International Journal of Scientific Research and Engineering Development-– Volume X Issue X, Year

Available at www.ijsred.com

RESEARCH ARTICLE OPEN ACCESS

Effectual Upsurge Methodology For Farming

R.Rajavignesh*, R.Ramya**, S.vishwa***, M.Arockiya Blesson****, N.Hariharan*****

* (Professor, Department of CSE, K.S.K college of enginerring and technology, kumbakonam
Email: rrajavignesh@gmail.com)

** (Assistant professor, Department of ECE, K.S.K college of enginerring and technology, kumbakonam
Email: chanmeya.17@gmail.com)

*** (Department of ECE, K.S.K college of enginerring and technology, kumbakonam
Email: vishwabe2020@gmail.com)

**** (Department of ECE, K.S.K college of enginerring and technology, kumbakonam
Email: blessonbless8@gmail.com)

***** (Department of ECE, K.S.K college of enginerring and technology, kumbakonam
Email: jayanhariharan1612@gmail.com)

----------**********----------

Abstract:

We are living in the digital world. All of the complicated works are done through the mobile Application's. All other fields are grow digitally except the farming field. First of all we have to know the backbone of the world is farming. Food is the essential farm factor for living. So we have to decide to improve the farming technologies and to solve the farmer's problem they had faced in day to day life. In this paper we tells about the way of farming in digitally. We monitor the farming land through the webpage and we can able to control the submersible pumps and drain water though the mobile application. Our proposed system reduce the electricity in the way of using the drain water and improve the ground water. Our digital farming method monitor the humidity, moisture, temperature of the farming field and detect the fire accident occur in the land and automatically switch on the pump to rescue the fire.

Keywords — **Internet of things, Monitoring system, Drain water management, Sensors.**

----------**********----------

I. INTRODUCTION

The impact of Internet of Things on modern society cannot be underestimated. In one way or another, it has enabled us to connect with our devices and our surroundings. By using this technology, Farming is now striving to become smart instead of just being titled as developed.

Internet is the trendsetter of the new era and everything in day to day life is made easy using this advancement. In order to aid the tedious work and to serve the mankind, today there is a general tendency to develop an intelligent system. To add to this global trend the proposed system of "Effectual Upsurge Methodology for Farming" has been designed and developed to accomplish the various tasks in the current farming techniques to make things smart.

II. PROPOSED SYSTEM

In Previous systems they only consider the submersible pumps for irrigation. But we remotely control both submersible pump and drain water. Because in most of the time Farmers uses the river water for irrigation. If we use the submersible pump water in the presence of river water it will decrease the ground water level and lead to the wastage of current. If we do not use the river water it will mix

with the sea without any use to anyone. So we decided to control these two irrigation techniques through the mobile application.

In addition we measures the parameters like Humidity, Temperature, Moisture, and Rain detection of the farming land and we can monitor these parameters using the webpage. The another problem the farmers had faced on the summer season is the fire accident in the farming land. In our project we detect the fire accident occure in the land and within a second the pump will automatically switch on to control the fire.

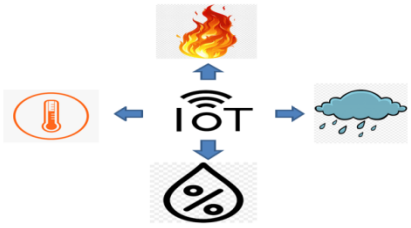

Fig.1 IOT System

III. SYSTEM DESIGN

The system architecture consists of a Rasberry Pico microcontroller board, sensors like temperature sensor, humidty, moisture and rain detection sensor, Ultrasonic sensor, a Wi-Fi module i.e.ESP8266.

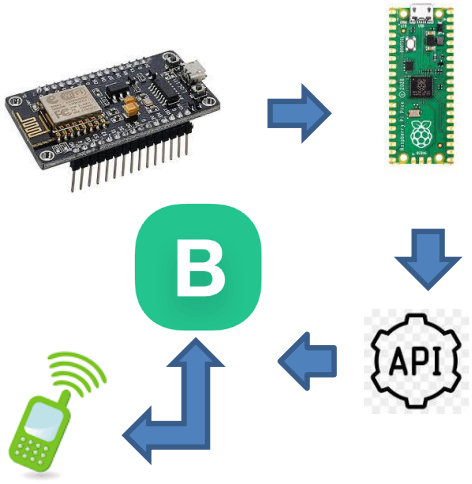

Fig.2 System Architecture

Here we have choose the Rasberry pico microcontroller which is the heart of the whole system. A Wi-Fi module ESP8266 is connected to the pico board and the codes are written in the micro python language.

The next step is setup the web server. Here we choose the blynk server. Blynk is open source java based server. To connect the server to our system API key is used. API is an application programming interface which gives the connection between the computers or computer programs. Fig.3 shows the working of API.

Blynk HTTP RESTful API allows read and write values of pins in blynk apps and hardware. With the help of the API key all of the sensor readings are stored in the blynk server

Fig.3 Working of API

A. Drain water management and control

We use the ultrasonic sensor to measure the water level in the drain and farm land. Both the water levels are stored in the webserver. With the help of this parameters we can control the drain water using the mobile application. Here a door setup is used to control the flow of water from drain to farm land

B. Fire Detection and control

In fire detection a heat detector is used to detect the fire, by using the micro python coding on the microcontroller it is very easy to switch on the pump automatically to control the fire.

C. Sensor readings

To set up a sensor reading webpage first we have to create a new project in blynk server. The next step is select the Wi-Fi module and the final step is write the sensors name and project name. Then we have to create a various buttons to control the outputs and declarre the pin number where the sensors are connected. Below Fig.4 gives the example of sensor readings.

D. Block diagram

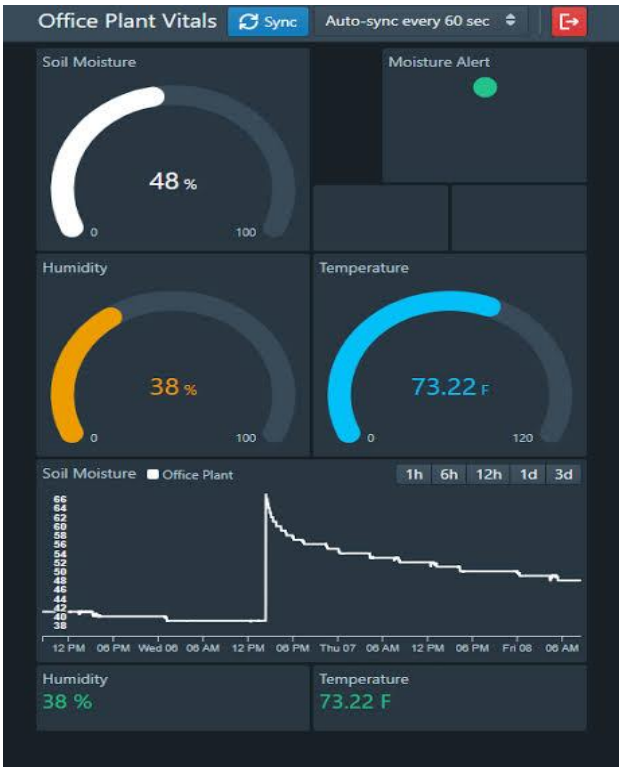

Fig.4 Sensor Readings

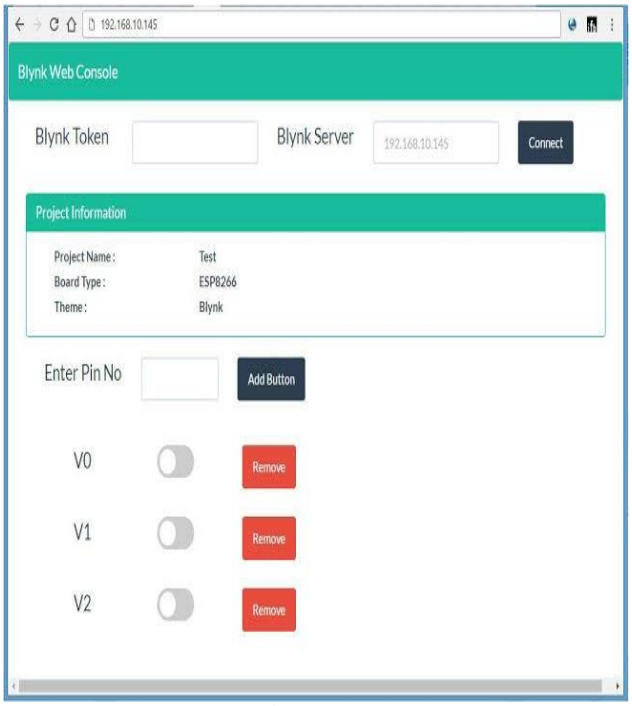

Fig.5 Web Console of Blynk App

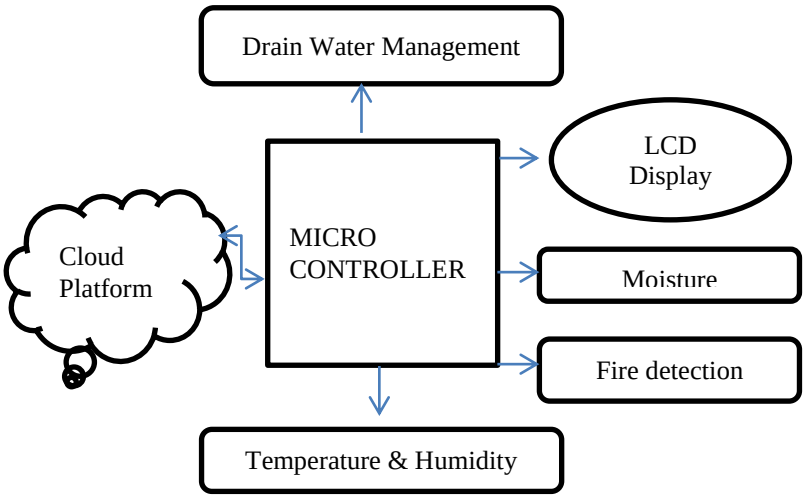

Fig.6 Block Diagram of System

CONCLUSIONS

IoT sensors and advanced telemetric capabilities act as a base for the implementation of smart irrigation system and smart agriculture techniques, enabling farmers to experience a digitally optimized lifestyle. These solution are empowering farm land to enhance their day-to-day operation and are elevating the way farmers interact with the infrastructure. ”Effectual Upsurge Methodology for Farming” is software controlled with hardware circuit. The feature make this system the base for future systems. By implementing this project we will reduce the manpower, electricity, field visit to the farming land. So it helps in contributing to a better environment. It can also automatically and manually monitor the farm land control the irrigation system which helps in reduced manpower.

ACKNOWLEDGMENT

Effectual Upsurge Methodology for Farming project incorporated with the Wireless sensor networks and IOT systems by the guidance bestowed by Ms. R. Ramya Assistant professor and support extended by the team of Instrumentation laboratory, K.S.K college of engineering and technology. Sincere thanks to my fellow mates who collaborated in my achievement of the Project.

REFERENCES

[1] K. jha, A. Doshi, P. Patel, and M. Shah, " A comprehensive review on automation in agriculture using artificial intelligence," Artif. Intell.Agricult., vol. 2, pp. 1-12,jun. 2019.

[2] V. Saiz-Rubio and F. Rovira-mas, "From smart farming towards agriculture 5.0: A eview on crop data management," Agronomy, vol. 10, no.2, p. 207, Feb. 2020.

[3] R. S. Krishnan, E.G. Julie, Y. H. Robinson, S. Raja, R. Kumar, P. H. Thong, and L. H. Son, "Fuzzy logic based smart irrigation system using internet of things," J. Cleaner Prod., vol. 252, Apr. 2020.

[4] Gonzalez-Sanchez A, Frausto-Solis J, Ojeda-Bustamante W. Predictive ability of machine learning methods for massive crop yield prediction. Span J Agric Res 2014;12(2):313-28..

[5] Anand Nayyar, Er. Vikram Puri, (2016). Smart farming: IoT based smart sensors agriculture stick for live temperature and moisture monitoring using Arduino, WSN(Wireless Sensor Networking) systems& solar technology. Internet of things: a review. In Computer Science and Electronics Engineering (ICCSEE), 2012 International Conference on (Vol. 3, pp. 648-651). IEEE. [10] Prof. K. A. Patil,

[6] Dr. Vidya Devi, lockup. Meena Kumari, "continuous mechanization along with patrol process under the authority of most aerodynamic agriculture" ,universal newspaper made from appraisal furthermore probe contemporary scientific knowledge together with structures (ijrrase) vol3 no.1. pp 7-12, 2013.

[7] Dr. N. Suma, Sandra Rhea Samson, S. Saranya, G. Shanmugapriya, R..Subhashri, (2017). IOT Based Smart Agriculture Monitoring System. International journal on recent and innovation trends in computing , energy efficiency and communication-IJRITCC volume: 5 issue:

[8] M.K.Gayatri, J.Jayasakthi, Dr. G.S. Anandha Mala, (2015). Providing Smart Agricultural Solutions to Farmers for better yielding using IoT. IEEE International Conference on Technological Innovations in ICT for Agriculture and Rural Development (TIAR 2015) .

[9] R. Nageswara Rao, B. Sridhar, (2018). IoT based smart crop field monitoring and automation irrigation system. Proceeding of the second international conference on inventive system and control (icisc2018). [22] Sahitya. Roy, Dr Rajarshi. Ray, Aishwarya Roy, Subhajit .

[10] M. Roopaei, P. Rad, and K.-K.-R. Choo, ``Cloud of things in smart agriculture: Intelligent irrigation monitoring by thermal imaging," IEEE Cloud Comput., vol. 4, no. 1, pp. 1015, Jan. 2017, doi: 10.1109/MCC.2017.5.

