IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Smart Agriculture Using IOT And Soil Nutrient Detection

Mr. Jadhav G. D. Mrs. Suvarna S. Jondhale, ,Miss. Madhuri S. Bangar, Miss. Madhuri J. Gadge, Miss. Kanchan S. Wagh,Miss. Ashvini R. Padekar

[1-5](Department of Computer Engineering,SGOICOE Belhe,India)

ABSTRACT: - *Agriculture assumes imperative part inside the advancement of rural country. In India about 70% of populace relies on cultivating and 33% of the country's capital comes from cultivating. Issues concerning agribusiness are continually impeding the occasion of the country. The lone arrangement the present to the current issue is reasonable farming by modernizing the current customary strategies for agribusiness. Consequently the venture targets making agribusiness savvy utilizing computerization and IoT advances. The idea savvy e-cultivating is produced for the straightforwardness in cultivating .It deals with electrical energy. It incorporates number of sensors to test the dirt boundaries, they are as per the following: Temperature Sensor. Soil dampness, PH level an Light and so on and GSM. The fundamental benefit is it has programmed worked covering which works as per water level and temperature.*

Keywords*: - *Sensors, Agriculture, Framing, GSM , IOT

1. INTRODUCTION

Splendid Agriculture making model is a consistent checking structure it screen the dirt properties like temperature, stickiness soil dampness. It is possible to control various exercises of the field indirectly from wherever, at whatever point by IOT. It offers a state of the art way of life in which an individual will control his electronic devices using a high level cell phone, it also offers a capable use of energy. It applied in each part of industry, including keen agribusiness, splendid design biological noticing, clinical benefits transportation and some more. India is one of the biggest freshwater client on the planet, and our nation utilizes huge measure of new water than other country. There is a lot of water utilized in farming field instead of homegrown and mechanical area. 65% of all out water is contributes as a groundwater. Today water has gotten one of the significant source on the earth and a large portion of utilized in the farming field. As the dirt dampness sensor and temperature sensor are set in the root zone of the plants, the framework can conveyed this data through the remote organization. The raspberry pi is the heart of the system and the webcam is interfaced with Raspberry

pi via Wi-Fi Module. Python programming language is used for automation purpose. The system is a network of wireless sensors and a wireless base station which can be used to provide the sensors data to automate the irrigation system. The system can used the sensors such as soil moisture sensor and soil temperature sensor and also PH sensor. The raspberry pi model is programmed such that if the either soil moisture or temperature parameters cross a predefined threshold level, the irrigation system is automated, i.e. the relay connected to the raspberry pi will turn ON or OFF the motor.

2. Literature Survey

Sensor innovation and remote organizations combination of IOT innovation has been contemplated and explored dependent on the genuine circumstance of farming framework. A joined methodology with web and remote interchanges, Remote Monitoring System (RMS) is proposed. Significant goal is to gather ongoing information of agribusiness creation climate that gives simple admittance to farming offices, for example, alarms through Short Messaging Service (SMS) and advices on climate design, crops etc.

Proposed a methodology joining the benefits of the significant attributes of arising advances, for example, Internet of Things (IOT) and Web Services to build a proficient way to deal with handle the tremendous information engaged with agrarian yield. The methodology utilizes the mix of IoT and distributed computing that advances the quick improvement of rural modernization and assists with acknowledging keen answer for agribusiness and effectively settle the issues identified with ranchers.

Proposed improvement of a framework which can screen temperature, mugginess, dampness and even the development of animals which may crush the yields in agrarian field through sensors utilizing Arduino board and if there should be an occurrence of any disparity send a SMS warning just as a notice on the application created for the equivalent to the rancher's cell phone utilizing Wi-Fi/3G/4G. The framework has a duplex correspondence connect dependent on a cell Internet interface that takes into consideration information review and water system planning to be modified through an android application. In light of its energy independence and ease, the framework can possibly be helpful in water restricted topographically secluded areas.

This framework gives a canny checking stage system and framework structure for office horticulture environment dependent on IOT. This will be an impetus for the progress from conventional cultivating to present day cultivating. This likewise gives occasion to making new innovation and administration improvement in IOT (web of things) cultivating application

3. Objectives of System

The objectives of system are as follows:-

- Continuously monitoring the status of sensors and to provide signals for taking necessary action.
- To observe parameters for better yield
- To save water and reduce human intervention in agriculture field.

4. Motivation

[1] As more farmers are committing suicide nowadays as they suffer huge amount of loss due to natural calamities or lack of resources, so to overcome this problem and providing some technology to avoid such problem , this concept is created for relief to farmers.

5. Implementation Details of Module

The main components of this diagram are Sensors, Raspberry Pi module, water level, LDR, relay, motor, lamp and GSM. Rpi is a main controller from which all other sensors are operated. Water level sensor is used to detect the level of water present in tank/well. We can control the system in 2 modes, manually and by using GSM module. Rpi is been connected to various sensor. Motor is on when the soil moisture is above the mentioned threshold. The motor on/off is controlled though relay. Relay 2 is been used to turn on/off the lamp. LDR is used to automatically turn on the light. The system can also be turned on from anywhere by sending message "Motor On" from sim i.e. GSM module depending on the values of soil, temperature sensor. The values obtained from sensors are stored in MySQL database. The Python IDE is used for system development.

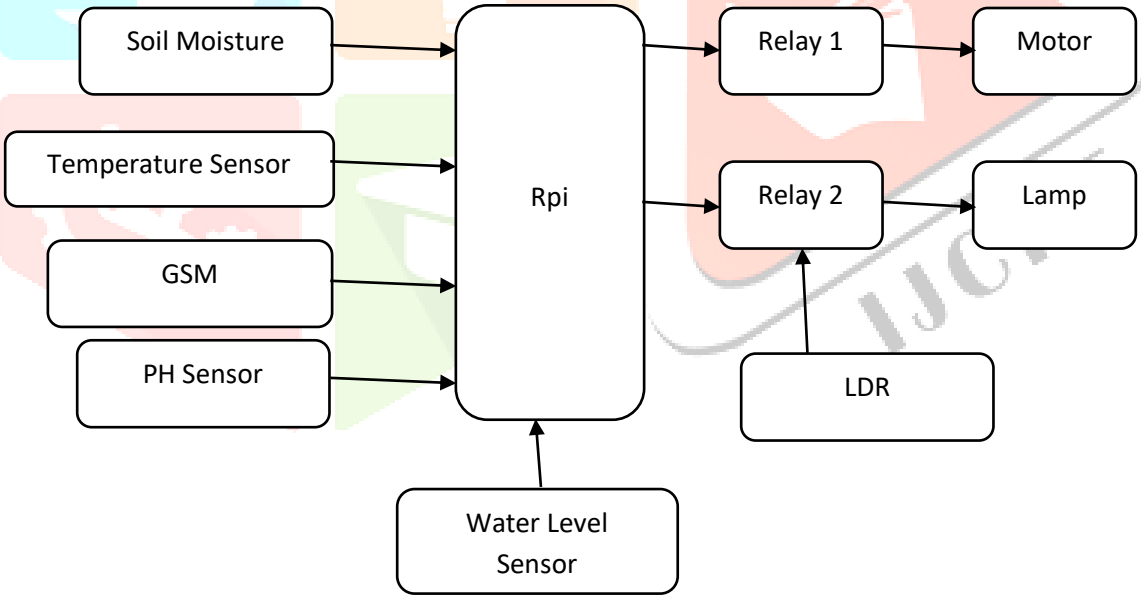

Figure: - Smart Irrigation System architecture

6. EXPERIMENTAL RESULT

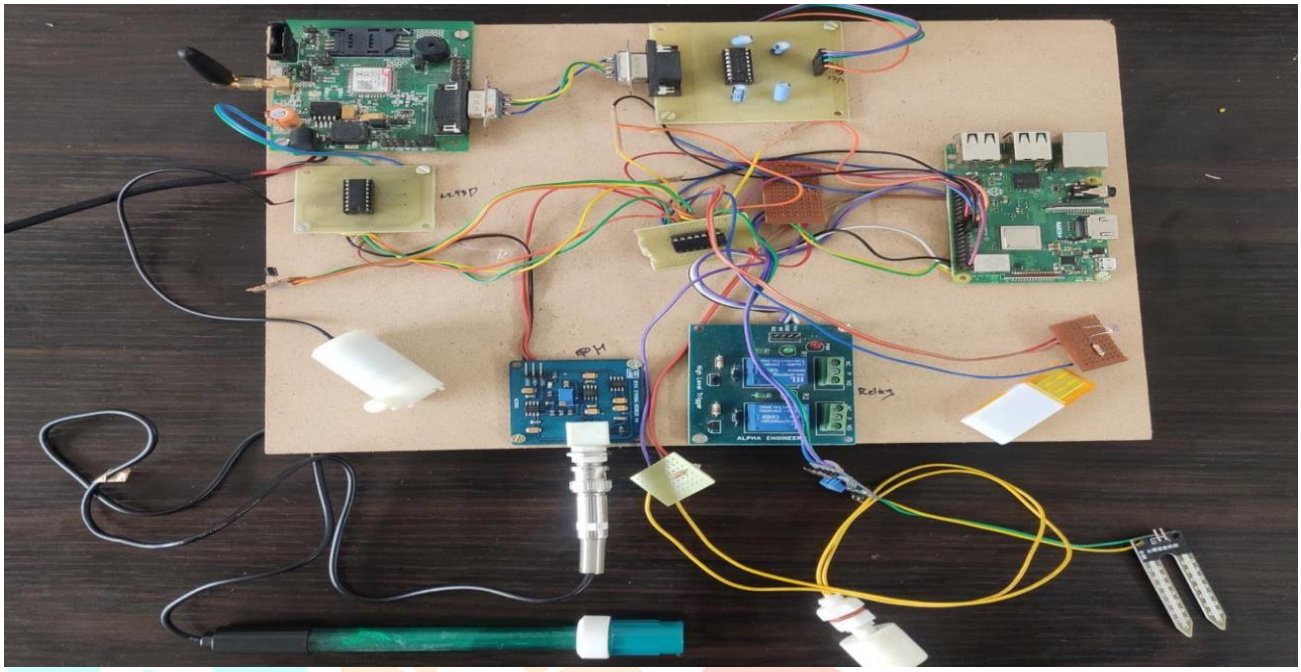

Figure 6.1:- Smart Irrigation System architecture

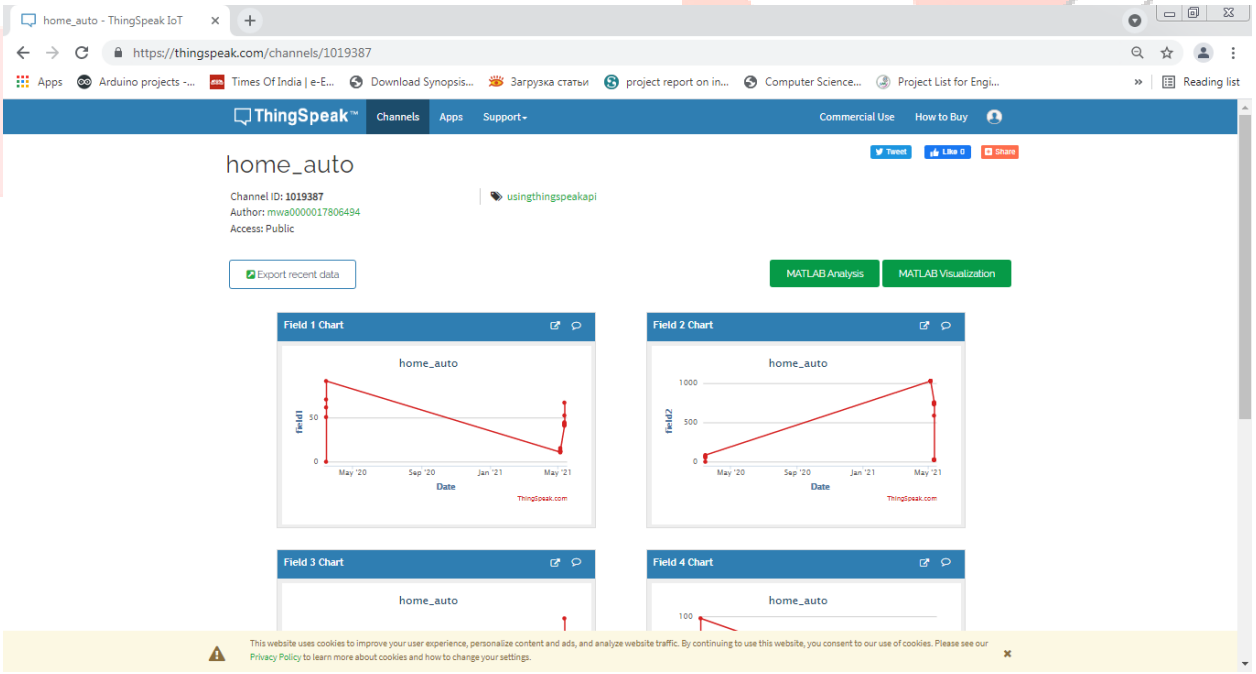

Figure 6.2 : - Cloud Readings

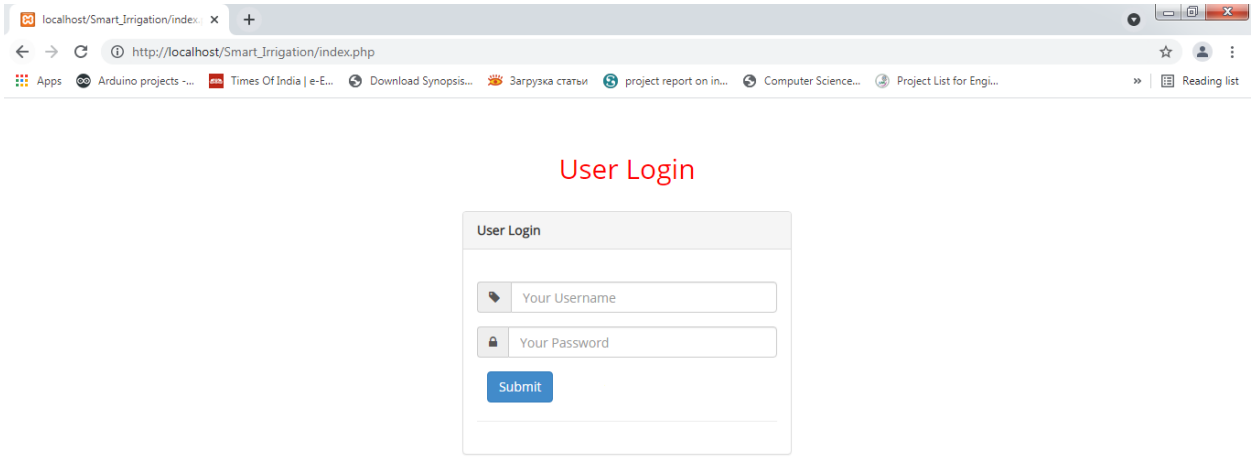

Figure 6.3 : - System Login Page

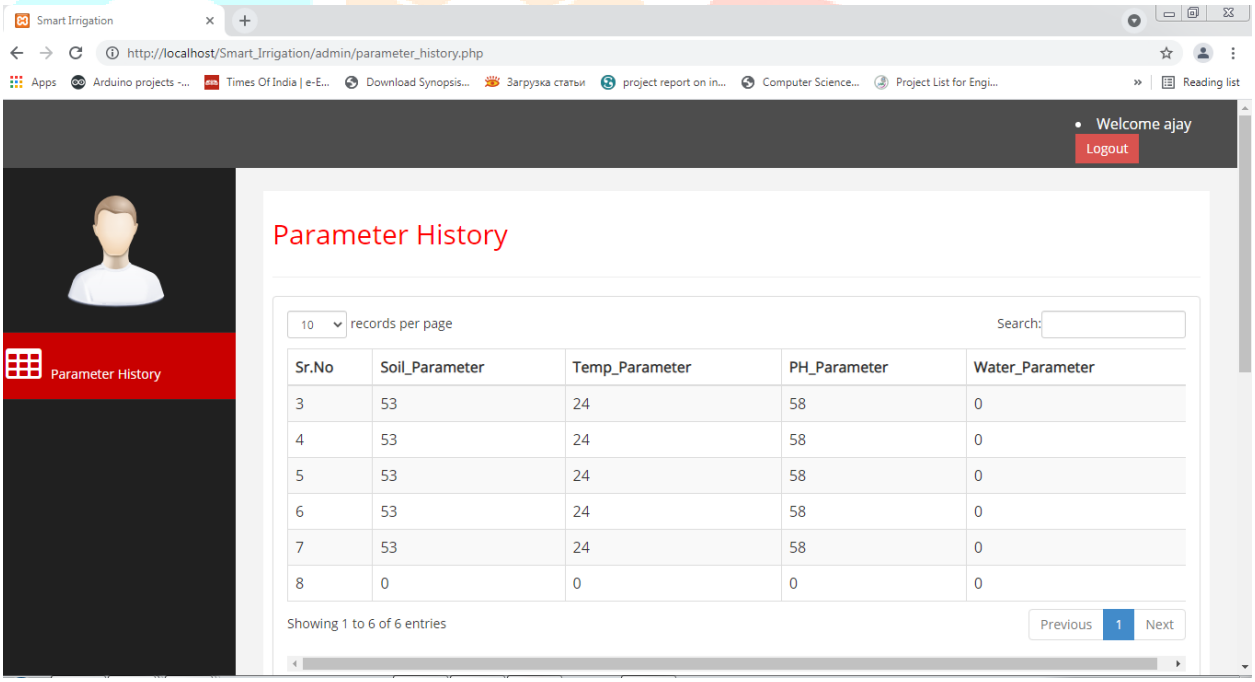

Figure 6.4: - Main Page of Readings Displayed

7. CONCLUSION

Entire project is about Farming and its techniques. This project will reduce the farmer's suicides and help them with the cost and save them from any more destroyed crops. The initiated project is not too much expensive and the whole cost can be recovered in 3 year period. So it is total cost effective eventually it is jumbo technology in effective price and a great investment

8. FUTURE SCOPE

Further many additions can be made into this product which we thought of but couldn't make as it would increase the overall cost of the product as well as the size. The android application might be a bit simpler and easy to understand. In future if this product is given right directions into manufacturing and a nicer attractive look, it would be very useful for all the farmers to do efficient farming.

REFERENCES

[2] *Reuben Varghese and Smarita Sharma," Affordable Smart Farming Using IoT and Machine Learning ", IEEE Xplore Compliant,2018*

[3] *"E-FARMING USING INTERNET OF THINGS (IOT)", International Journal of Latest Trends in Engineering and Technology,2017*

[4] *Zhang, L., Dabipi, I. K. And Brown, W. L, "Internet of Things Applications for Agriculture". In, Internet of Things A to Z: Technologies and Applications, Q. Hassan (Ed.), 2018.*

[5] *K.A. Patil and N.R. Kale, "A Model for Smart Agriculture Using IoT", International Conference on Global Trends in Signal Processing Information Computing and Communication, 2016*

[6] *M.K.Gayatri, J.Jayasakthi, Dr.G.S.Anandhamala, "Giving Smart Agriculture Solutions to Farmers for Better Yielding Using IoT", IEEE International Conference on Technological Innovations in ICT for Agriculture and Rural*

[7] *Nikesh gondchawar and R. Complexion. Kawitkar, "Iot Based Agriculture", all-embracing almanac consisting of contemporary analysis smart minicomputer additionally conversation planning (ijarcce), vol.5, affair 6, june 2016*

[8] *Paparao Nalajala, D. Hemanth Kumar, P. Ramesh and Bhavana Godavarthi,, "Design and Implementation of Modern Automated Real Time Monitoring System for Agriculture using Internet of Things (IoT)", Journal of Engineering and Applied Sciences, 2017.*

[9] *Jaideep Nuvvula, and VenkataSubba Rao Valisetty,"Environmental smart agriculture monitoring system using internet of things", K L University, Department of Computer Science and Engineering, Guntur, Andhra Pradesh, India. International Journal of Pure and Applied Mathematics,2017*

[10] *K. Jyostsna Vanaja, Aala Suresh and S. Srilatha, "IOT based Agriculture System Using Node MCU" .International Research Journal of Engineering and Technology (IRJET). Volume: 05 Issue: 03 | Mar-2018, e-ISSN: 2395-0056*

[11] *"Wireless Sensor Based Crop Montoring System for Agriculture Using Wi-Fi Network Dissertation', IEEE Computer Science, pp.280-285*

[12] Mr. Bhushan Borhade "Ensuring static data integrity on OODB transaction" DOI: 10.1109/ICCUBEA.2016.7860011