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DEVELOPMENT OF IOT BASED FARMER ASSISTANT SYSTEM USING FLUTTER

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Abstract - *Agriculture accounts for only 22 percent of the Indian economy. The main reason for this decline is natural disasters and soil degradation due to environmental changes. Overcoming adverse conditions due to natural disaster challenges is difficult. Technology can be used to understand soil biodiversity thus helping the Agriculture community to find a better solution.*

The technology can help improve the efficiency of agricultural water use and finds use in open farms, greenhouses, gardens and research and agricultural labs. It can help with guidance on ways to increase water use according to the need for plants and soil (Plants, flowers, fruits). If there are limited water sources, farmers can detect and limit irrigation only to a critical stage of crop rotation thus disrupting the entire crop.

Key Words: a***griculture , soil degradation , greenhouse s, research , crop***

1. INTRODUCTION

Agricultural performance and the integrated sector have been able to withstand the shock of COVID-19. The sector grew by 3.6 percent by 2020 and improved to 3.9 percent by 2021. However, as indicated in a recent SAS report, the fragmentation of settlements has led to the diversification of resources such as livestock, fishing and leading workers to become more important to agricultural families. Increasing importance of partner sectors including animal husbandry, dairy production and fishing for the growth and importation of farmers shows that there must be a strong focus on the utilization of integrated labor forces. There is also a need to improve the productivity of small and medium scale farmers through the development and implementation of small farm technology.[1]

Prevention management is important. Knowledge of the risk factors that increase or decrease the risk of disease is important in developing effective management systems. The introduction of the herd increases the risk of introducing new pathogens. Plans to reduce that risk seem prudent.For these reasons, Our app provides the platform to read and analyze soil pattern in tern providing recommendations for best yields

2. Methodology

Our proposed app is made up of 4 main features, soil type of land, current weather and weather forecast, perfect Crop suggestion for yield, Detection of Diseases in farm animals. The structure of the app is given below.

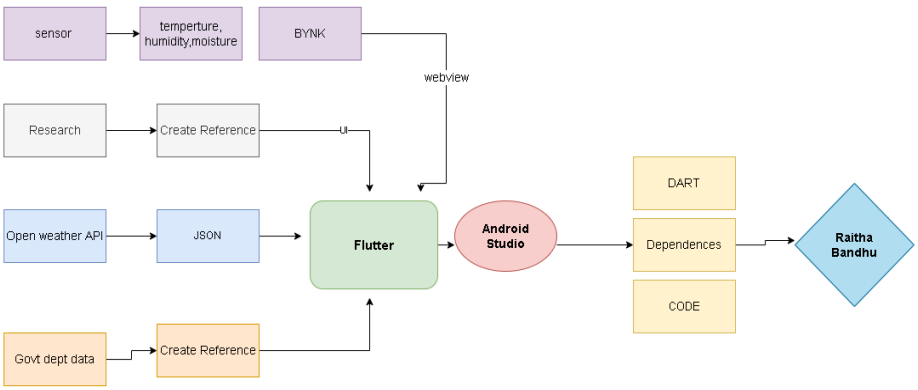

Fig-1: Block Diagram Of App

The hardware component consists of NPK sensors for detection Nitrogen, Phosphorous,Potassium value,DHT22 humidity and temperature sensor for temperature and humidity sensor soil moisture sensor for soil moisture level, PH sensor for PH level for measuring PH value of soil 16X2 LCD for displaying values. Sensors are connected to Arduino Nano board with a 220v supply which is connected to ESP8266 adapter which communicates with the cloud.

Plant user interface is the home page of our app, it consists of different crops types with their name and description. Each crop is given their ideal NPK VALUE, ideal temperature for crops, moisture level of the soil.

Animal disease user interface is consists poultry animals namely cows, hens,sheep's and disease associated with it as well prevention methods.

Weather user interface takes in JSON data from open weather API and gives accurate weather predictions.

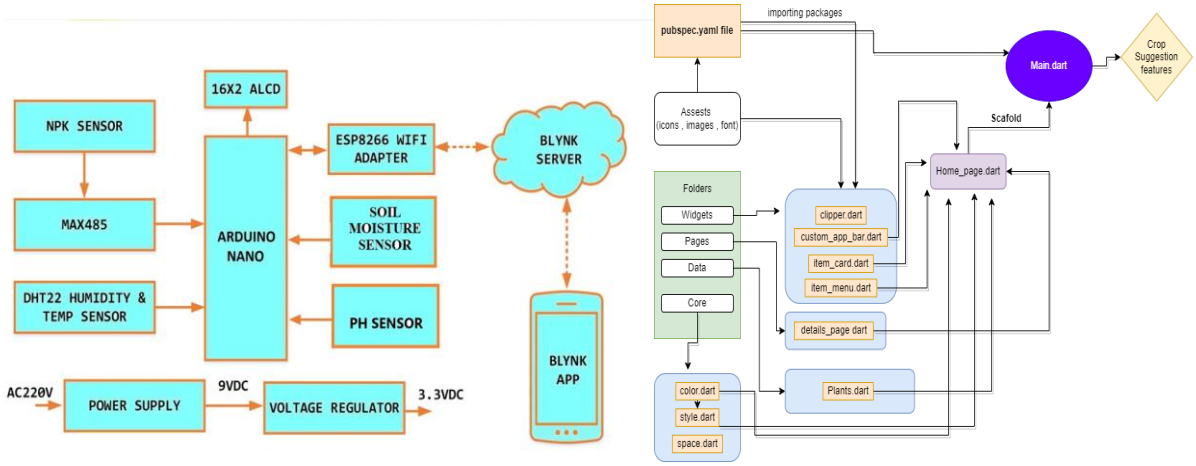

Fig-2: Block Diagram Hardware and Plant UI

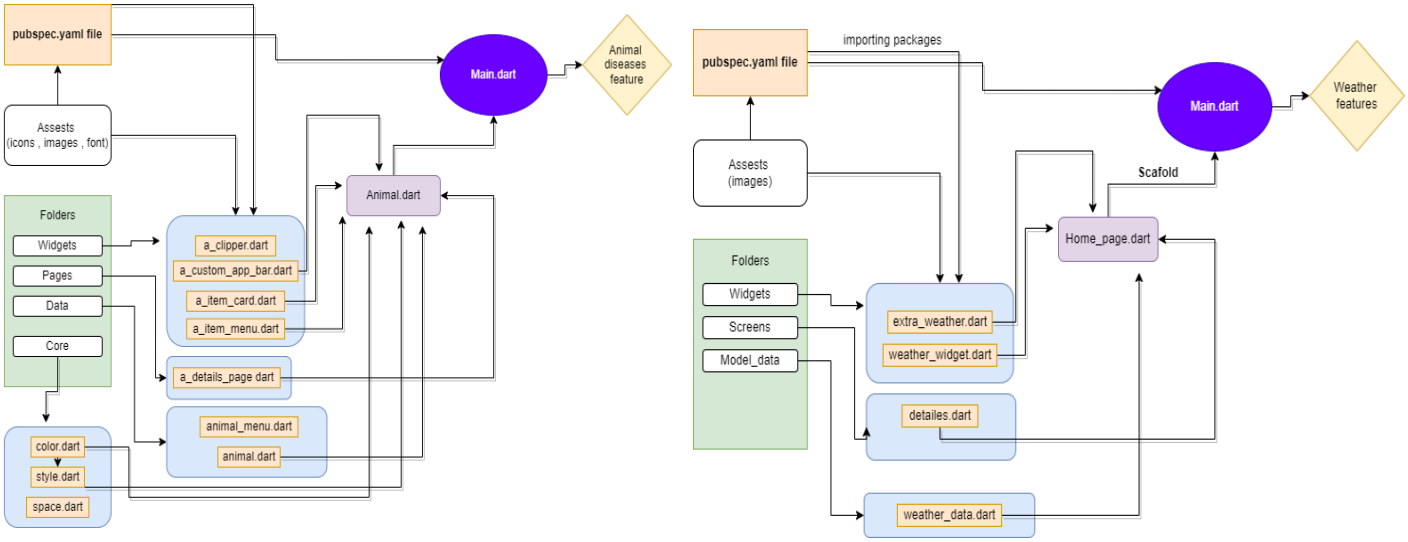

Fig-3: Block diagram animal disease UI and weather UI

3. Stimulation Results

We observe the following results for our proposed app made using flutter framework using DART language.

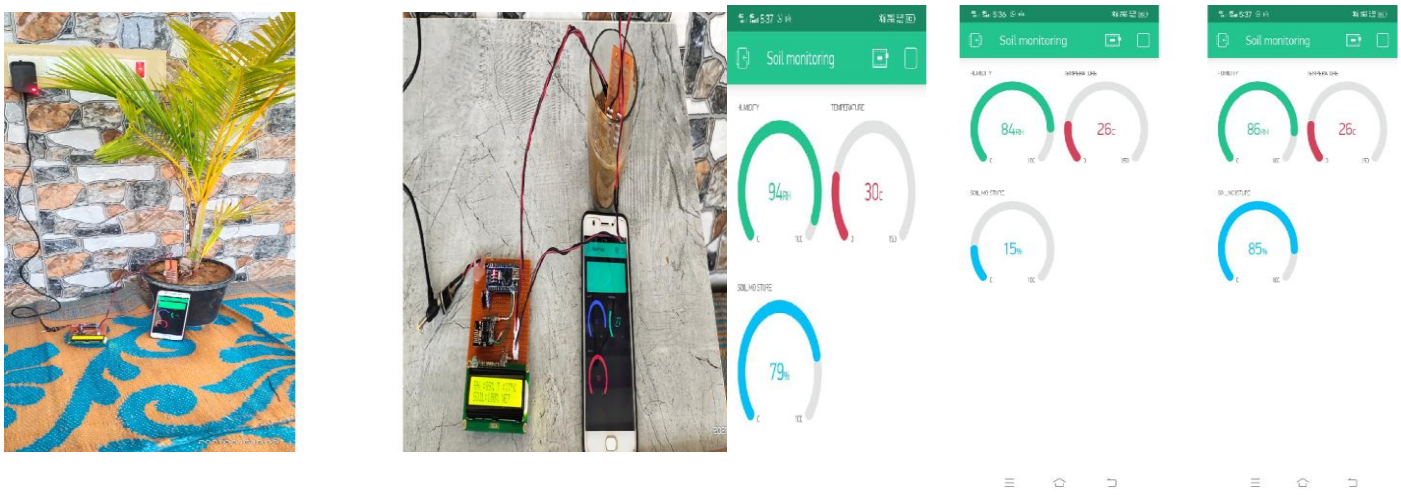

Fig-4: Simulation results for hardware with Bynk cloud

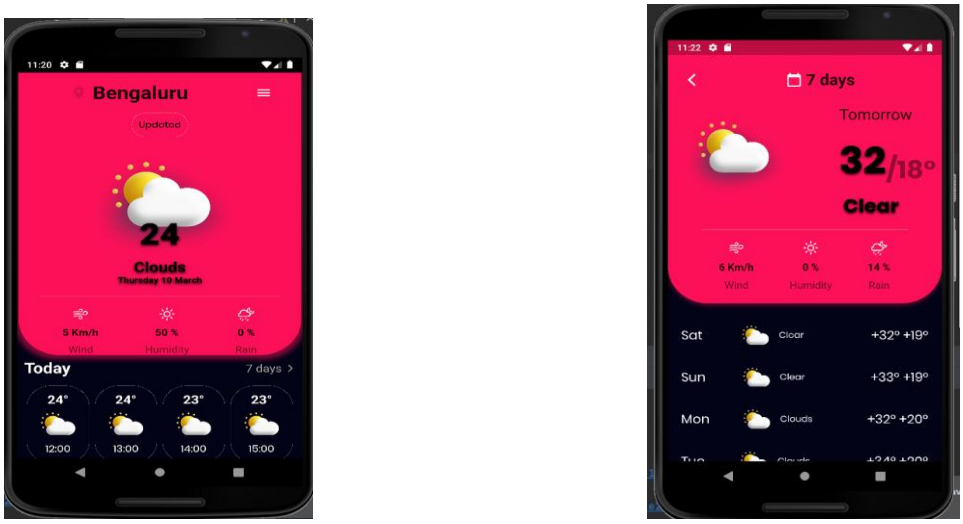

Fig-5: Weather user interface with weekly prediction

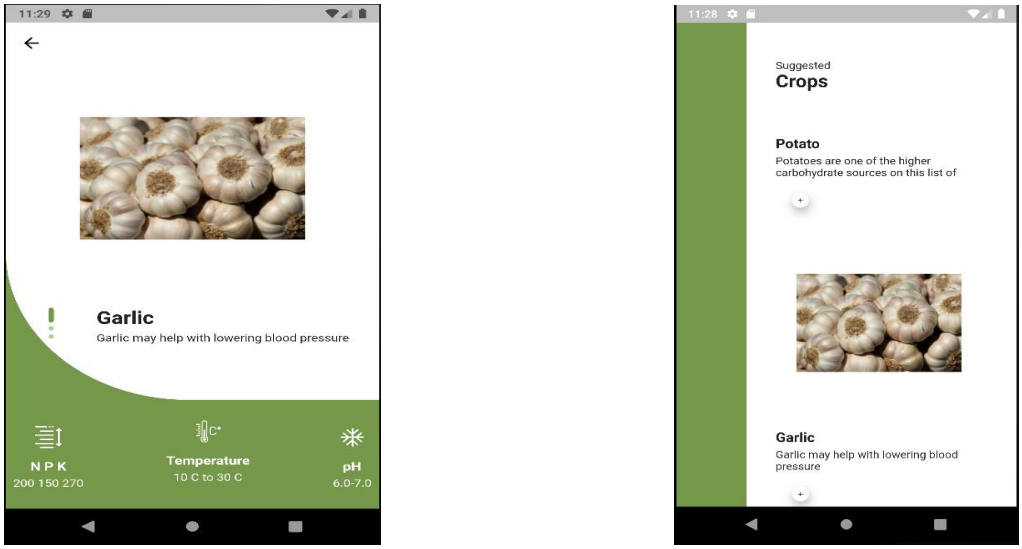

Fig-6: Plants user interface

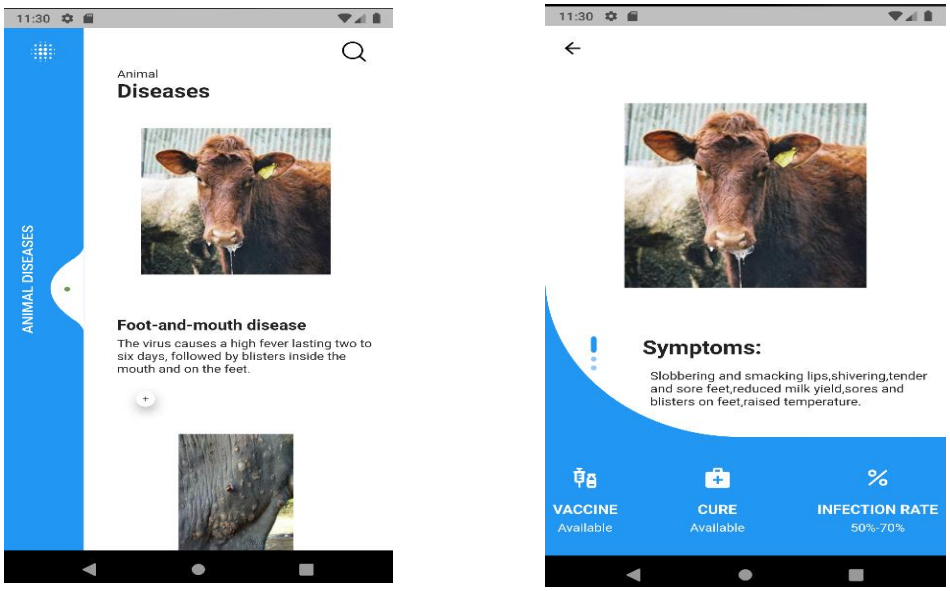

Fig-6:Animal Disease User Interface

4. Conclusion

In this project a system based on IoT soil, temperature, humidity and humidity sensors was introduced. The sensory structures of temperature, humidity and humidity were successfully used and tested with minimal error. The system is built on the Arduino board.

Agricultural Sensor The most important area for further research lies in the development and development of new sensors suitable for agricultural use. Moisture sensors and soil temperature are commercially available but are subject to cost considerations. Cheap soil moisture and heat sensors are a must, especially in developing countries, where smallholder farmers cannot afford the high cost of available sensors.

Cloud Integration As the Internet has become a hub for all forms of communication and information sharing, it is important that agriculture is integrated with cloud resources. Farmers, especially in developing countries such as India, are isolated from available chains, government, agronomists and academics. Cloud services can reduce this gap. Also, cloud resources such as real-time weather forecasts and online price lists can be very helpful in these isolated farming communities.

REFERENCES

[1] Mishra, Ved P & Bhatia, Sudha & S Nair, Reshmi. (2021). Nutrient Analysis of Soil Samples Treated with Agrochemicals. 10.1109/ICCIKE51210.2021.9410729.

[2] V. K. Patil, A. Jadhav, S. Gavhane and V. Kapare, "IoT Based Real Time Soil Nutrients Detection," 2021 International Conference on Emerging Smart Computing and Informatics (ESCI), 2021, pp. 737-742, doi: 10.1109/ESCI50559.2021.9396860.R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.

[3] Reshmi, Sushma. (2019). IOT Based Soil Nutrients Detection System. International Journal for Research in Applied Science and Engineering Technology. 7. 1678-1682. 10.22214/ijraset.2019.6281.