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An Interface for Farmers to Enhance their Knowledge towards Modern Tool Usage for Effective Farming

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ABSTRACT: Agriculture is the back bone of any country. And it plays vital role especially in developing countries like India due to the available resources. The Farmers are working so hard to understand Climate Changes and available traditional techniques to grow the crops. Though they are producing to the maximum extent what they are earning is very less due to middle men in selling the produce what they have produced. Another issue they are facing is expecting climate condition and protecting their crops. And another issue is cold storage. And today there are so many modern ways of doing farming, due to lack of awareness many farmers still following same old traditional techniques which consume most of their time and also maximum of resources. What's the solution for this? In this paper the probable solutions for the above said problem is discussed. The solution is implemented using latest techniques like Artificial Intelligence, Chat Bots, Computer Vision etc.,. The proposed solution is to reach out the farmers who are in the nook corner of the country and providing them with Awareness on new ways of farming using latest devices, providing Climate conditions in advance to pre plan their crops and also continuous interaction with farmers in their local language using chat bots and also offline support when needed by local students who already got trained. And also the animated videos will be made available in multiple languages to extract the knowledge by the farmers when needed. This platform is full-fledged solution for the farmers to utilize modern resources to save time and also use the resources available in effective manner to get maximum profit.

KEYWORDS: Artificial Intelligence, Chat Bots, Computer Vision, Climate Conditions, Farmers

I. INTRODUCTION

In today's world every one aware of problems faced by farmers, but providing feasible solution to solve the problems what they are facing at least step by step is the need of the minute. This platform is one of those kinds which can be utilized by the farmers up to the maximum extent to solve their major issues what they are facing. And also this platform developed such a way that it can be easily integrated with local Government Market Committee and also with the local Agriculture Officers to provide maximum benefits to the farmers.

Decision support tools, usually considered to be software-based, may be an important part of the quest for evidence-based decision-making in agriculture to improve productivity and environmental outputs. These tools can lead users through clear steps and suggest optimal decision paths or may act more as information sources to improve the evidence base for decisions.

The best part of this platform is, it will be available in all local languages both text wise and also voice.

1. Artificial Intelligence

Artificial Intelligence is the process of providing intelligence to the machines to think like a human being. And the applications of AI making life so simpler by making Automisation of the most of the process. [1]

2. Chat Bots

Chat Bots are virtual assistance given to the user in the form of Q&A to the common information which a system can answer. [3] These Chat Bots are very famous now a day because they are reducing the most of the works of support people who are working in call centres and also by providing required information to the user about the product or services.

3. Data Analytics

Data Analytics is nothing but based on the existing data and also live data the analysis will be made and the results will be provided to the users in the form of data analytics. [1]

The above are the few techniques which we can make use of to implement the advanced technology-based platform to solve the few problems faced by the farmers.

The main issue while implementing the technology-based system for farmers is how effectively they can utilize the resources available. Based on the research done in 10 different areas of 3 stated it is found that 80% of the farmers are using smart phones and are capable of accessing basic applications and able to watch videos and also reply in their regional languages to the questions asked.

Apart from this, the platform also needs to solve the purpose of remaining 20% as well those who are not able to use smart phone effectively. So, this platform is an effective platform for the farmers of all categories.

Implementing Data Analytics and Artificial Intelligence in Indian Rural Form enhances the crop productivity. System involves real time farm monitoring, cloud data analytics and cloud applications. System will help you predict suitable crops and fertilizer using Artificial Intelligence. It also helps in accessing marketing and community platform. Marketing platform like vendors with farmers for selling crops for good price. Community platform provides guidance to the farmer by official experts and another farmer. It will help to give information of climate changes, natural calamities and what are all the different government schemes related to farmer. The main aspect is to provide better harvesting to increase crop productivity and good profit for farmers.

II. LITERATURE SURVEY

As per the Literature Survey made till now there is no system which is really helping farmers to solve the problems what they are facing. Most of the times the issues will be solved offline and the problem in this existing method is the farmers who are residing in very remote areas has to wait long duration till they get support from local officers. There are areas in India where the officers can visit only once in a while due to so many issues. So the existing system is not really a feasible solution in this technology era.

When technology is not available obviously entire process should be done offline where farmers have to wait long duration to get the feasible solutions. But today Industry Revolution 4.0 started still depending on tradition methods is not suggestible. And moreover, if the new technique is either costly or time consuming then the same old or traditional technique has to be continued. But there the new technology or proposed method is very cheap and less time consuming which is an advantage for farmers as well. By considering all this points the proposed method needs to be implemented and step by step has to be done by taking feedback from farmers is different regions to get the success rate.

So this is the right time to adopt new technologies and see what is the possibility that maximum profit can be earned.

III. PROPOSED METHOD

The proposed method will really help the farmers to solve their issues might not be 100% at least it will solve the issues up to 60% in initial phase. The accuracy of the system should be increased in step by step manner to get the efficiency and throughput.

The proposed system majorly focuses on the following issues of the farmers.

1. Day to Day Climate Updates.
2. Modern Ways of Farming.
3. Animated videos for farmers to train the farmers on different ways of farming using technology.
4. Cold Storage issues.
5. Offline Support to the farmers those who are not capable of using smart devices.
6. And also this platform will give information to the farmer generic questions in the form of Chat Bots.
7. Finally this platform enables the farmers to upload their land data get the support from the officers regarding type of crop to grow, how much water to use etc.,

The above issues are solved in step by step manner to help the farmers to gain the profit and also make Agriculture as pride of any country. The initial level research has been done in Karnataka State by approaching the Farmers in the nook Corner of the state.

This system will be implemented as follows to solve the problems faced by farmers.

IV. IMPLEMENTATION PROCEDURE OF EACH AND EVERY ISSUE

The implementation of the proposed system is done in phase by phase manner.

1. ISSUE 1: Day to Day Climate Updates

The day to day climate updates will be given to farmers by considering the data analytics. In this phase the issue will be solved firstly by storing the previous data in the cloud area wise and same will be used to forecast the situation of that particular day. The question rises here is how accurate the results are going to be. Most of the time, the data analytics will give 80% accurate results which will really help farmers to plan their day to day activities as shown in Fig.1. [1]

AI FOR WEATHER FORECASTING

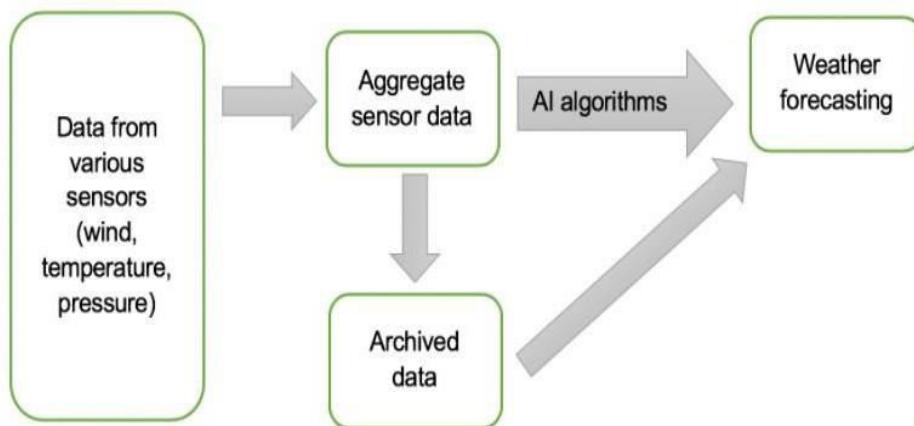


Figure 1: Weather Forecasting using AI

2. ISSUE 2 & ISSUE 3: Modern Ways of Farming

80% of the farmers are still following traditional way of farming. It is because of lack of awareness and knowledge. Though our engineers come up with new techniques still the students studying engineering it does not know these techniques. [2] How it can be expected from farmers. So this platform will help farmers to understand the new techniques that can be adopted as shown in Fig.2. [4]

The modern tools are very much essential in developing countries like India. The farming has to grow technically then only people can see reduction in cost of the farm produces what they buy. By which both Farmer and Customer will be happy.



Figure 2: Modern tool usage in Farming

The modern tools are not one which is developed only by scientists who are working in research labs, these are the tools which are used by farmers in various parts of the world for their convenient need to be showcased to farmers.

As per the survey done in Anantapur district of Andhrapradesh, India, it is one of the district where the rain fall is very less and farmers not in a position to invest for Cows or Ox to do farming works.

When the team visited and asked about how the farmers in this area are going to make land ready for farming. One of the young farmers from this locality showed a tool which they are using which is made of bicycle wheel to make land ready before putting the seeds.

The main advantage of this tool is, only one person can operate it and no need of huge energy need to be wasted. The only disadvantage with this is it is time consuming and coming to cost, it costs somewhere around Rs.2000 to Rs.2500 in Indian Currency.

Animated Videos

To make farmers to understand modern farming with the help of animated videos and also demonstration of the live research happening will be showcased on this platform as shown in Fig3.



Figure 3: Animated Videos

These animated videos are very much essential in showing step by step procedure of modern farming, and also as mentioned above the new tools has to be demonstrated either using animated or live video. And also these videos are telecasted in their own regional language of choice, where it is very easy to understand by the farmers.

3. ISSUE 4: Cold Storage

This is one of the biggest issues which are faced by farmers due to the cost. [4] And it is a recurring investment which farmers have to take care. In this platform the investors are invited for the establishing of cold storage and those who establish these cold storages will be given amount based on the cost of the produce once it is sold. It will be really beneficial for farmers if these cold storages can be taken care by the government in a very effective manner. Cold Storage is very much essential especially in the developing countries.

There is also a need of on wheel cold storages, as in few areas where the distance of the crop and where it needs to be sold is too far, so to solve this problem cold storage on wheels is very much essential.

4. ISSUE 5: Non-Usage of Smart Phones

We are living in a country where still so many people are not using smart phones and also in few backward areas they have smart phones but they don't have proper network connection. How to reach these kinds of farmers, to help them in modern ways of cultivation of crops or providing knowledge about modern tools used for farming.

In this platform there will be one place where these kinds of people can register for this service. The students from nearby college will be taken and they will be trained on all the aspects which are discussed above and these students can approach nearby farmer and help them in all issues what they are facing. [5]

How Students will be benefited?

This will be given as Internship work for the students, as Internship is one of the mandatory elements to complete the degree. In other way this platform will also help in creating employment, the tool owners can make use of the services

of these students to explain their product and convince farmers to buy it and some percentage of profit can be shared with these students as compensation for their hard work.

Apart from this the students can take this as full time job after their course completion as it is a continuous process. There is a possibility that few of the students will become entrepreneurs by taking this opportunity. The Government make use of the student services whenever they want in rural areas to distribute goods to farmers like urea, seeds etc..,

5. ISSUE 6: Chat bots

The latest trend in any platform is Chat bots , this are the virtual agents which will helps the farmers to understand the recent technologies and also get the required information for the farmers with respect to climatically conditions, soil information, irrigation system etc...[3]

These chat bots are developed using multiple languages to support the farmers in each and every region to gather information like Weather Forecasting etc..., as shown in Fig.4.

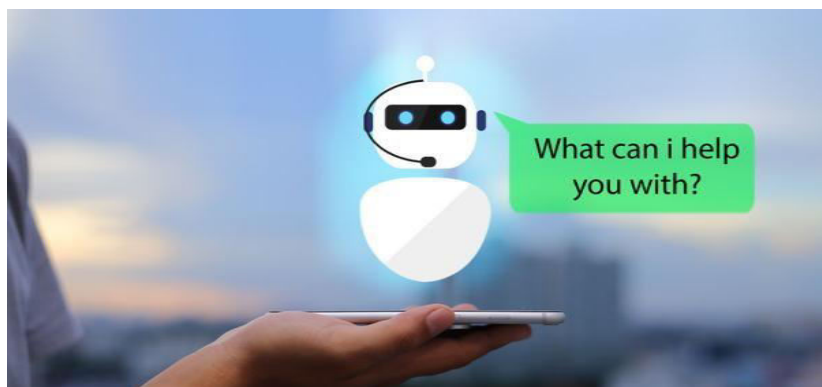


Figure 4:Virtual Chat Bot

Chat Bots in this application are mainly used for providing the information to the farmers on different aspects like weather forecasting, land information, pesticide information etc..,

Apart from this the farmers if they want to know much information about their land , they can upload the photos of the land in mentioned directions and can be uploaded into platform for the reference of the government officials to get the benefits what they can claim etc..,

Finally this is an end to end platform for farmers to make use of latest technology to do farming by which they can earn more profit.

This platform is not going be an final solution it will be an starting platform for the Farmers, after implementing this platform it has to be given to farmers, test it step by step and come with the places where it can e improved further.

So the Platform will have all the needed data for farmers in a single screen for further use.

Chat-bot system is a part of natural language processing where the system needs to be trained as per the human language. At present farmer are not very much aware of recent technology and practice being used in agriculture field.

Few Key Points of the platform are

- Local forVocal
- Single Platform for all the needs of theFarmers
- Chat Bots for InstantInformation
- Direct Communication between the Farmers and Government

V. ILLUSTRATION

The above said platform is under development, the team is contacting the farmers in each and every aspect and collecting the required information to implement this application. To implement this application technology is not only the hurdle the main hurdle is also that understanding the needs of farmers in different areas. As the requirements are getting changed place to place , State to State the team in collecting and cumulating the data to come for final solution. Once the final decision made the actual development starts.



Another Biggest challenge the team is facing is convincing the government departments to make this interface as approved platform for farmers. So it is a time taking process to get it finally done.

So, the work is in progress due to which the final interface not able to present it in the paper soon in the next level.

VI. CONCLUSION

This platform will really enhance the knowledge of the farmers towards the modern technologies and how they can make use of these technologies to do farming by which they can earn more profit. This platform may not solve all problems faced by farmers at a time; this is an iterative platform the problems will be solved step by step. And this platform needs to be trained amongst the farmers which will create awareness amongst them to use it when and where it is needed. Students should take an great initiative make this platform great success.

The technology used in this platform is very advanced like artificial intelligence, Data Analytics, Chat Bots etc., which are really need to be understood by the students also as they need to train further farmers.

This model will be an inspiration for all the farmers also to share their domain knowledge where technical people can involve and make this platform much more interactive there by farmers can expect good income from what they produce. But the only difficulty here is all the state governments should come into one decision saying this platform has to be used by farmers mandatorily and whatever transactions need to be carried out from this platform only.

This model will be an inspiration to most of the developing countries to implement in their countries and check how it work out. the best part of this model is , it is customizable as per the need.

VII. FUTURE ENHANCEMENT

In future this application can be integrated with the technologies like IOT and Artificial Intelligence in order to provide maximum inputs to the farmers to make them understand technology there by to get the maximum profit. Government has to take the initiations to make this platform as part of the life of farmers to make use of this to get the profit.

And this system is going to be an model of Inspiration for the developing countries throughout the world, means it needs to be customized as per the country needs in future.

Table of figure

1)	Figure 1	Reference paper [3]
2)	Figure 2	Reference paper [2]
3)	Figure 3	Reference paper [4]
4)	Figure 4	Reference paper [5]

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