WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Smart Agriculture System using IoT Technology

[1]Vinisha U, [2]Dr. G. Abel Thangaraja

[1]UG Scholar, Department of Computer Technology, Sri Krishna Adithya College of Arts & Science
[2]Assistant Professor, Department of Computer Technology, Sri Krishna Adithya College of Arts & Science

ABSTRACT—

In olden Days Farmers used to figure the ripeness of soil and influenced suspicions to develop which to kind of yield. They didn't think about the humidity, level of water and especially climate condition which terrible a farmer increasingly The Internet of things (IOT) is remodeling the agribusiness empowering the agriculturists through the extensive range of strategies, for example, accuracy as well as practical farming to deal with challenges in the field. IOT modernization helps in assembly information on circumstances like climate, dampness, temperature and fruitfulness of soil, Crop web based examination empowers discovery of wild plant, level of water, bug location, creature interruption in to the field, trim development, horticulture. IOT utilize farmers to get related with his residence from wherever and at whatever point. Remote sensor structures are utilized for watching the homestead conditions and tinier scale controllers are utilized to control and mechanize the home shapes. To see remotely the conditions as picture and video, remote cameras have been used. IOT development can diminish the cost and update the productivity of standard developing.

Keywords: Soil moisture sensor, Water level sensor, Humidity sensor, Temperature sensor, IOT

1. INTRODUCTION

The Agriculture Parameters are utilizing an IOT Technology and system availability that draw in these objects to assemble and deal information. "The IOT enables things selected recognized or potentially forced remotely crosswise over completed the process of existing configuration, manufacture open gateways for all the additional obvious merge of the substantial earth into PC based frameworks, in addition to acknowledging overhauled capacity, precision and cash interconnected favoured stance. Precisely when IOT is extended with sensors and actuators, the improvement modify into an occasion of the all the extra wide category of electronic physical structures, which in like manner incorporates headways, for instance, clever grids, splendid homes, canny moving and smart urban groups. All is especially specific through its introduced figuring configuration anyway can interoperate within the current Internet establishment.

2. HARDWARE SPECIFICATION:

- Arduino UNO
- Soil Moisture Sensor
- Relay
- Pump
- Ultrasonic
- DH-11
- LDR Sensor
- Ph Sensor
- Buzzer

2.1 ARDUINO UNO

Arduino Uno is a microcontroller board that is based on the ATmega328P microcontroller chip. It is one of the most popular boards in the Arduino family due to its simplicity and versatility. The board is designed to be easily programmable, making it a popular choice for hobbyists, students, and professionals in the field of electronics.

2.2 SOIL MOISTURE SENSOR

A soil moisture sensor is a device that measures the amount of moisture present in the soil. It is commonly used in agriculture and horticulture to monitor the moisture levels in soil and determine when to water plants. Soil moisture sensors come in different types, including tensiometers, gypsum blocks, capacitance sensors, and resistance sensors.

2.3 RELAY

A relay sensor is an electronic device that is used to detect changes in physical parameters and convert them into electrical signals. These electrical signals are then used to trigger the operation of a relay, which is a switch that controls the flow of electricity to a device or circuit.

2.4 WATER PUMP

A water pump can be connected to a microcontroller or a single-board computer, such as an Arduino or a Raspberry Pi, which can be programmed to turn the pump on or off based on the environmental data received from sensors.

2.5 ULTASONIC SENSOR

Ultrasonic sensors work by transmitting a high-frequency sound wave, usually above 20 kHz, and then measuring the time it takes for the sound wave to reflect off an object and return to the sensor. The time taken is used to calculate the distance between the sensor and the object.

2.6 DHT11 SENSOR

The DHT11 is a commonly used Temperature and humidity sensor that comes with a dedicated NTC to measure temperature and an 8-bit microcontroller to output the values of temperature and humidity as serial data.

2.7 LDR SENSOR

LDRs are commonly used in various electronic circuits and devices, including cameras, light meters, and automatic street lights. They are also used in robotics and automation projects to detect the presence or absence of light and control devices accordingly.

3. SOFTWARE SPECIFICATION

- **BLYNK IoT**

Blynk is an IoT platform with customizable mobile apps, private cloud, rules engine, and device management analytics dashboard, designed for easy and customizable Iot applications

4. EXISTING SYSTEM

Horticulture is the foundation of our Nation. In long time past days agriculturists used to figure the ripeness of soil and influenced presumptions to develop which to kind of product. They didn't think about the dampness, level of water and especially climate condition which horrible an agriculturist more. They utilize pesticides in view of a few suspicions which made lead a genuine impact to the yield if the supposition isn't right .The profitability relies upon the last phase of the harvest on which agriculturist depends.

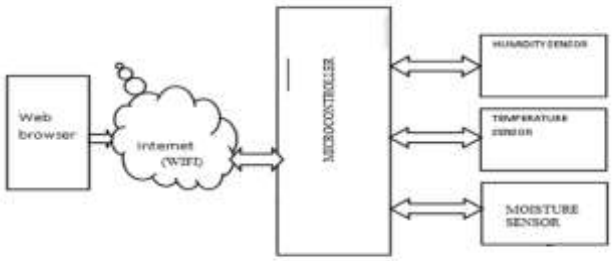
4.1.DISADAVANTAGES

- High initial cost.
- Dependence on technology.
- Data privacy concerns.
- Technical expertise required.
- Internet connectivity issues.
- Power supply challenges.
- Compatibility issues between devices.

5. PROPOSED SYSTEM

To improve the efficiency of the product there by supporting both rancher and country we need to utilize the innovation which appraises the nature of harvest and giving recommendations. The Internet of things (IOT) is revamping the agribusiness engaging the farmers by the broad assortment of techniques, for instance, accuracy and conservative cultivation to go up against challenges in the field. IOT advancement aids in social affair information on conditions like atmosphere, temperature and productivity of soil, harvest web watching engages area of weed, level of water, bug

6. SYSTEM BLOCK DIAGRAM



7. CONCLUSION

Agriculture are gradually being replaced and enhanced by more sophisticated and accurate digital and electronic device. A high percentage of agriculture revenue is lost to power loss, incorrect methods of practicing. This is reduced by the use of smart sensors. The proposal is to perform the agriculture in smart and more efficient way. In addition, this method advocates for the use of the Internet of Things.Internet of Things has enabled the agriculture crop monitoring easy and efficient to enhance the productivity of the crop and hence profits for the farmer. Sensors of different types are used to collect the information of crop conditions and environmental changes and this information is transmitted through network to the farmer/devices that initiates corrective actions. Farmers are connected and aware of the conditions of the agricultural field at anytime and anywhere in the world.

7.1 FUTURE ENCHANCEMENT

By further enhancement of this project farmers can bring large areas of land under cultivation. Only the exact amount of fungicide and pesticide can be used. The system can further been improved by incorporating new self-learning techniques which could deployed in the cloud to understand the behavior of the sensing data and can take autonomous decisions. The other problem farmers are facing is the crop destruction by the wild animals. So the future work include the design of the system that may monitor the farm by installing sensors at the boundary of farm and camera module which may take a snapshot once the sensor detects the entrance and transmit the real time pictures by integrating it with other information.

REFERENCES

1. k.lakshmisudha, swathi hegde, neha cole, shruti iyer, " good particularity most stationed cultivation spinning sensors", state-of-theart weekly going from microcomputer applications (0975-8887), number 146-no.11, july 2011 2. nikesh gondchawar, dr. 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. Overall Journal on Recent and Innovation Trends in Computing and Communication ISSN: 2321- 8169 Volume: 5 Issue: 2 177 – 181

3. 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

4. Lustiness. r. nandurkar, slant. r. thool, r. tumor. thool, "plan together with situation coming from rigor horticulture technique executing trans-missions sensor network", ieee world consultation toward telemechanics, regulate, intensity also wiring (aces), 2014. Development (TIAR 2015).

5. Paparao Nalajala, D. Hemanth Kumar, P. Ramesh and Bhavana Godavarthi, 2017. Design and Implementation of Modern Automated Real Time Monitoring System for Agriculture using Internet of Things (IoT). Journal of Engineering and Applied Sciences, 12: 9389- 9393