A MINOR PROJECT REPORT

ON

RE_V_FARM:REVOLUTION WE BRING TO FARMING

SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE OF

BACHELOR OF TECHNOLOGY

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

Submitted by:

Shivangi Tripathi 9919102038

Yashi Agarwal 9919102010

Arshita Tyagi 9919102039

Under Guidance of:

Dr. Bajrang Bansal

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY, NOIDA (U.P.)

December, 2021

CERTIFICATE

This is to certify that the minor project report entitled, "Re_V_Farm" submitted by Yashi Agarwal (9919102010), Arshita Tyagi (9919102039) and Shivangi Tripathi (9919102038) in partial fulfillment of the requirements for the award of Bachelor of Technology Degree in **Electronics and Communication Engineering** of the Jaypee Institute of Information Technology, Noida is an authentic work carried out by them under my supervision and guidance. The matter embodied in this report is original and has not been submitted for the award of any other degree.

Signature of Supervisor:

Name of the Supervisor:

Dr. Bajrang Bansal

ECE Department,

JIIT, Sec-128,

Noida-201304

Dated: Dec 2, 2021

DECLARATION

We hereby declare that this written submission represents our own ideas in our own words and where others' ideas or words have been included, have been adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission.

Place: Noida

Date: Dec 02, 2021

Name:Shivangi Tripathi

Enrollment:9919102038

Name: Arshita Tyagi

Enrollment: 9919102039

Name: Yashi Agarwal

Enrollment: 9919102010

ABSTRACT

Agriculture, with its allied sectors, is unquestionably the largest livelihood provider in India, more so in the vast rural areas. It also contributes a significant figure to the Gross Domestic Product (GDP). The importance and contribution of agriculture to our sustenance is something that everyone knows but very few acknowledge. There is a saying 'if agriculture goes wrong nothing can go right in the country'. This saying has been proved right over and over again.Profitability of the farmers should be increased by making them more active in marketing and decreasing the involvement of middlemen. Only our genuine care, understanding and effort combined with that of the government can help farmers and farming to reach the zenith — the position they deserve.

A Web Application which will enable the farmer to sell his produce to the customer without any constraints and exploitation of the middleman, thereby he will get the profit that he deserves for his hardwork. This System encompasses varied features to help the farmer to transact efficiently and effectively**.**

The Agriculture Portal has three functional arms :– (i). The Farmer module that can use the services which have been provided by the government. Services such as Crop Predicition, NewsFeed, Trading crops, as well as weather prediction are provided.

(ii). The Government module that handles the inventory of the crops traded by the farmer, the details of the farmer and selling the crops to the customer at a reasonable price as well as the profit is given to the farmer without extra charges.

(iii). The customer module that allows to buy a variety of crops from the farmers at well-defined and easonably low prices.

Features:

- Crop Predictor using Cart Algorithm implemented by means of Machine Learning.
- Government Schemes.
- OpenWeatherMap API services to predict current weather.
- Commercialization of Crops.
- NewsFeed.
- Multilingual support.

ACKNOWLEDGMENT

We would like to express my gratitude towards **Dr. Bajrang Bansal** for guiding me throughout the project. We thank all participants for their positive support and guidance.We respect and thank him, for providing us an opportunity to do this project and giving us all support and guidance which made us complete the project duly.We are extremely thankful to him for providing such a nice support and guidance, although he had busy schedule managing the corporate affairs.

We respect and thank our project coordinators **Mr Raghvendra K. Singh** and **Dr. Bhartendu Chaturvedi** for providing us an opportunity to do the project work in JIIT and giving us all support and guidance which made us complete the project duly.We are highly indebted to all our lecturers of **E.C.E Departmant of Jaypee Institute of Information Technology** for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

We pay our respects and love to our parents and all other family members and friends for their love and encouragement through out our career. Last but not the least we express our thanks to our friends for their cooperation and support.

Name: Arshita Tyagi

Enrollment: 9919102039

Name: Shivangi Tripathi

Enrollment: 9919102038

Name: Yashi Agarwal

Enrollment: 9919102010

Table of Contents

LIST OF FIGURES

Chapter 1

INTRODUCTION

Agriculture is the backbone of the Indian Economy"- Mahatma Gandhi six decades ago. Even today, the situation is still the same, with almost the entire economy being sustained by agriculture, which is the mainstay of the villages. It contributes 16% of the overall GDP and accounts for employment of approximately 52% of the Indian population. Rapid growth in agriculture is essential not only for self-reliance but also to earn valuable foreign exchange.

Indian farmers are second to none in production and productivity despite of the fact that millions are marginal and small farmers. They adopt improved agriculture technology as efficiently as farmers in developed countries. It is felt that with provision of timely and adequate inputs such as fertilizers, seeds, pesticides and by making available affordable agricultural credit /crop insurance, Indian farmers are going to ensure food and nutritional security to the Nation.It is envisaged to make available relevant information and services to the farming community and private sector through the use of information and communication technologies, to supplement the existing delivery channels provided for by the department. Re_V_Farm is an endeavour in this direction to create one stop shop for meeting all informational needs relating to Agriculture of an Indian farmer. With this Indian Farmer will not be required to sift through maze of websites created for specific purposes.Once in the Re_V_Farm, a farmer will be able to get all relevant information on specific subjects around his village/block /district or state.

1.1 Govt. Schemes:

Government Schemes are intended to help all farmers across the country and roughly 85 per cent of the total operational holdings in the country (about 43 per cent of the gross cropped area) are in the Small and Marginal Farmers (SMFs) category.

The Government of India fixes Minimum Support Price (MSP) for both Kharif and Rabi crops based on the recommendations of the Commission on Agriculture Costs & Prices (CACP). The Commission collects & analyses data on cost of cultivation and recommends MSP. While recommending its Price Policy, the CACP considers all costs in a comprehensive manner. The costs include all paid out costs such as those incurred on account of hired human labour, bullock labour/machine labour, rent paid for leased in land, expenses irrigation charges, depreciation on implements and farm buildings,

interest on working capital, diesel/electricity for operation of pump sets etc., miscellaneous expenses and imputed value of family labour. Hence the costs considered are very comprehensive and based on the methodology recommended by Expert Committees from time-to-time. Pradhan Mantri Krishi Sinchai Yojana will give a boost to productivity by

ensuring irrigation facilities. The Vision is to ensure access to some means of protective Irrigation to all agricultural farms.

1.2 Weather Forecast:

Agriculture and farming are mainly dependent on seasons and weather. The temperature matters a lot in that case when it comes to the farming of different kinds of fruits, vegetables, and pulses. Previously we did not have a better understanding of weather forecasting and farmers were still doing their job based on predictions. Though sometimes they occur loss due to false predictions of weather. Now that the technology is developed and special weather forecasting mechanisms are available, the farmers can get all the updates are on a smartphone.

Irrigation is an artificial application of water to land for agricultural production and farming. The requirements for irrigation and crop growth are affected by weather variability. The amount of timing and evapotranspiration are two main weather-related requirements. Climate variability is something that all farmers need to react upon. Extended periods of dry conditions, commonly known as drought is one of the major impacts in the irrigation system. So if their proper forecast is done chances of losses are way lower than expected. Drought can increase daily crop water use due to lower humidity and accompanied by higher temperatures. Managing under the extreme conditions, irrigators need to understand daily and seasonal crop water use patterns, as well as adopt practices and technology which result in good production of crops.

Timing of fertilizer has a significant effect on crop yields. Proper timing of the fertilizer application increases yields, reduces nutrient losses and prevents damage to the environment. Wrong timing and not predicting the weather may result to waste of fertilizer and even damage the crop. Knowledge of how the application of the fertilizer is done is required. Weather forecast can help the farmers to decide the timing on when to apply them and in which condition. The consequences of unseasonal changes in

temperature and their potential negative effects on host plants and pests are very well known. Unseasonably high temperatures may lead to lower plant productivity and more pests on the farm. Applying pest and disease control is important to protect the farm and crops from the insects. Weather forecast helps the farmers to know when to apply the pests and chemicals to avoid the crop wastage

1.3 Availability of Seeds:

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15 – 20% depending upon the crop and it can be further raised up to 45% with efficient management of other inputs. The developments in the seed industry in India, particularly in the last 30 years, are very significant. A major re-structuring of the seed industry by Government of India through the National Seed Project Phase-I (1977-78), Phase-II (1978-79) and Phase-III (1990-1991), was carried out, which strengthened the seed infrastructure that was most needed and relevant around those times. This could be termed as a first turning point in shaping of an organized seed industry. Introduction of New Seed Development Policy (1988 – 1989) was yet another significant mile stone in the Indian Seed Industry, which transformed the very character of the seed industry. The policy gave access to Indian farmers of the best of seed and planting material available anywhere on the world. The policy stimulated appreciable investments by private individuals, Indian Corporate and MNCs in the Indian seed sector with strong R&D base for product development in each of the seed companies with more emphasis on high value hybrids of cereals and vegetables and hi-tech products such as Bt. Cotton. As a result, farmer has a wide product choice and seed industry today is set to work with a 'farmer centric' approach and is market driven. However, there is an urgent need for the State Seed Corporations also to transform themselves in tune with the industry in terms of infrastructure, technologies, approach and the management culture to be able to survive in the competitive market and to enhance their contribution in the national endeavour of increasing food production to attain food & nutritional security.

1.4 Post Harvest Management of Yield:

Sustainable agriculture is a core part of the concept of sustainable development. Given the forecast in population increase, sustainable agriculture has to achieve food security

in combination with economic viability, social responsibility and have as little effect on biodiversity and natural ecosystems as possible. . This concept requires a thorough understanding of agro-ecosystem functions. They will have to find new types of solutions based on locally-available and cheap technologies combined with making the best of natural and human resources. Sustainable intensification is the use of the best available technologies and inputs such as best genotypes, best agronomic management practices and best postharvest technologies to maximize yields, while at the same time minimizing or eliminating harm to the environment. Clearly, over the next 50 years we will need to learn to do just this. Therefore, this review will be focused on the postharvest physiology and management including harvesting, handling, packing, storage and hygiene of fruits and vegetables to enhance using of new postharvest biotechnology. The postharvest biology including biochemical parameters of horticultural crops quality, postharvest handling under extreme weather conditions, potential impacts of climate changes on vegetable postharvest and postharvest biotechnology will be also highlighted.

1.5 Soil Health:

Soil health is fundamental for a healthy food production. It provides essential nutrients, water, oxygen and support to the roots, all elements that favour the growth and development of plants for food production. The soil hosts a big community of diverse organisms that improve the structure of the soil, recycle essential nutrients, helps to control weeds, plant pests and diseases. Another important aspect is that when soil is healthy, it contributes to mitigate climate change by keeping or increasing soil organic carbon. Soil is the basis of food systems as well as the place where all plants for food production grow. For that reason it is extremely important to preserve soils and to start a global cultural movement which returns to soils the primary importance that they deserve.

1.6 Crop Prediction:

Machine learning is an important decision support tool for crop yield prediction, including supporting decisions on what crops to grow and what to do during the growing season of the crops. Several machine learning algorithms have been applied to support crop yield prediction research. In this study, we performed a Systematic Literature Review (SLR) to extract and synthesize the algorithms and features that have been used

in crop yield prediction studies. Based on our search criteria, we retrieved 567 relevant studies from six electronic databases, of which we have selected 50 studies for further analysis using inclusion and exclusion criteria. We investigated these selected studies carefully, analyzed the methods and features used, and provided suggestions for further research. According to our analysis, the most used features are temperature, rainfall, and soil type, and the most applied algorithm is Artificial Neural Networks in these models. After this observation based on the analysis of machine learning-based 50 papers, we performed an additional search in electronic databases to identify deep learning-based studies, reached 30 deep learning-based papers, and extracted the applied deep learning algorithms. According to this additional analysis, Convolutional Neural Networks (CNN) is the most widely used deep learning algorithm in these studies, and the other widely used deep learning algorithms are Long-Short Term Memory (LSTM) and Deep Neural Networks (DNN).

Chapter 2

Literature Surveys

2.1 ROLE OF GOVERNMENT SCHEMES IN INDIAN AGRICULTURE AND RURAL DEVELOPMENT

[1]Government has many programmes for agricultural and rural development which have not reached the target groups up to a satisfactory level. Therefore,by using proper methods attempts should be made to motivate them through an emphasis on the deprived need areas.

With a view to induce large investment in the development of marketing infrastructure, the Ministry has formulated a scheme for "Development/Strengthening of the our scheme Agricultural Marketing Infrastructure,Grading and Standardization"during 2004.Under this scheme investment subsidy is provided on the capital cost of general or commodity specific infrastructure for marketing of agricultural commodities and for strengthening and modernization of existing agricultural markets, wholesale, rural and periodic or intribal areas.The scheme is reform linked, to be implemented in those States/UTs that amend the APMC I.e. Act wherever required to allow setting up agricultural markets in private and cooperative sectors. Under the scheme, back ended subsidy @25% of capital cost of the project is provided in all States and @33.3%of capital cost in case ofNE States, hilly areas and SC/STentrepreneurs. Inrespect of infrastructure projects of State Agencies, there is no upper ceiling on subsidy to be provided under the scheme.

2.2 CROP PREDICTION USING MACHINE LEARNING

[2]This makes sense to farmers in India to show some special concern towards effective and precision farming. In India there are multiple ways to rise the crop learn profit and improve the standard of the crops so as to keep up the economic growth within the field of agriculture.

It will facilitate the farmers to predict the affordable crop for their individual land. Then, the farmers is guided with an application in mobile tend to make them to understand that what quite seeds we will tend to sow in land to induce higher yielding. Within the past

preceding data, crop prediction was calculated by analyzing farmer's previous expertise on climatic condition. So, the correct data regarding history of climatic condition is a vital factor for creating selections in choosing crops.

Hence, the farmers are facing difficulties in forecasting the weather and crops based on climate data. In recent years the advancement of Machine Learning plays a crucial role in every field including agriculture, here the crop prediction process done with consolidating the preceding data and the present data of a particular month to prove the accuracy of climatic data.

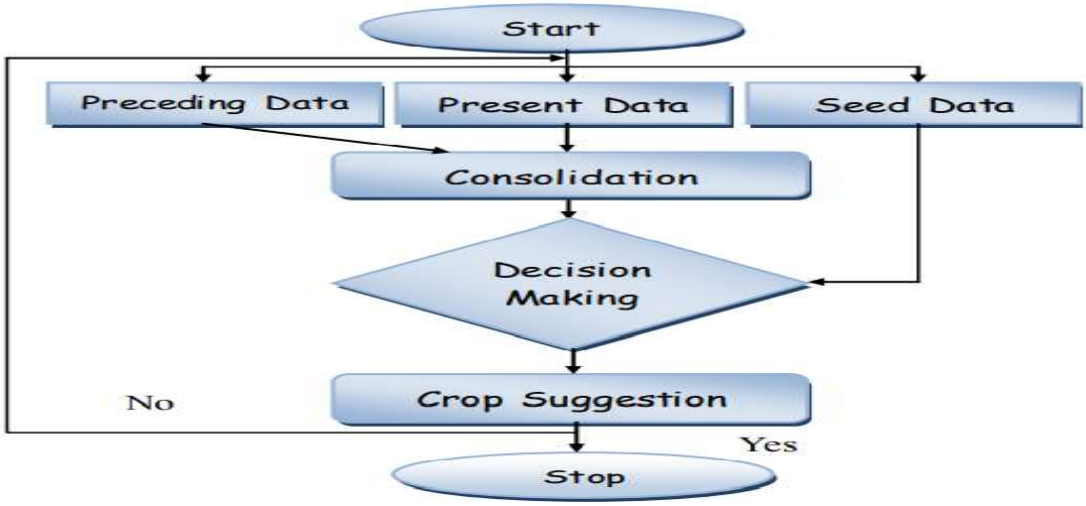


Fig 2.1 System Process Flow

2.3 Providing Smart Agricultural Solutions to Farmers for better yielding using IoT

[3]Nowadays,incase of markets of farmers,many offerings of local food grains are becoming more popular on both sides of the vendors and buyers. Also,Consumers are eagerly involved to know the healthy contents in organic foods and experiences the sources of their food.

Large potential of our Indian agriculture is yet untapped and we still have miles to travel in this arena of research as we have different soil textures in different regions of our state. Farmers can be benefitted by the actual implementation of this projected program. Real challenges that were faced and that are yet to be overcome in reality are the inter-networking of the nodes in an agricultural field and in designing a userfriendly application that is easily understandable for the farmers.

2.4 Intelligent Farming System With Weather Forecast Support and Crop Prediction

1) Crop harvesting options: The proposed system will provide the farmer with appropriate crop choice for the field.: [4]

2) Prevent excessive watering: This feature will turn off the irrigation system the moment the soil moisture value reaches to the threshold limit.: Authorized licensed use limited to: Auckland University of Technology.

3) Ease of watering: The proposed system allows the farmer to turn ON/OFF the irrigation system with the help of WIFI network.

4) Weather forecast: This feature provide the farmers with the weather forecast of the same day and next two days with details such as humidity, temperature, etc.

5) Rain forecast: The system will shift from automatic to manual in case if the weather forecast is rainy in order to prevent the over watering of the field.

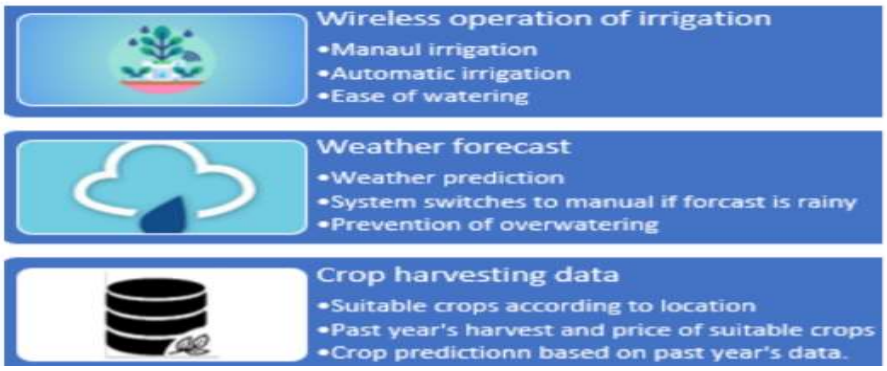


Fig. 2.2 Features of proposed system

2.5 Agriculture marketing using web and mobile based technologies

[5]The awareness on market information in general was found to be relatively poor in case of farmers as compared to the traders since the accessibility of market information in terms of communication systems is very poor in case of farmers. The status of assets on audio visual and communication systems(Fig 2.5) of farmers clearly indicated that radio followed by television were the only assets owned by small farmers. The advanced communication systems like mobile phones were owned by medium and large farmers. A few large farmers also subscribed to agriculture magazines like Annadata, Krishimunnade and Krishipete. However, traders with all the modern and advanced

communication gadgets were able to source the market information easily and regularly. The awareness on market information pertains to only arrivals and prices in local markets in all the categories of farmers. The other important production and marketing parameters like post-harvest handlings, grading and standardization, etc. were not known to the small and medium farmers but a few large farmers were aware of them.

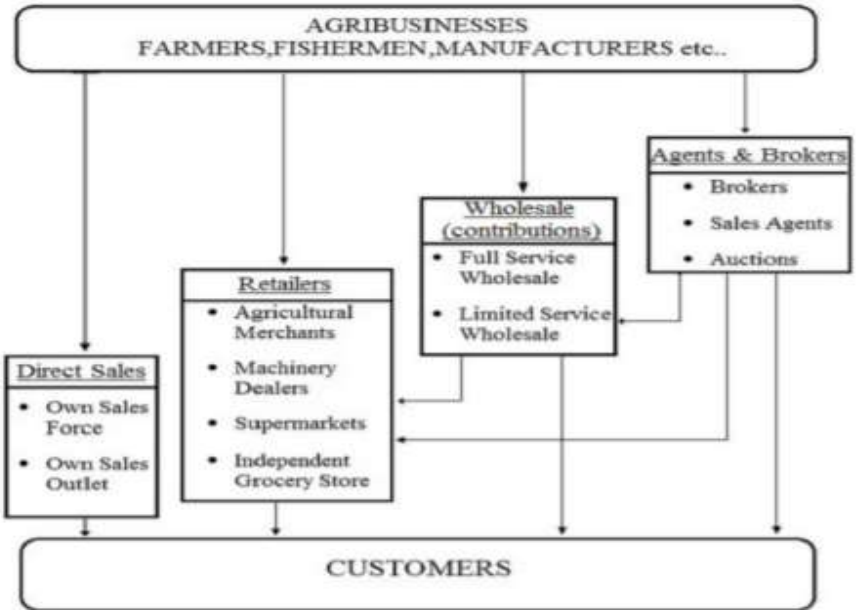


Fig2.5 Flow of farm products from farmers to consumer

2.6 Agricultural Problems and Technology-Based Sustainable Solutions for an Impoverished Village of Bihar, India

[6]The major sources of income of the villagers were found from the survey. Around 56% had daily wage agricultural work as the major source of income, which is available only during the monsoon whereas 18% of the people depended on construction work for their income, which is usually available during non-monsoon part of the year. They can construct clay houses within the village for Rs. 150 per day. About 25% of the people depend on other jobs like going to the town for any kind of daily labour or fishing, during the non-monsoon season.

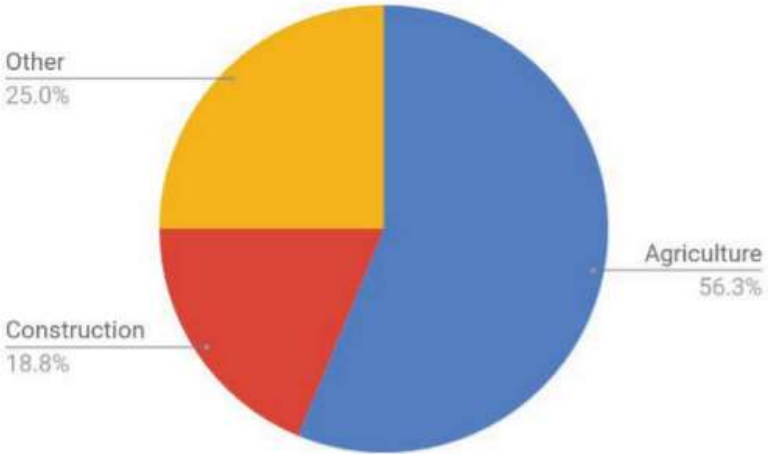


Fig 2.6 Distribution of regular occupations of youth

2.7 Agriculture Intelligence: An Emerging Technology for Farmer Community

[7]In a recent NSSO survey, it has been revealed that nearly 40% of farmers would like to quit farming, if they have the option to do so .

To provide good services to farmers, there are several web services like Agriculture Marketing Research & Information Network, AGMARKNET, IASL, Precision Agriculture. The data flow of such community/service could be understood by Fig 2.7. However, majority of them only provides the commodity wise price tagging. The main drawback of such services is that, they do not provide the user friendly information like Price Analysis, Distance between Mandis etc. to stake holders. However, agriculture sector demands some additional intelligent process for the betterment of the agriculture product .

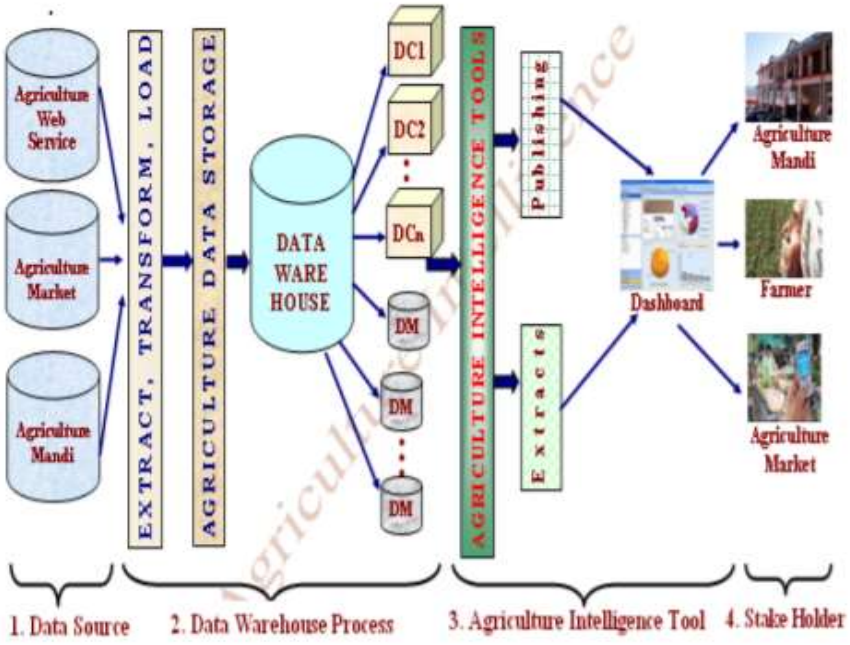


Fig. 2.7 Data Flow

2.8 Organic farming: Technology for environment-friendly agriculture

[8]As most good agricultural land has already been farmed and the region have exceeded the safe limit, primarily in Asia, the natural resources availability for further farming expansion is practically exhausted. So, the necessity of having an alternative agriculture method which can be functioned in a friendly Ecosystem while sustaining and increasing the productivity is talk of the day among not only agricultural scientists but also even common men - Organic farming is recognized as the best known alternative. It is economically feasible to practice when the farmers are able to get premium price for their product. The cost of cultivation will be reduced by not depending upon the purchased off-farm inputs.

The consumers to lead a “Healthy and Happy life”. So a paradigm shift to Organic farming is the need of the day to enhance the quality of life.

Chapter 3

METHODOLOGY

This project is developed using web development to overcome various problems faced both in and out of the field by Indian farmers. This project is implemented completely using HTML (for designing the basic framework of the interface),CSS(for styling purposes),javaScript(for making the webpages more interactive and implementing the various APIs used),PHP(to create dynamic web pages that can interact with databases.),Python 3.8(for implementing machine learning algorithm in crop predictor).

We have further used SQL language for storing, manipulating and retrieving data in the database. We've used APIs(Application Programming Interface) to predict the weather for upcoming days so that farmers can preplan their strategy of farming. APIs are very versatile and can be used on web-based systems, operating systems, database systems and computer hardware.

3.1 Front-end Design

We took the assistance of HTML, CSS, Bootstrap, and JavaScript, and so on for structuring the front-end. The necessity of essential planning was satisfied by utilizing crude HTML and bootstrap, furthermore this to give some extraordinary things we have utilized JavaScript. The shading direction was finished by utilizing CSS and shading direction code. We tried sincerely and utilized vital soldiers for affirming a super easy to understand interface and expectation we made it noticeable.

3.1.1 HTML: Hyper Text Markup Language

It is a mainstream markup language. Fundamentally everybody utilizes this for making their website pages and web application. In this venture, we have utilized HTML for making adapted writings, tables, and different components that can't be spoken to in plain content .

3.1.2 CSS framework or Bootstrap

In the wake of finishing markup, cascading style sheets are designed. It, for the most part, clarifies how HTML components will show. There are three different ways to compose templates. One internal CSS, another is external CSS. Also, the last one is inline CSS. Be that as it may, more often than not external CSS is utilized. Since, by utilizing external CSS, all CSS information can be kept in various records. Be that as it may, these days the

CSS structure is by all accounts exceptionally mainstream. In our application, I have utilized the Twitter Bootstrap structure. This system is grown essentially for CSS and JavaScript. This system is profoundly utilized for planning sites and web applications too. Bootstrap likewise gives media question which highlights responsive design for various gadgets with various screen size.

Bootstrap gives a lot of certain documents which contain templates which gives fundamental definition. Bootstrap additionally gives some JavaScript parts too. . By utilizing the Bootstrap system, we get both CSS and JavaScript offices with a solitary stage. Be that as it may, before start planning an application interface with Bootstrap, one may have some essential information about this system. It will expand productivity .

3.2. Back-end Design

The back-end configuration characterizes how to functions with a site. Another name of the Back-end is the server site. The back-end side isn't unmistakable from the client end, just noticeable by the administrators. The individual who works to build up the back-end is known as an engineer or developer. For building up our venture we worked with these referenced beneath. □

PHP (Framework): It is essentially an administrator interface for applications. By utilizing this it is anything but difficult to alter/include or erase information for the site. It fills in as a media director for the records. Not just that, the PHP structure finishes numerous other authoritative undertakings for designers [10]. □

Database Server: For developing our whole project, we have pursued the Relational Database Management System or RDBMS. What's more, we find that MYSQL gives the element of RDBMS. So we ought not to have any issue to utilize the MYSQL database. It is additionally extremely simple to utilize. It can also ensure security, scalability, high performance and many things.

3.3 Interaction Design and UX

We have subtleties of the cooperation structure of our task. We are giving them part by parts like the farmer, doctor and admin panel. The administrator and the board segment will just approach the control board.

3.4 Implementation Requirements

As an unpredictable and utilitarian work, the usage of our task may require numerous things. From the start for taking care of and controlling the database is expected to utilize PHP code and clearly, the stage is MYSQL. Here the MYSQL is a database the board framework, which could make simple to alter site database. To make any class or new database we can do it in PHP, my administrator. It's only for instance. Along these lines can erase or embed our database in it. Something critical is, while users go for executing the PHP records, simply need to keep the documents into c-drive that is for where really the XAAMP[12] document has. Presently, Into XAAMP document, htdocs a record we have to put our PHP documents into that envelope. At that stage, need to make localhost. When we execute our records we should need to type localhost then the document area into URL. Presently just that, we additionally have a couple of programming prerequisites as well. Software Requirements In order to implement this project, we need a few software requirements for some essential tasked to be done like coding, controlling and maintaining. □

VS Code: (It's a code editor. We actually prefer it to smart coding. To implement the project a code editor is essential. All HTML, CSS, PHP, Bootstrap, jQuery or JavaScript code need to write in this type of platform).

Chrome: (It's the most part software we need to implement our projects. Users need to add our extension on the chrome browser to get the interface of Smart Farming System).

XAAMP: (It needed for creating the local web server which is essential for testing and deployment of the changes in every stage)

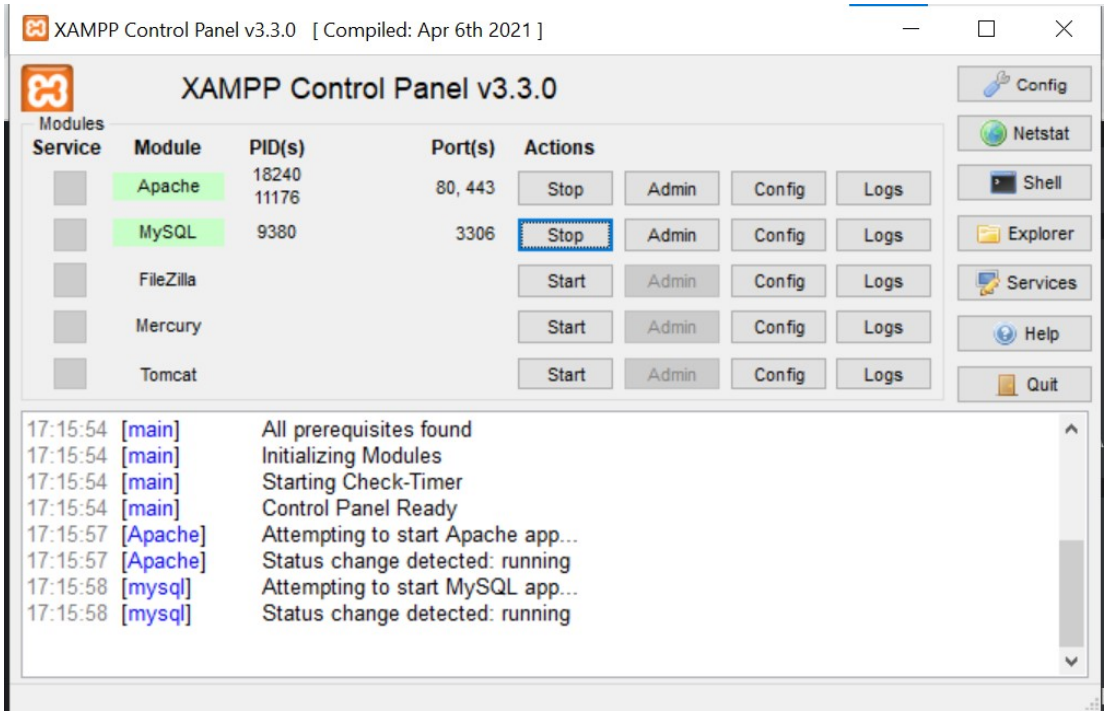


Fig. 3.1 XAMPP Control Panel

3.5 Implementation of Database

[9]Our project is really made dependent on web innovation and dependent on this stage as well. So the principal thing first. We have to structure a database to actualize this. At that point, execute the database adequately by utilizing the PHP code. Other than this, we took care of the database is MYSQL. Here utilized capacities for SQL questions for the activity database[14]. Exploiting PHP, for this task we planned various sorts of information tables that portray the characteristics, substance, and information type as well. In this way, in database when the client signs in or register it checked from the database and afterward required activity from this database. Figures underneath show subtleties of all tables of our database Fig 3.2.

Fig.3.2 Database tables

Chapter 4

SIMULATION RESULTS

The web application will have a home page containing a Signup/Login for different stakeholders and a Section referring to current government schemes for farmers, retailers and landlords ,a News Feed section showing the latest news.

The home page of this project which appears the first whenever anyone visits the site. It has all the buttons with hyperlinks to lead the user to rest of the pages in order to take benefit of the services available(Fig 4.1(a)).

Towards the left is the section with a set of buttons which enable us to use various services offered by the interface. In the middle is the Keynotes section which clearly specifies in what all ways can a user benefit from the site. The section in right is to enlighten the users about various policies issued by government in farmer's interest(Fig 4.1(b)).This is the "Contact Us" section of the page where user can report their grievances if any to the admin of the page which would help in improving the working of site(Fig 4.1(c)).

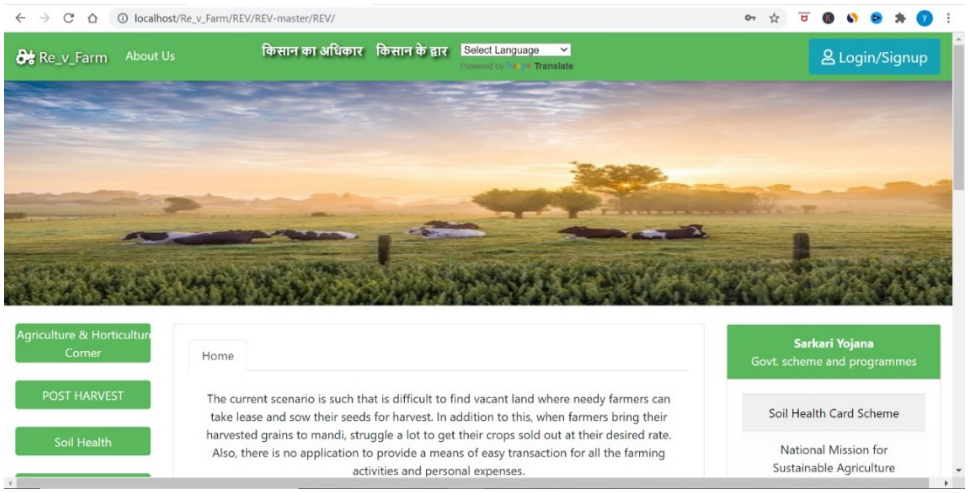


Fig 4.1(a) Home page

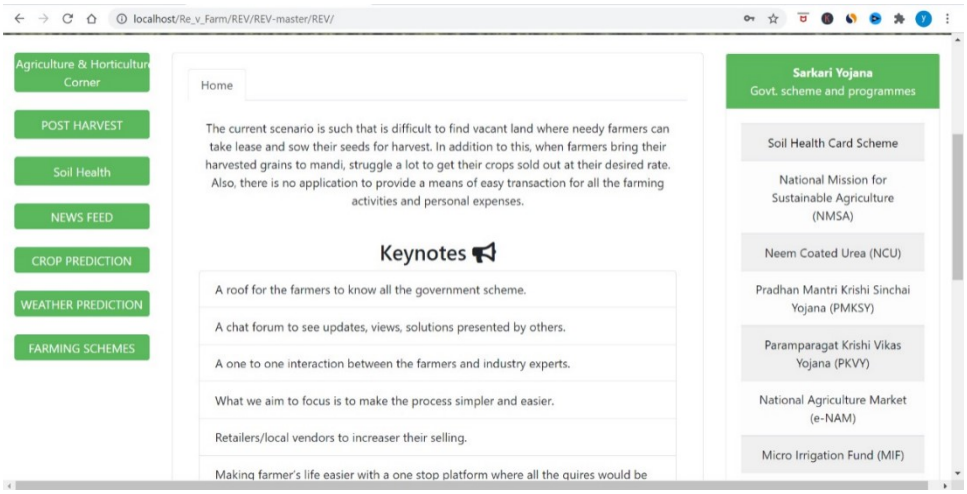


Fig 4.1(b) Toggle bar of home page

In News Feed Fig 4.2 section of the project, which displays daily news updates in the field of Agriculture.The poll shows 84% of farmers who use the Internet use it to get information on the weather, and 72% do so at least weekly. Most farmers who use the Internet also access market information (78%), general ag news (75%) and information about crop production (68%), and many do so on a fairly regular basis. So, to bring effective method we have included a news feed corner using news feed api[14].

Fig 4.3

If anyone want to be a user they need to register first. User should have valid information for completing registration. So, user go into thehomepage>login>signup, Then the register page will appear. Provide the screenshot of register page below(Fig[4.3], Fig[4.4]).

The Login Page which enables existing users to access their account.User inputs the data and the php helps it to fetch the data and helps him to login into his account.Fig: 4.4 Below is the Registration page which enables any new visitor to the site to make an account of their own just by filling in a few basic details which are recorded in the database.

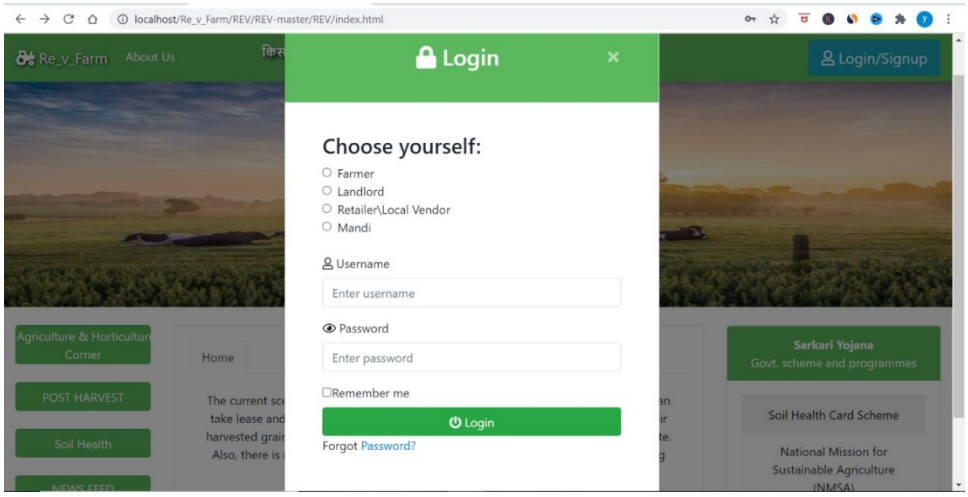


Fig 4.3 Login Page

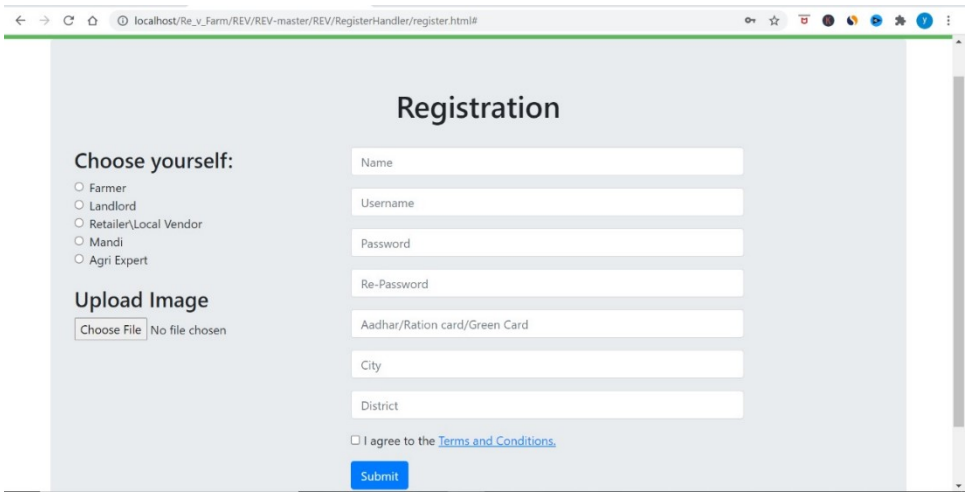


Fig: 4.4 Registeration Page

The of Schemes page Fig 4.5 which contains the hyperlinks that lead users to the government websites where they can actually get the benefit offered to them.To escape from natural calamities and farmer suicides, awareness of crop insurance scheme is essential for the farmers. It helps in stabilization of farm productionand income of farming community. It helps in optimal allocation of resources in the production

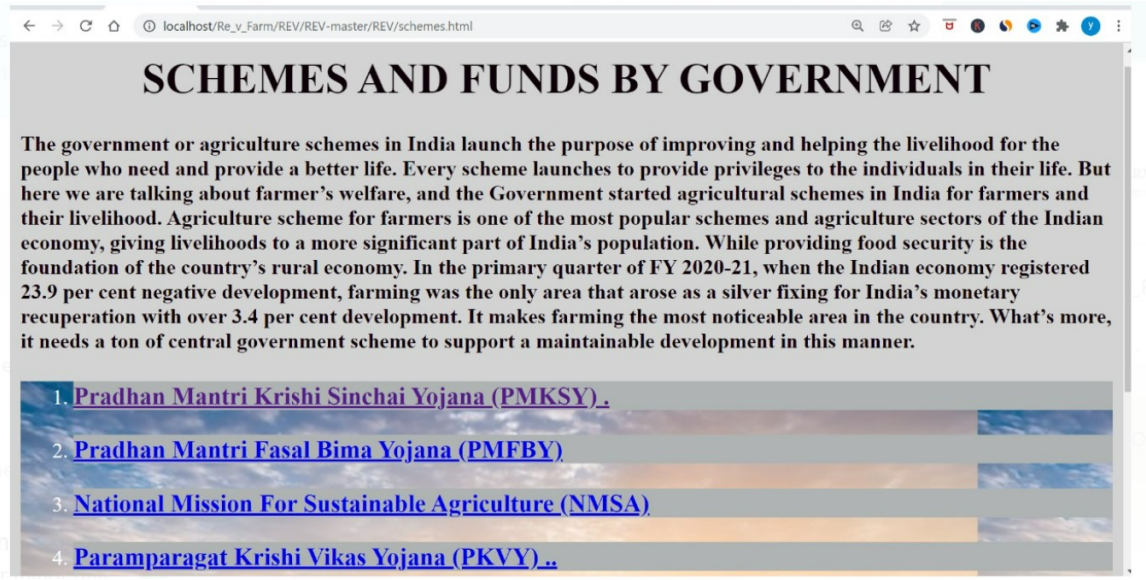


Fig 4.5 Schemes Page

. The Weather Prediction Page helps farmers to see weather updates for the upcoming week and plan their working strategy accordingly.Forecasts can help them plan for the many day-to-day decisions. These decisions include crop irrigation, time to fertilize, and what days are suitable for working in the field. The decisions that farmers make will result in a profitable crop or failure.

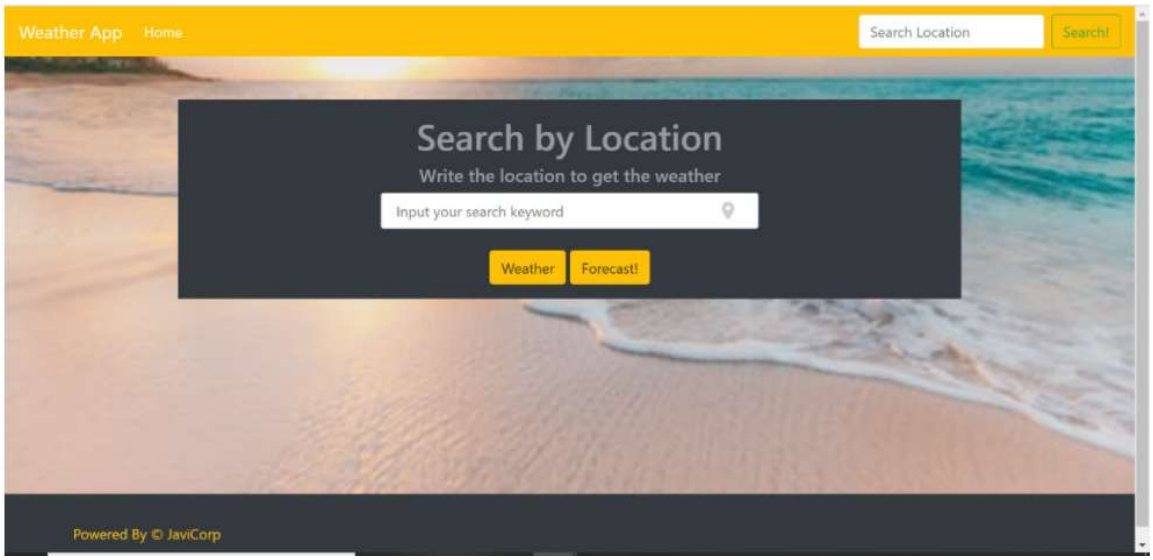
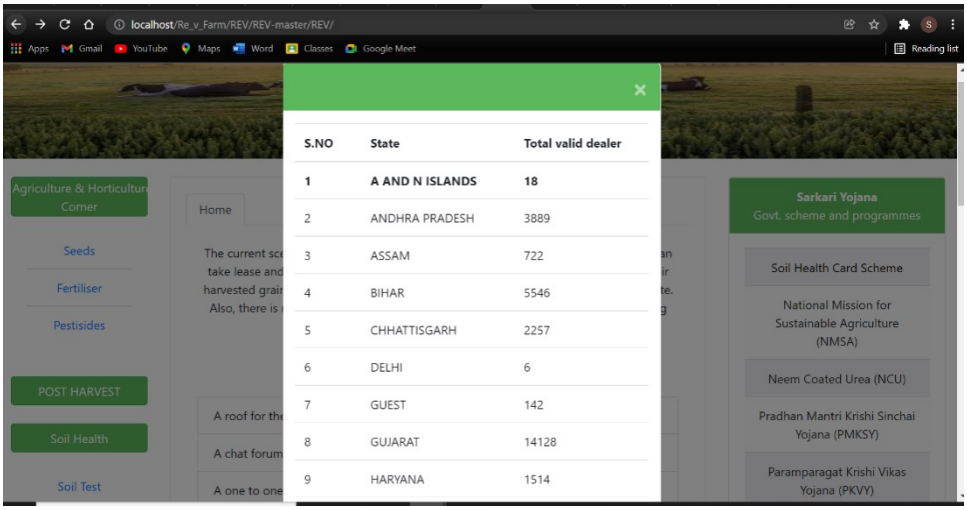


Fig 4.6(a) Weather prediction Home Page

Fig 4.6(b) Predicting the weather of the upcomming week.

• Local vendors can post their purchase offers on various products/goods. And also if machinery items are available for lease.This page displays Seed Dealers information all over India state-wise Fig 4.7.



S.NO	State	Total valid dealer
1	A AND N ISLANDS	18
2	ANDHRA PRADESH	3889
3	ASSAM	722
4	BIHAR	5546
5	CHHATTISGARH	2257
6	DELHI	6
7	GUEST	142
8	GUJARAT	14128
9	HARYANA	1514

Fig 4.7 Seed Dealers information window.

• Farmers on login/registration can have access to all the facilities such as land booking, mandi slot booking, leasing/purchasing necessary equipment's/products for farming.

Fig: 4.8(a)This page displays the availability of land for farming at comparative rates with the contact details of landowners. Fig 4.8(b)The section where landlords can post about their lands if available for rental/lease purpose.

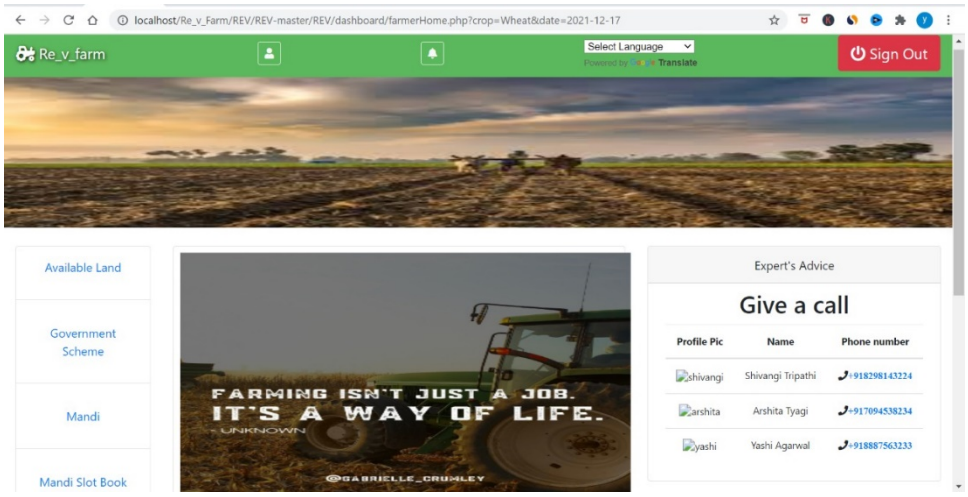


Fig: 4.8(a)

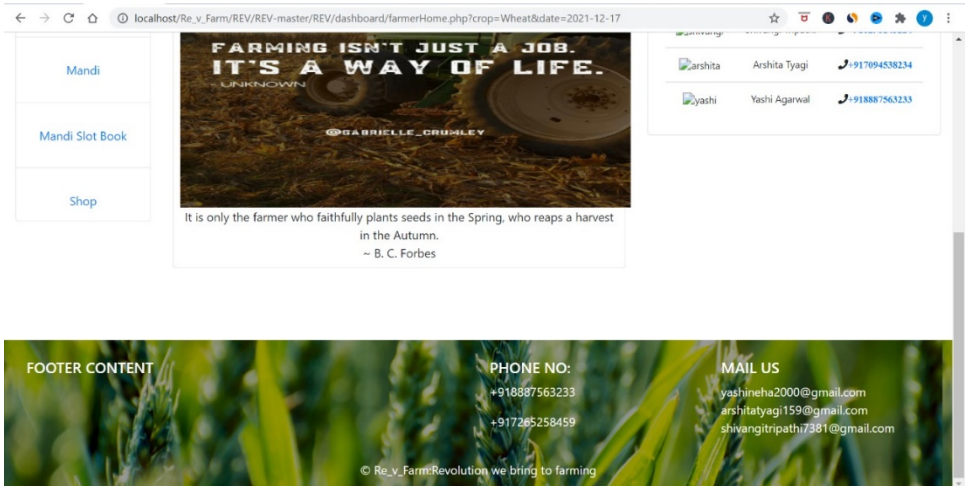


Fig: 4.8(a) and 4.8(b) Farmer's login page

• Landlords can post their lands if available for rental/lease Fig 4.9.

This is Landlord's home Page where they fill in all details about their land.

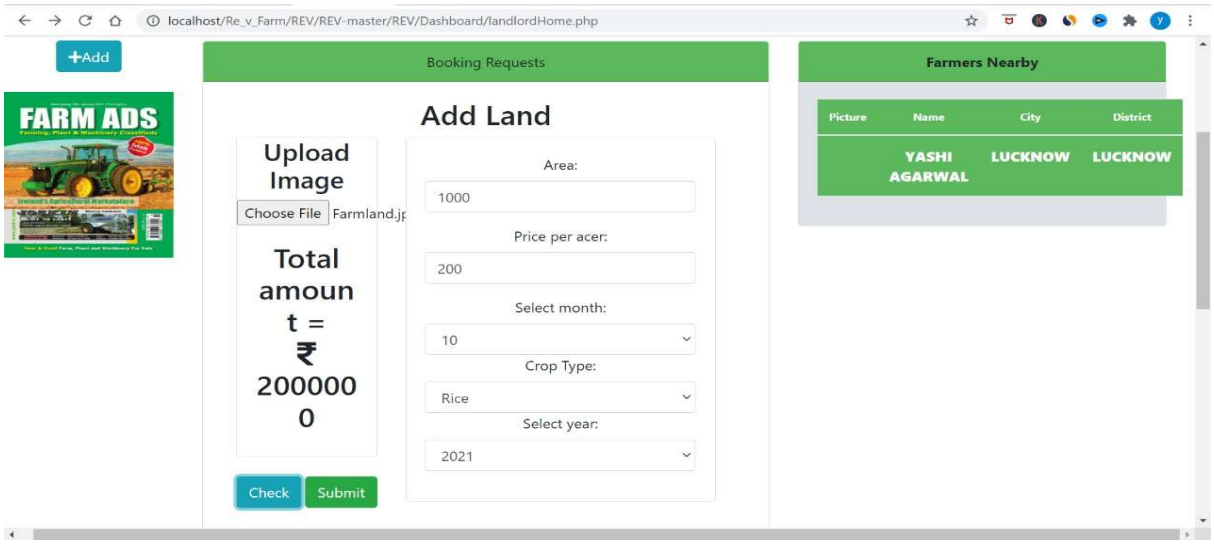


Fig 4.9 Landlord's home Page

Fig 4.10 Page above shows the Mandi Home page which reflects the variety of crops available in various mandis across the country.Fig: 4.11 Shown above is Retailer's Home Page which helps them make booking requests.Fig: 4.12 This is the snapshot of Farmer's Home Page which shows all the available lands**.**

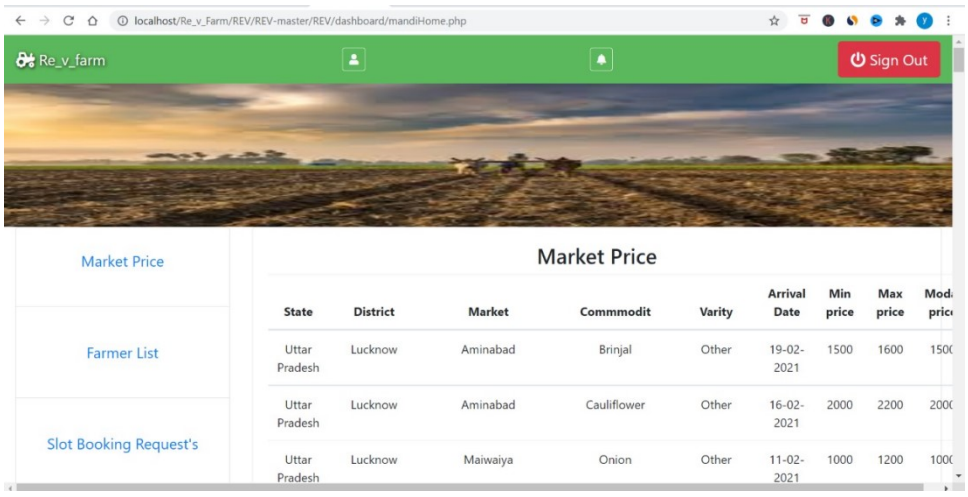


Fig 4.10 Mandi Home page

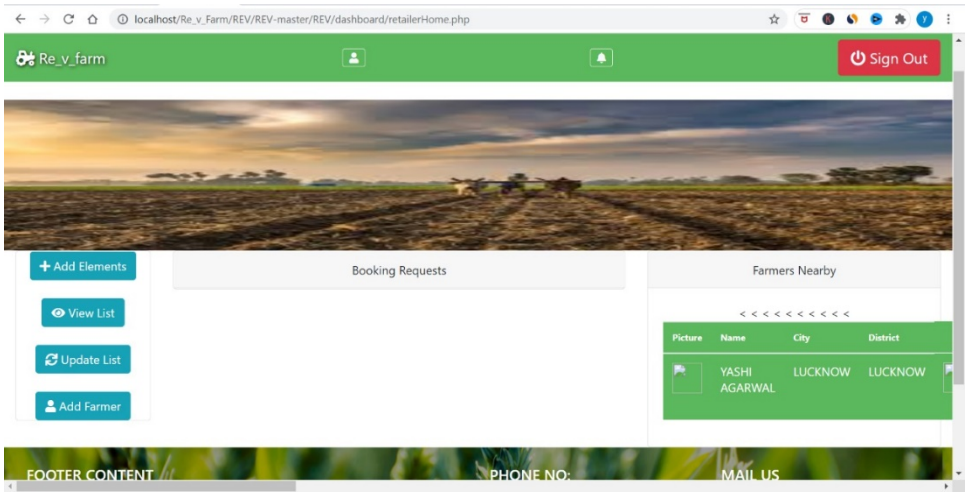


Fig: 4.11 Retailer's Home Page

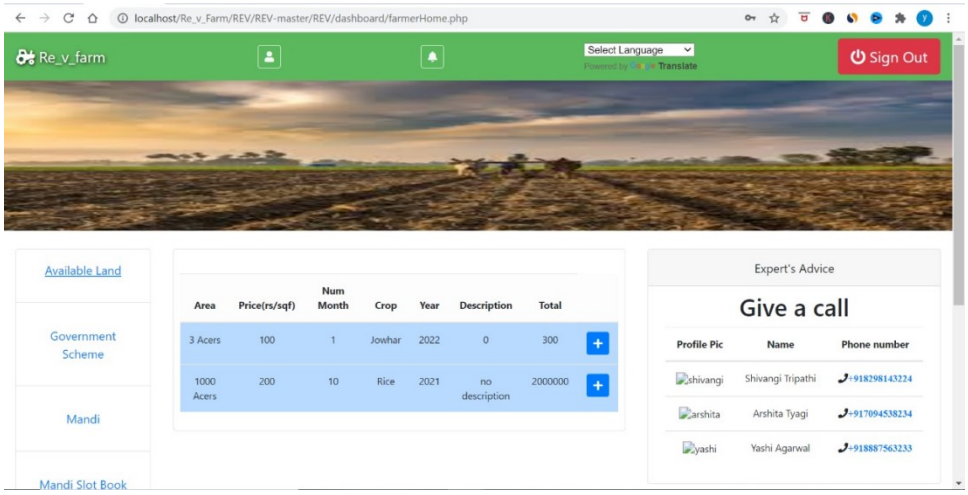


Fig: 4.12 Farmer's Home Page

Agricultural weather stations are instruments that measure and display different local measurements to help with ideal farming conditions. This data can be observed at the site or over the internet(Fig(4.13)).

Fig: 4.13 Displayed here is Crop Prediction Page which is capable of predicting the type of crops that can be grown in any particular city of any particular state in any given season.

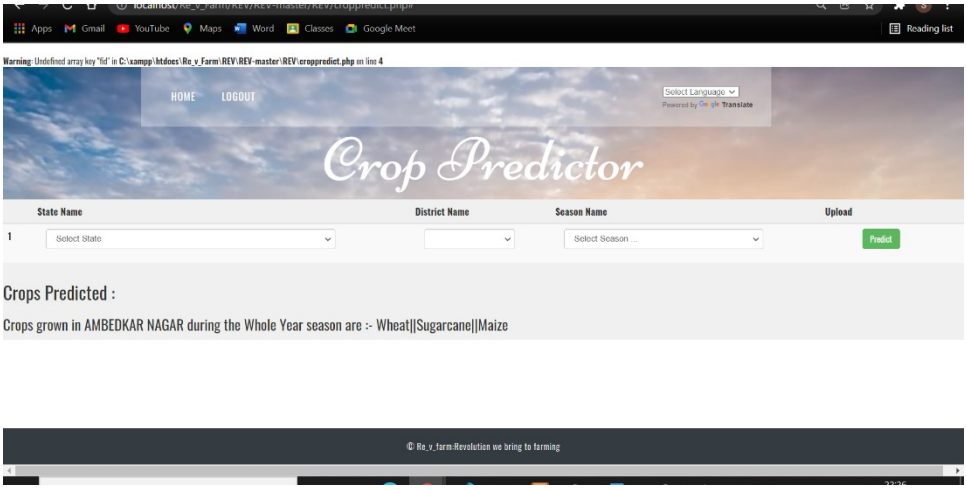


Fig: 4.13 Crop Prediction Page

Chapter 5

CONCLUSION AND FUTURE SCOPE

5.1 CONCLUSION

This project provides a valuable learning experience. Re_v_Farm Solution is to bring Indian farmers, local vendors, and landlords together in a common platform, so that a inter communication channel could be established between them.

Where the farmers could find the best land that suits them at their convenient price without any pressure to pay more than what they earn; to the landlords. Also the farmers could select the vendors and approach the mandi once the crops are harvested and ready to be brought to the market. While the crops are under the cultivation process the plantation needs and the machineries could be bought or taken at lease from the local vendors.The local vendors are benefited as they would be recognized by the farmers and would be able to attract farmers by pitching them their offers and promotional discount.

The mandi shall be benefited as it gets the track records of the farmers and their crops. Also, there is a separate section for Government schemes under which the farmers and other stakeholders involved would get to know the various government schemes and benefits.

Advantages:

- Farmers can have their desired land.
- Farmers can lease/buy machinery.
- Weather forecast
- Easy transaction between stake holders.
- Instant slot booking for mandi's.
- A roof for the farmers to know all the government scheme.
- A clear work flow between the stakeholder.:

5.2 Future scope

The application is planned so that future changes can be effectively done. The following conclusion can be accepted from the improvement of the project. Automation of the whole application improves the great association. It delivers a well friendly graphical UI and gives proper access to approved users depending upon their approvals. It successfully overcomes the delay in communications. Refreshing information turns out to be simpler. Application security, information security, and reliability are striking features. The System has a tolerable extension for adjustment later on in the event that it is basic. The System has a passable scope for modification in the future if it is essential.

Android Application Support:

- Chatbot Support for navigating through the website or other queries Personalized Updates for every farmer by installing sensors in every land and observing the

quality of the land and predicting plants using this data for more accurate suggestion.

- Proving the facility to design personalized plan of getting out the maximum effective yield, if multiple land holdings and resources area are present.

- Providing the facility to plan the effective use of the Yield to get the maximum outcome by taking requirement of every area into consideration.

Soil Testing

The applications through which it will contribute directly to efforts such as the 4R Nutrient Stewardship approach developed by the International Plant Nutrition Institute to develop fertilizer BMPs. This approach considers economic, social and environmental factors in developing sustainable agriculture systems.

It will help in

(i) . Increase crop production & improve profitability.

(ii)Minimize nutrient loss & maintain soil fertility.

(iii) Ensure sustainable agriculture for generations to come

REFERENCES

[1] Prabha1,R.K.Goyal,Bindu Naik,Jai,P.Rai and Shree Ram Singh,"ROLE OF GOVERNMENT SCHEMES IN INDIAN AGRICULTURE AND RURAL DEVELOPMENT",Indian Agriculture and,Farmers,VaranasiIndia,pp.92-102,January 2016

[2] M..Kalimuthu,P.Vaishnavi and M.Kishore,"Crop Prediction using Machine Learning",Proceedings of the Third International Conference on Smart Systems and Inventive Technology (ICSSIT 2020),Tirunelveli, India,,pp.936-932,20-22 Aug. 2020.

[3] M.K.Gayatri,Dr.G.S.Anandha Mala and J.Jayasakthi,"Providing Smart Agricultural Solutions to Farmers for better yielding using IoT",Technological Innovation in ICT for Agriculture and Rural Development (TIAR 2015),Chennai, India,pp. 40-43,July 2015

[4] Udit Shandilya and Vidhi Khanduja,"Intelligent Farming System With Weather Forecast Support and Crop Prediction", 2020 5th International Conference on Computing, Communication and Security (ICCCS),IEEE Paper 2020, Patna, India,pp. 1-5,16 Oct. 2020

[5] Abishek A.G, Bharathwaj M. and Bhagyalakshmi L.,"Agriculture Marketing Using Web and MobileBased Technologies",2016 IEEE International Conference on Technological Innovations in ICT For Agriculture and Rural Development (TIAR 2016),Chennai India, pp. 41-44, july 2015

[6] "Agricultural Problems and Technology-Based Sustainable Solutions for an Impoverished Village of Bihar, India",2020 IEEE 8th R10 Humanitarian Technology Conference (R10-HTC),Kuching, Malaysia,pp. 1-5,December,2020

[7] Tejas Ghadiyali,Kalpesh Lad Bandkim Patel,"Agriculture Intelligence: An Emerging Technology for Farmer Community",2011 Second International Conference on Emerging Applications of Information Technology, pp.313-316, july 2011.

[8] S. SelviR. And KarthikeyanU. Vanitha,"Organic farming: Technology for environment-friendly agriculture",IEEE-International Conference On Advances In Engineering, Science And Management (ICAESM -2012),pp. 30-31, March 2012

[9] https://www.w3schools.com/html/html_intro.asp

[10] https://www.w3schools.com/css/css_intro.asp

[11] https://www.w3schools.com/php/php_syntax.asp

[12] https://www.apachefriends.org/about.html

[13] https://stackoverflow.com/questions/13177882/implementing-a-database-how-to-get-started

[14] https://newsapi.org/