International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 11 | November - 2022 Impact Factor: 7.185 ISSN: 2582-3930

Smart Farming-Crop Recommendation System

Tushar Mane, Radha Krishna, Shrushti S. Zade, Shanu Thakur, Sakshi S. Atrik
Dept. Computer Science
Mit ADT University,
Pune, India

Abstract- Evolution leads to innovation to achieve a sustainable environment we need to build a safe ecosystem. Agriculture is an important sector of any economy. Artificial intelligence has been proven to solve many problems that prevent crop failure. The production of any crop depends on various parameters that may be affected by sudden changes in climatic conditions. Unpredictable natural changes result in variations in production yield. Natural parameters such as wind, temperature, climate as well as humidity and more factors affect a lot of farming. Machine learning is used for many purposes to measure the risk factors involved before sowing any crop. The machine helps in decision-making and analysing factors. The Internet of things executed with embedded systems and sensors helps with the evaluation of trends based on real-time data and real-time monitoring. Historical trends combined with technology and real-time analysis helps farmers in choosing suitable crop for maximum and profitable crop production and yield. Technological development is also resulting in increasing agribusiness and modern agriculture.

Keywords— Machine Learning; Artificial Intelligence; Internet of things

I. PROLOGUE

A climatic change especially in India is unpredictable and keeps varying. Weather condition in the morning may differ from weather in the afternoon and evenings as well. According to the research various factors affect climate change which may include global warming, pollution, globalization and many such factors. Farming is the important aspect of capitalism in India. Production of crop depends on several factors as wind, temperature, rainfall, humidity, fertility of soil and many more. Low yield is one of the major issue and drawback that agriculture sector is facing. India is an agriculture country. Agriculture is only 16% of GDP but the largest sector for employment [1].

II. INTRODUCTION

Agriculture in India plays a very crucial role in the economy and employment. Many factors affect the production of crops. The major concerns preventing meeting goals are the lack of proper plans, improper harvesting and irregular irrigation, and unpredictable climate conditions. Science and technology are helping farmers by assisting in decision-making to avoid poor outcomes. It helps in less stress and disappointment in farmers rather than broken expectations. Precision agriculture is the modern agriculture technique that uses research data on different types of soil and their various characteristics and suggests a farmer-specific crop for production. Precision agriculture is based on the idea of site-specific farming.

Agriculture in India is main source of income and employment as well as livelihood for majority of population. Increasing population and globalization is affecting the demand of quantity and quality of food. The agriculture sectors contribution to the Gross Domestic Product (GDP) decreased from 54% in 1950-51 to 15.4% in 2015-16 [2]. GDP has decreased over the past few decades. Agri-tech firms are developing smart solutions to problems that farmers are suffering from. These AI and machine learning solutions like drones and precision farming techniques are aiding farmers past all stages from sowing to crop protection and nutrition, cultivation and harvest to connecting them to non-traditional markets. The use of GIS maps, use of satellite data for weather forecasting and new methods to spray pesticides is also taking off.

III. PROBLEM STATEMENT

Agriculture is the main source of income for most of the population in India. The common problem that many farmers face nowadays is the low yield of the crops than expected which leads to disappointment, an increase in stress and many more problems. Due to low yield than expected, they earn less

profit and cannot repay loans which leads to bankruptcy. The increasing population also demands an increase in the quality and quantity of food required for consumption. Low crop production also leads to less GDP. Crop knowledge should be known to every farmer to make a decision that is profitable and calculative.

IV. LITERATURE SURVEY

Thewaahettige Harindhita Ruchirawya states that automating agricultural aspects is a mechanical process with or without human intervention in agriculture. Due to less space of domestic lands, it has become an important area of choosing the most suitable crops based on prevailing factors in the selected area [3]. C. Kavya states the requirements and planning needed for developing a software model for precision farming is discussed. It deeply analyses the basics of precision farming. The author's start from the basics of precision farming and move towards developing a model that would support it. This paper describes a model that applies Precision Agriculture (PA) principles to small, open farms at the individual farmer and crop level, to affect a degree of control over variability. The paper states the requirements and planning needed for developing a software model for precision farming is discussed. It deeply analyses the basics of precision farming. The author's start from the basics of precision farming and move towards developing a model that would support it. This paper describes a model that applies Precision Agriculture (PA) principles to small, open farms at the individual farmer and crop level; to affect a degree of control over variability he paper states the requirements and planning needed for developing a software model for precision farming is discussed. It deeply analyses the basics of precision farming. The author's start from the basics of precision farming and move towards developing a model that would support it.

This paper describes a model that applies Precision Agriculture (PA) principles to small, open farms at the individual farmer and crop level, to affect a degree of control over variability the paper states the requirements and planning needed for developing a software model for precision farming is discussed. It deeply analyses the basics of precision farming. The author's start from the basics of precision farming and move towards developing a model that would support it. This paper describes a model that applies Precision Agriculture (PA) principles to small, open farms at the individual farmer and crop level, to affect a degree of control over variability. The paper states the requirements and planning needed for developing a software model for precision farming is discussed. It deeply analyses the basics of precision farming. The author's start from the basics of precision farming and move towards developing a model that would support it [4].

V. METHODOLY

Wind, rainfall, humidity, and fertility of the soil are important parameters in determining the production and yield of the crop. Due to climate changes, it is unpredictable to decide on a suitable crop for sowing that will produce maximum yield. It can be difficult at times to decide crop that will meet Expectations and gives maximum profit. To solve this problem, we present a crop recommendation system. It predicts the crop suitable according to the environment and which follows other necessary parameters. It can assist the farmers in making a decision based on real-time analysis of data. The objective of this system is to enhance the quality and quantity of crop production and yield.

VI. PROPOSED METHODOLOGY

In this project, we are going to crop suitable for sowing based on parameters like humidity, wind, rainfall, and fertility of soil using various sensors like nitrogen sensor, potassium sensor, and temperature sensor. Readings from these sensors will generate real-time data that can be used for predicting or recommending crops. Using machine learning algorithms the data generated can be used for the prediction and recommendation of the crops. The system allows the user to select parameters based on which the user desires to work. The data generated

from sensors it helps in predicting the crop that may be beneficial to the user from future scope point of view.

VII. SYSTEM DIAGRAM

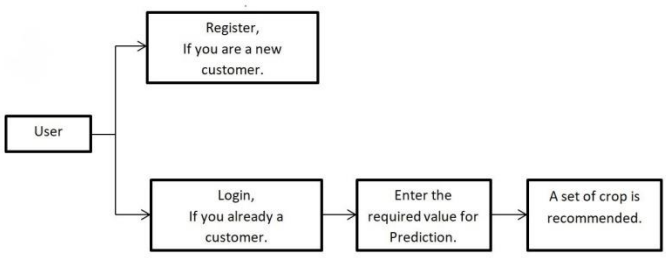

Fig.1.First page of the app.

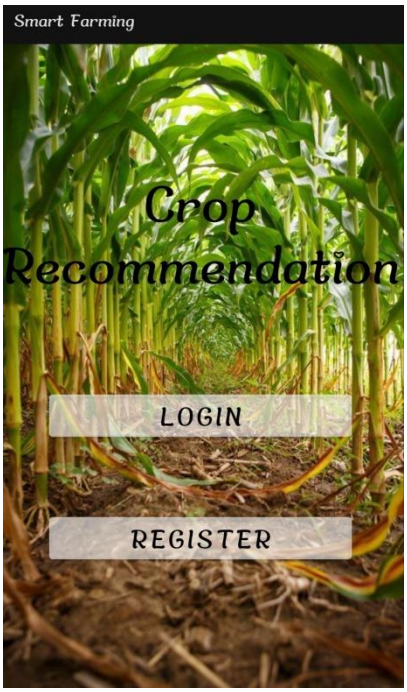

Fig.3.Registration Page of the app.

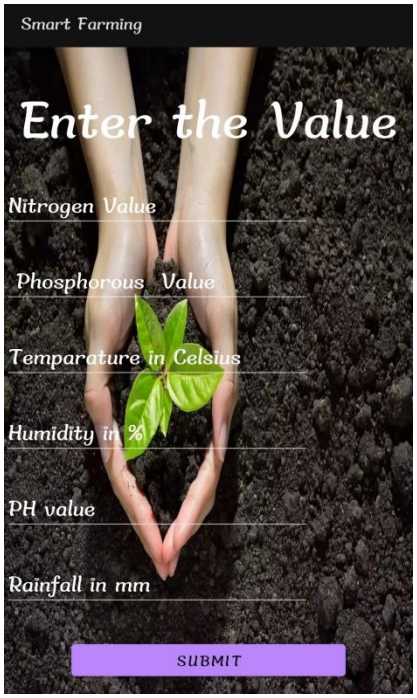

Fig.2.Login Page of the app.

Fig.4.Enter the Value Page.

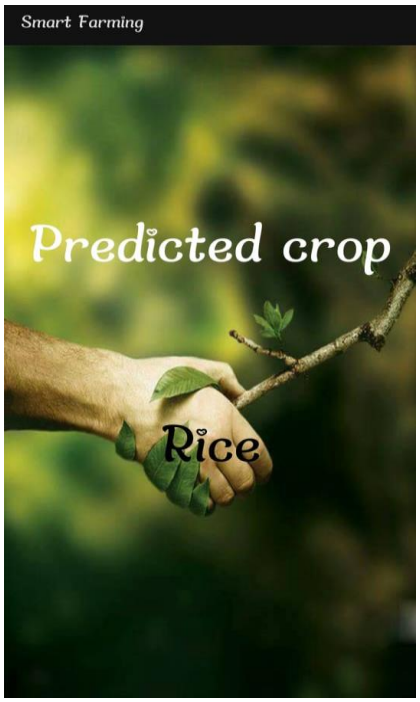

Fig.5.Output Page.

VIII. ADVANTAGES

1. It increases crop per year.
2. It helps farmer to choose best crop with resp. according to their climatic condition.

IX. REFERENCES

[1] https://www.theindiaforum.in/article/india-s-biggest-challenge-future-farming

[2] Tables 1.3A and 1.3B, Statistical Appendix, Economic Survey 2015-16, http://unionbudget.nic.in/es2015-16/estat1.pdf.

[3] https://www.researchgate.net/publication/317696446_Crop_recommendation_system_for_precision_agriculture

[4] https://www.researchgate.net/publication/346627389_Crop_Recommendation_System