

Smart Agriculture Using IOT

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ABSTRACT: -The development of an agricultural nation depends heavily on agriculture. In India, a third of the country's wealth and nearly 70% of the population are dependent on agriculture. Agriculture-related problems are a constant hindrance to the country's progress. Modernizing the current, outdated traditional methods of agriculture is the only current solution to the current issue. Therefore, the project's goal is to use automation and IoT technology to make agriculture smart. Smart e-farming is an idea created to make farming easier. It needs electricity to function. The following sensors are involved in the evaluation of the soil parameters: temperature gauge, GSM, light, PH level, and soil moisture. The covering's autonomous control and responsiveness to both water level and temperature is its main advantage.

Keywords:-Sensors,Agriculture, Framing,GSM ,IoT

I. INTRODUCTION

Smart agriculture creating model is a constant checking framework it screen the soil properties like temperature, humidity so ilmoisture. It is conceivable to control numerous activities of the field distantly from anyplace, whenever by IOT. It offers a cuttingedge lifestyle in which an individual will control his electronic gadgets utilizing an advanced mobile phone, it additionally offers a proficient utilization of energy.It applied in every aspect of industry, including smart agriculture, brilliant structure ecologicalobserving, medical services transportation and some more. India is one of the largest freshwater user in the world, and our countryuses large amount of fresh water than other country. There is a large amount of water used in agriculture field rather than domesticand industrial sector. 65% of total water is contributes as a groundwater. Today water has become one of the important source on theearth and most of used in the agriculture field. As the soil-moisture sensor and temperature sensor are placed in the root zone of theplants, the system can distributed this information through the wireless network. The raspberry pi is the heart of the system and thewebcam is interfaced with Raspberry pi via Wi-Fi Module. Python programming language is used for automation purpose. Thesystem is a network of wireless sensors and a wireless base station which can be used to provide the sensors data to automate theirrigation system. The system can used the sensors such as soil moisture sensor and soil temperature sensor and also PH sensor. Theraspberry pi model is programmed such that if the either soil moisture or temperature parameters cross a predefined threshold level,the irrigationssystemisautomated,i.e.therelayconnected

otheraspberrypiwillturnON orOFFthemotor.

II. LITURATURE SURVEY

Sensor innovation and remote organizations combination of IOT innovation has been contemplated and explored dependent on thegenuine 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 tofarmingoffices,forexample,alarmsthroughShortM essagingService (SMS)and advicesonclimate design,cropsetc.

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. Themethodology utilizes the mix of IoT and distributed computing that advances the quick improvement of rural modernization andassistswithacknowledging keenanswerforagribusinessand effectivelysettle theissuesidentified withranchers.

Proposed improvement of a framework which can screen temperature, mugginess, dampness and even the development ofanimals which may crush the yields in agrarian field through sensors utilizing Arduino board and if there should be an occurrence ofany disparity send a SMS warning just as a notice on the application created for the equivalent to the rancher's cell phone utilizingWi-

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.

III. 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.

IV. MOTIVATION

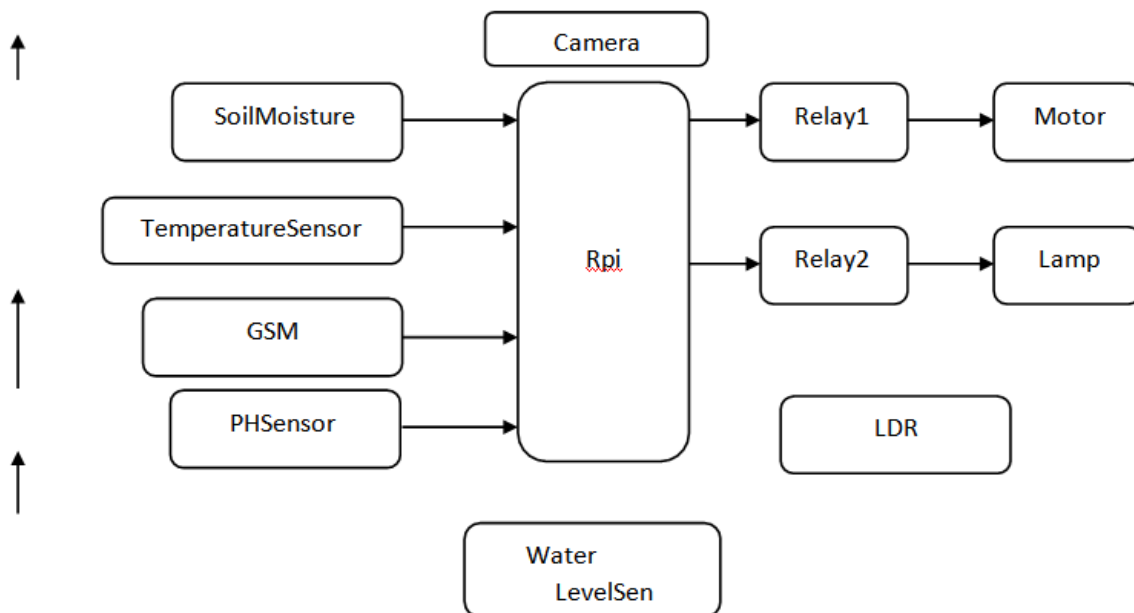


Figure:-Smart Irrigation System Architecture

VI. 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

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.

V. IMPLEMENTATION DETAILS OF MODULE

The proposed system block diagram is as shown in Fig below. 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 through 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.

It is total cost effective eventually it is jumbo technology ineffective price and a great investment.

REFERENCES

- [1] Reuben Varghese and Smarita Sharma, "Affordable Smart Farming Using IoT and Machine Learning", IEEE Explore Compliant, 2018

- [2] "EFARMING USING INTERNET OF THINGS (IOT)", International Journal of Latest Trends in Engineering and Technology, 2017
- [3] 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.
- [4] 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
- [5] 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
- [6] Nikeshgondchawar and R. Complexion. Kawitkar, "Iot Based Agriculture", all-embracing almanac consisting of contemporary analysis smart mini computer additionally conversation planning (ijarce), vol.5, affair 6, june 2016
- [7] 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.
- [8] Jaideep Nuvvula, and Venkata Subba 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
- [9] K. Jyostna Vanaja, Aala Suresh and S. Srilatha, "IoT based Agriculture System Using NodeMCU". International Research Journal of Engineering and Technology (IRJET). Volume: 05 Issue: 03 | Mar-2018, e-ISSN: 2395-0056
- [10] "Wireless Sensor Based Crop Monitoring System for Agriculture Using WiFi Network Dissertation", IEEE Computer Science, pp. 280-285