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Novel Automation Technique using Machine Learning in Field Farming

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Abstract: A unique product with user acceptance providing with convenience, composure and efficiency in day-to-day life of farmers. With the quick evolution of science and technology, the world is becoming modern. Living in such a smart world, people will be automatically and collaboratively served by smart devices and smart environments. Smart farming is the key for the future of agriculture and can be one of the routes through which the farmers in the rural area can receive various information on the fly.

Keywords: Smart Farming, Crop, Android, Farmer, Smart phone, IOT

I. INTRODUCTION

The idea of the project is to optimize the process of farming, by enabling the farmers to handle the process through smart devices. Every country has agriculture sector as invaluable pillar and so does India. In our country the agriculture sector contributes nearly 20% of GDP. Either directly or indirectly, 60% of the total population of India depends on agriculture.

Smart farming plays an important role in bringing sustainable development and provide various information. Smart Kisan helps farmers to strengthen their economic standard of living by providing them valuable information about crops, tools, forecasting, etc. The IOT revolution is going to change our applications as it possesses built-in intelligence to make pre-determined decisions based on the analysis of data it collects. The extensive network of phones could be the game changer in this problem.

A. Android and IOT

Android is a software stack for mobile devices that includes an operating system, middleware and key applications.

Now in this research paper, we will combine the working feature of IOT with Android operating system, and design and develop a technique that will eliminate the various limitations of traditional farming like

- 1) It needed great amount of manual labour and various activities to go through for conducting farming.
- 2) It tolerated unpredicted environment for years.

This concept of mobile farming technology helps farmers to receive various type of agricultural information by just operating their mobile keypad. This application once installed in farmers mobile, they can access information from any place and at any time. If farmers have any query they can directly communicate with experts and take the advantage of real time information using IOT. Farmers can download it from android market freely.

II. OBJECTIVE

One of the basic necessity of human survival is agriculture which is main source of food.

As the farming industry contributes a large part of country's economic growth, it is required to bring automation in farming which will enhance the crop yield and ultimately contribute in developing economy. The main idea of this project is to introduce the latest techniques into the farming and better crop production by collecting real-time data and informing the farmers about it and hence solving various restrictions of long-established farming.

The aim is to develop an android application with the help of which farmers can get hold of their crops effectively. Farmers will get distinctive interface where they can take advantage of everything right from learning to the market information, can perform marketing, acquire the current rates of market, get in touch with notification through the cell phones, can gather the knowledge of different schemes.

III. PROBLEM STATEMENT

The principal problem is that the farm lands are entirely dependent on the rains and wells for irrigation and on conventional techniques for crop management of their land. In recent years, the farmers have been using the farming techniques through the laboring control in which the farmers need to be physically present on their fields in order to track their crop because of which their precious time is wasted in travelling and identifying the content of soil manually every time.

Furthermore, the concern of infrastructure facilities like storage, transport network, harvest measures are a huge deal. The authorities in villages may charge high rates from farmers every time they require a modern service and there is a chance of exploitation of poor farmers. In our country there is a consistent problem for power supply which can delay many services for farmers Adding to it, the social class status of farmers can hinder their access to many resources.

A. Dashboard

The main user interface for the app which displays every feature such as temperature, humidity, moisture content along with news, videos, shop and FAQs. The current temperature, moisture and humidity will be shown on the top which fluctuates according to the surrounding environment.

IV. PROPOSED SYSTEM

Our proposed system is an android application for farmers with a user-friendly interface. After registering, the farmer can directly access the dashboard which provides multiple features like real-time temperature monitoring, humidity monitoring and field condition. The dashboard also contains additional attributes such as news about agriculture, videos on farming methods, facilitating collective buying of inputs and collective selling of products. The main perspective of android operating system is to extend modish services to farmers at a single click without standing in queues. The aim of smart farming is to enhance transparency in the agriculture commodity marketplace and strengthen the economic standard of farmers. Farmers rely on weather forecast to decide as to what work to do today and tomorrow. So, using the Smart Kisan application which provides function of weather forecast where farmer can query for the temperature, moisture and humidity required for particular crops.

A. Architecture of Proposed System

- 1) *Registration/Login:* Registration form will take information of farmer like farmer’s name, location of farmer for providing daily weather forecast, phone number of farmers to give daily updates by text message.

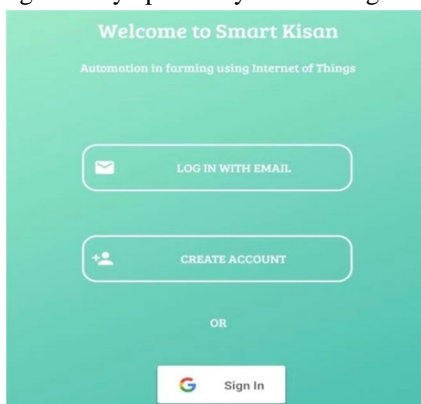


Fig 1. User registration

After successfully registering the farmer can login anytime using his credentials.

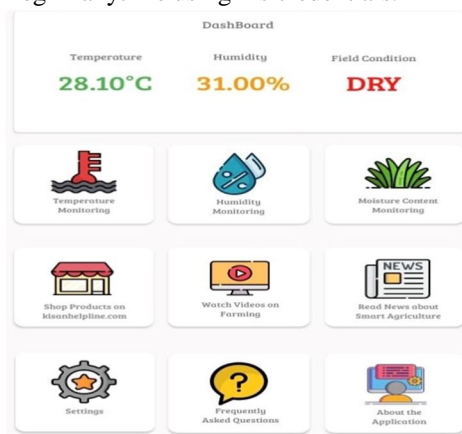


Fig 2. Dashboard for Smart kisan

B. Crop Prediction

According to the weather conditions, the suitable crops in that environment/soil will be suggested on the screen.

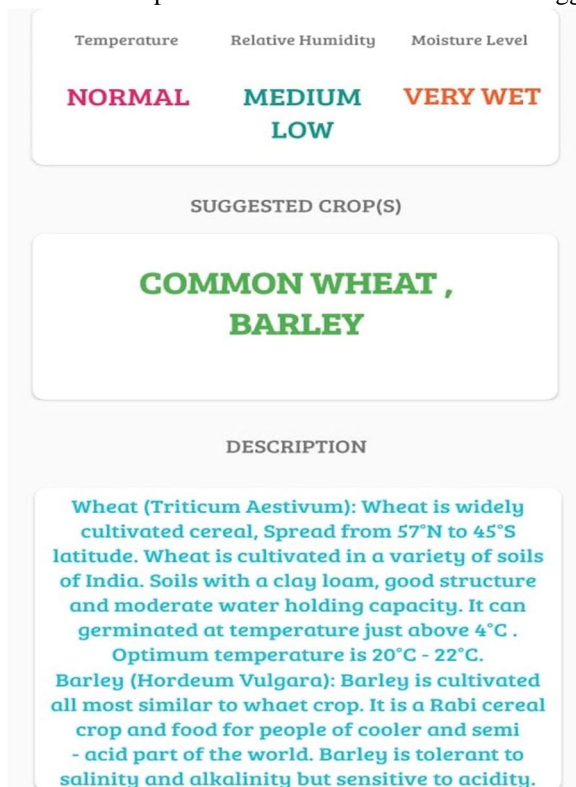


Fig 3. Crop prediction

C. Temperature Monitoring

The current value of temperature fetched from the sensors is displayed in form of graphs.

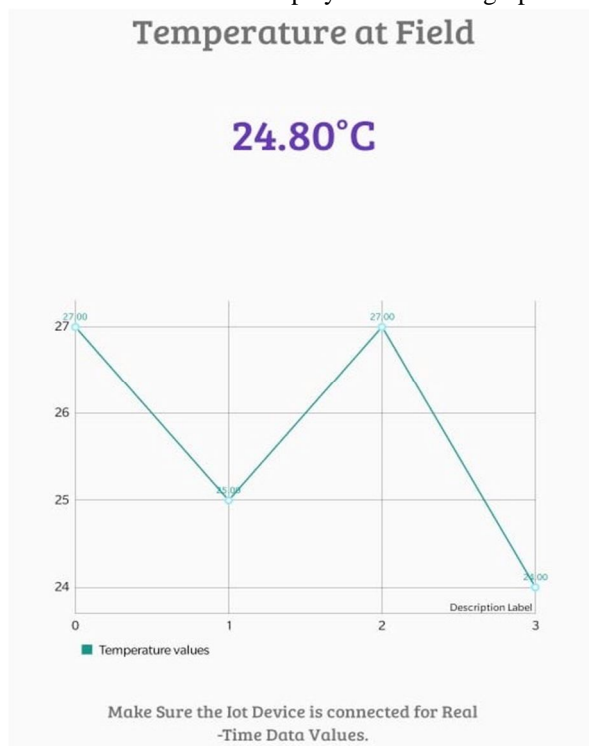


Fig 4. Temperature graph

D. News

In news and feeds, application will provide daily news updates of crop and other weather report. According to the location of farmer, daily news will be provided on mobile phone.

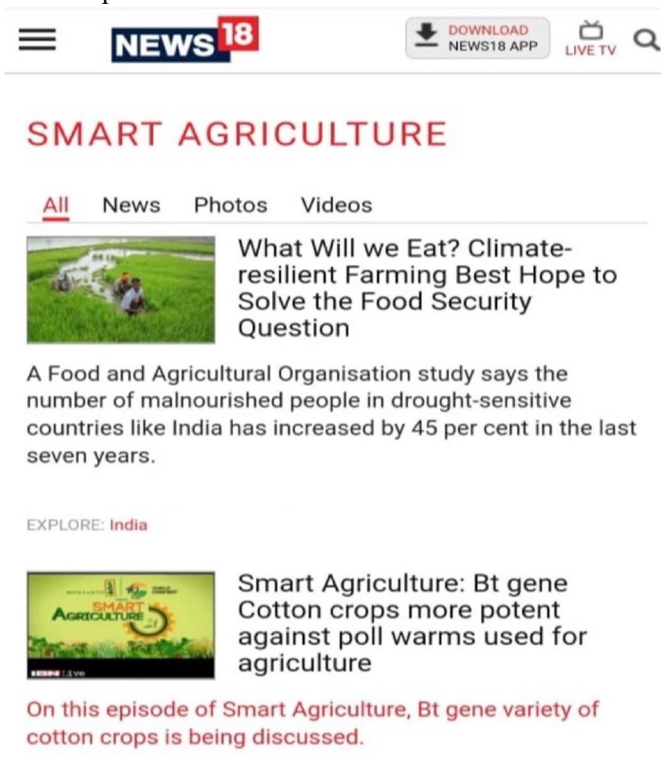


Fig 5. News

E. Shop

The application will provide the online feature of buying crops, pesticides and other necessities for farmers.

Welcome To KISAAN SHOP



Fig 6. Shop products

F. Videos on Farming

The video feature will provide proper guidelines about new methods and technology to farmers.



Fig 7. Videos on farming

V. CONCLUSION

We believe that the process of smart farming can revolutionize the existing conventional farming as it isn't a very high cost investment. Today mobile devices are used frequently by farmers and countryside people. The traditional methods used by farmers, peculiarly in India, are very slow and undependable. The large number of crops is getting damage in the fields due to lack of information resources. This will effectively help farmers to sell products in global market and earn remarkable profits and reduce manual labour.

VI. ACKNOWLEDGEMENT

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