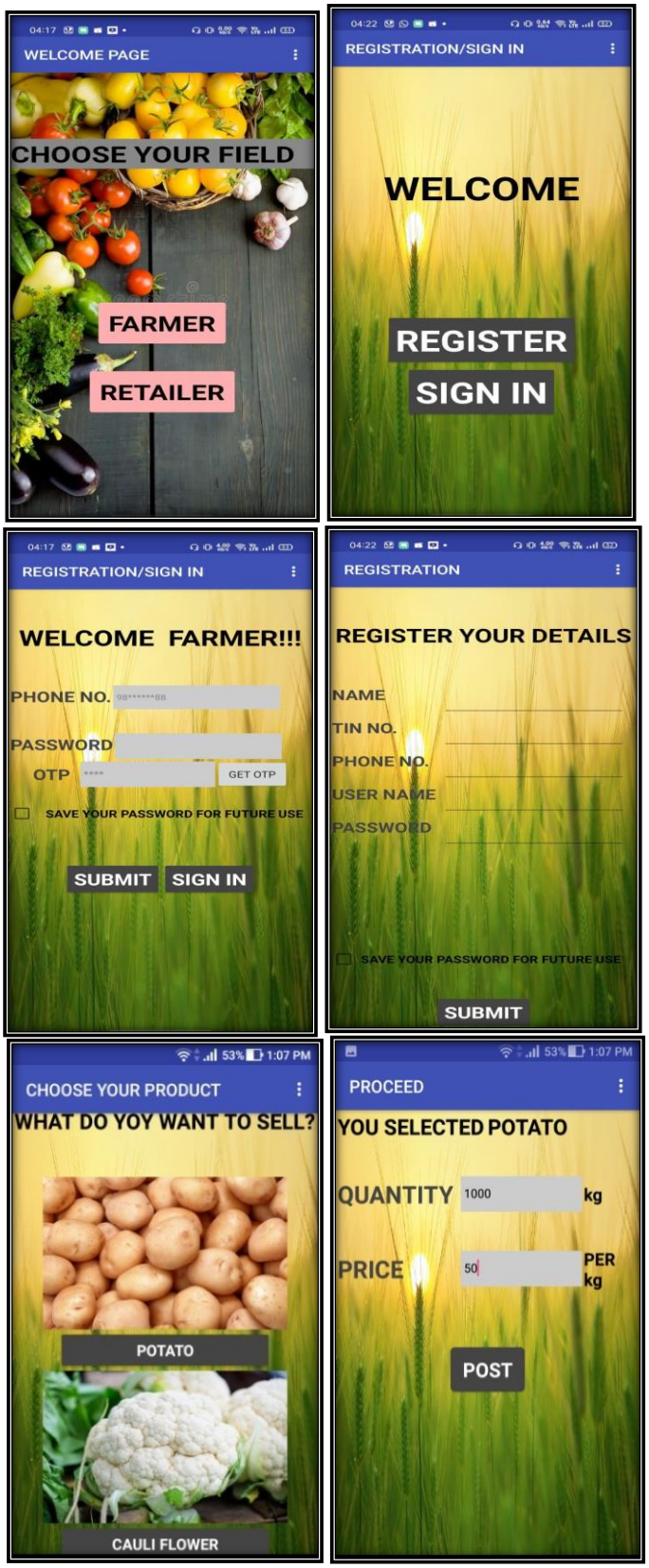

Fig. 4: Screenshot of the Application

VI. PORTAL DESCRIPTION

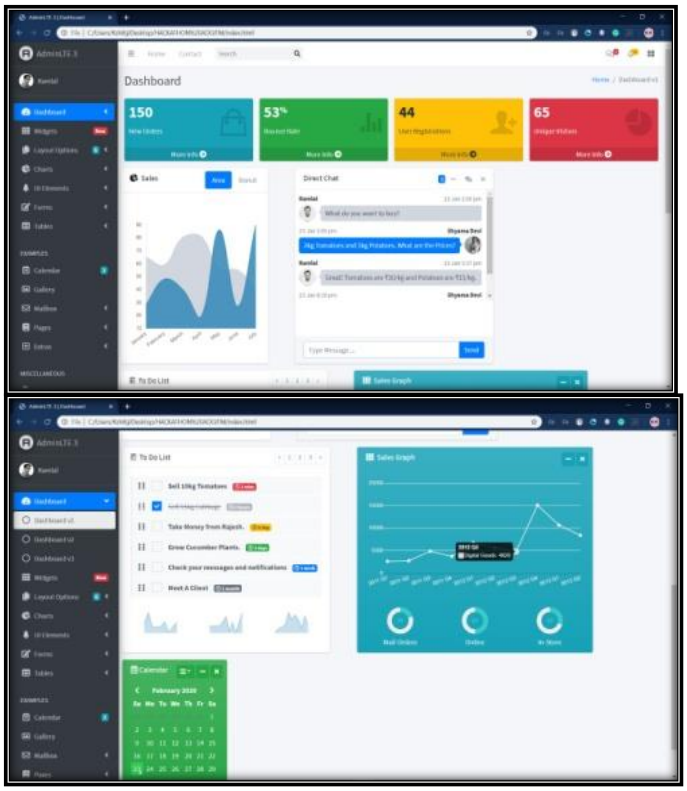

Fig. 5: Screenshot of the Web Portal

For any type of user, either android one or any other, the web portal for this application will be available. The web portal's link is: www.kisaanportal.com.in. The main page of the online portal have login and registration link buttons for both retailers and farmers separately. The customer support helpline number is also provided on this page.

After selecting Farmer or Retailer tabs, Login/Registration page will open. Here, the individual must provide its e-mail, self-made password along with his/her personal information like, Name, DOB, Contact Number, Address and PIN Code at the time of Registration. For login, the individual has to provide only his/her Name/Email-Id and Password.

After logging in, the individual will be redirected to his/her Dashboard. The side bar of the Portal have all the links to different pages in the form of tabs like, Dashboard; Widget – for all the latest chats, to do list, etc. so that the person can remain up to date; Sales Chart; Layout Options - using which the person can align different component of dashboard according to his/her convenience; and Gallery for uploading latest pics of farms and products.

The Dashboard have 3 Sub Pages:

- First one has all the personal data of the farmer or retailer, like the Direct Chat box, through which the retailers and farmers can chat with each other directly. To Do list along with calendar is also provided so as to help the person to plan his/her schedule according to his/her convenience.
- Second page have all the Financial Information related to the sales done recently. The Monthly Recap helps in planning the upcoming months. Also, all the revenue collected and profit done in total is present on this page.
- Third and the last one have all the information based on every single aspect line the sales done, week-wise. The production of a certain crop, its selling and buying quantities. It also have the year-wise and month-wise comparison of the sales done.

VII. CONCLUSION

The main objective of this agriculture system is to is to make it more innovative, user friendly, time saving and more efficient then existing system for the farmers and the retailers so that the middle man which plays a major role in altering the profits of farmers and retailers gets omitted. Through this model the farmers also get to know about the technology. According to this model farmers and retailers do not need to depend upon the middle man for their requirements. So the profit rate of farmers and retailers increased and this may also lead to the consumer to fulfil their needs at much cheaper prices.

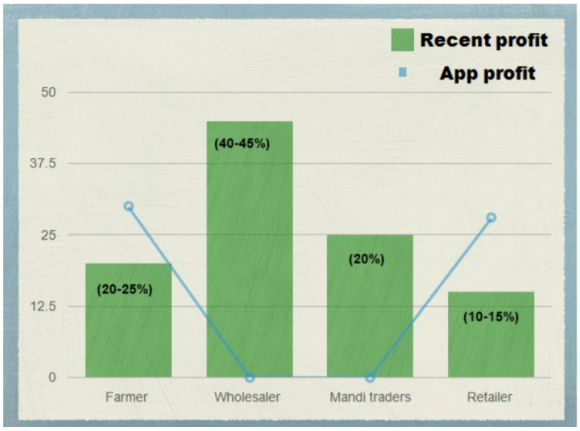

Fig.6: Profit Analysis of the system

REFERENCES

[1]. Suvittawatt, Adisak & Soni, Peeyush & Igel, Barbara & Do Ba, Khang. (2014). Cassava Root Supply Chain in Nakhornratchasima Province: Challenges and Opportunities for Local Starch Mills. Journal of Food Agriculture and Environment. 12. 332-338.

[2]. https://www.bighaat.com/blogs/news/42151041 - biggest-problems-faced-by-farmers-in-india.

[3]. Chetan Dwarkani M, Ganesh Ram R, Jagannathan S and R. Priyatharshini, "Smart farming system using sensors for agricultural task automation," *2015 IEEE Technological Innovation in ICT for Agriculture and Rural Development (TIAR)*, Chennai, 2015, pp. 49-53. doi: 10.1109/TIAR.2015.7358530

[4]. S. Jaiganesh, K. Gunaseelan and V. Ellappan, "IOT agriculture to improve food and farming technology," *2017 Conference on Emerging Devices and Smart Systems (ICEDSS)*, Tiruchengode, 2017, pp. 260-266. doi: 10.1109/ICEDSS.2017.8073690

[5]. M. Lee, J. Hwang and H. Yoe, "Agricultural Production System Based on IoT," *2013 IEEE 16th International Conference on Computational Science and Engineering*, Sydney, NSW, 2013, pp. 833-837. doi: 10.1109/CSE.2013.126