JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452

Cloud Based Monitored System for Smart Agriculture

[1]G. Saraswathi, [2]K. Kavitha,

[1] Assistant Professor, Department of Computer Science and Engineering,
Mailam Engineering College, Mailam
saraswathirajakumari@gmail.com
[2] Assistant Professor, Department of Computer Science and Engineering,
Mailam Engineering College, Mailam
Kavi.parthi88@gmail.com

Received: 2022 March 15; **Revised:** 2022 April 20; **Accepted:** 2022 May 10

Abstract*:*

Farmers used to evaluate the soil's maturity and manipulate suspicions in order to generate which type of yield. They can't be responsible for humidity, water level, or any other variables. Especially concerning are the horrible weather conditions that are wreaking havoc on farms. Agriculture is being transformed by the Internet of Things (IOT). Agriculturists overcome problems in the field by delivering a varied range of services methods, such as precision farming and practical farming. With the help of IOT modernization, crop web- based examination permits the discovery of wild plants, water levels, bug locations, creature disturbance in the field, trim development, and horticulture. IoT allows farmers to connect to their homes from anywhere and at any time. Remote sensor structures are used to monitor the homestead's conditions, while smaller scale controllers are used to control and mechanize the home shapes. To watch the occurrences as photographs and films from a distance, remote cameras were used.

1.Introduction:

To collect and distribute data from these assets, Agriculture Parameters employs 1 Internet of Things (IOT) technologies and system availability. "Things chosen recognized or potentially forced remotely across completed the process of existing configuration, manufacture open gateways for all the more obvious merge of the significant earth into PC based frameworks, in addition to acknowledging overhauled capacity, precision, and cash interconnected preferred stance." When IOT is augmented with sensors and actuators, it falls under the umbrella of electronic physical structures, which encompasses smart grids, beautiful homes, intelligent transportation, and smart urban communities. Because to their introduced figure arrangement, each is notably unique, although they can all work together inside the current Internet infrastructure.

2.Problem Statement:

Assisting ranchers and countries with innovation that analyses harvest type and gives recommendations to improve product efficiency. Harvest web watching includes weed, water, bug, animal, and change improvement. Climate, temperature, and soil productivity are all monitored by IOT. So that they can access their homes from anywhere and at any time.

JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452
Remote sensors monitor farm conditions, while small scale controllers' control and automate property shapes.

3.Literature Survey:

Dr. Sanjay N et.al.[1] Proposed System in Paper: This project contains sensors for temperature, humidity, soil moisture, and rain detection. These sensors are integrated with web technologies to create a wireless sensor network that can be controlled and monitored remotely Project Proposed system: Our project uses rain, soil moisture, humidity, and temperature sensors. Sending sensor data to a web server. The project will be cheaper.

Priyanka Bhardwaj et.al.[2] The main controller in the proposed system in the paper is a Raspberry Pi. The components used are a soil moisture sensor, a humidity temperature sensor, a water pump, a pH sensor, and a rain sensor. All of the sensors read by the RaspberryPi have their values recorded.

Rain sensor, soil moisture and humidity sensor, and temperature sensor are all used in our project. As the main controller, we're utilizing Arduino. Our system is economical. We use these components because they are both efficient and inexpensive.

T. Rajesh, Y et.al [3] Paper's proposed system is as follows: This IoT-based agriculture monitoring system employs wireless sensor networks to collect data from various sensors installed at various nodes and transmit it via wireless protocol. It's also Arduino-powered. Temperature sensor, humidity sensor, water level sensor, PIR sensor, and GSM module are included. When the IoT-based farm monitoring system is turned on, it examines the water, humidity, and moisture levels. It sends an SMS alert to the phone when the water level is low.And these parameters can be controlled via any remote device or internet service, with operations carried out by combining a sensor, Wi-Fi, and camera with a microcontroller. Project The following is the proposed system: Rain sensor, soil moisture and humidity sensor, and temperature sensor are all used in our project. As the main controller, we're utilising Arduino. Our system is economical. We use these components because they are bothefficient and inexpensive. We also use a rain sensor and a wifi module in our project.

Zuraida Muhammad, et.al.[4] The proposed system in the paper is a smart agriculture system that is built using IoT. To deal with Malaysia's variable weather, the system is paired with an irrigation system. This system's microcontroller is a Raspberry Pi 4 Model B. The DHT22 and 1 soil moisture sensor are used to detect the temperature and humidity in the surrounding area, as well as the moisture level of the soil, and the output is displayed on a smartphone anda computer. Project System under consideration: The main controller in the study is a Raspbery Pi. The components used are a soil moisture sensor, a humidity temperature sensor,a water pump, a Ph sensor, and a rain sensor. All of the sensor values read by the Aurdino Uno.

4.Motivation & Objective:

.Motivation

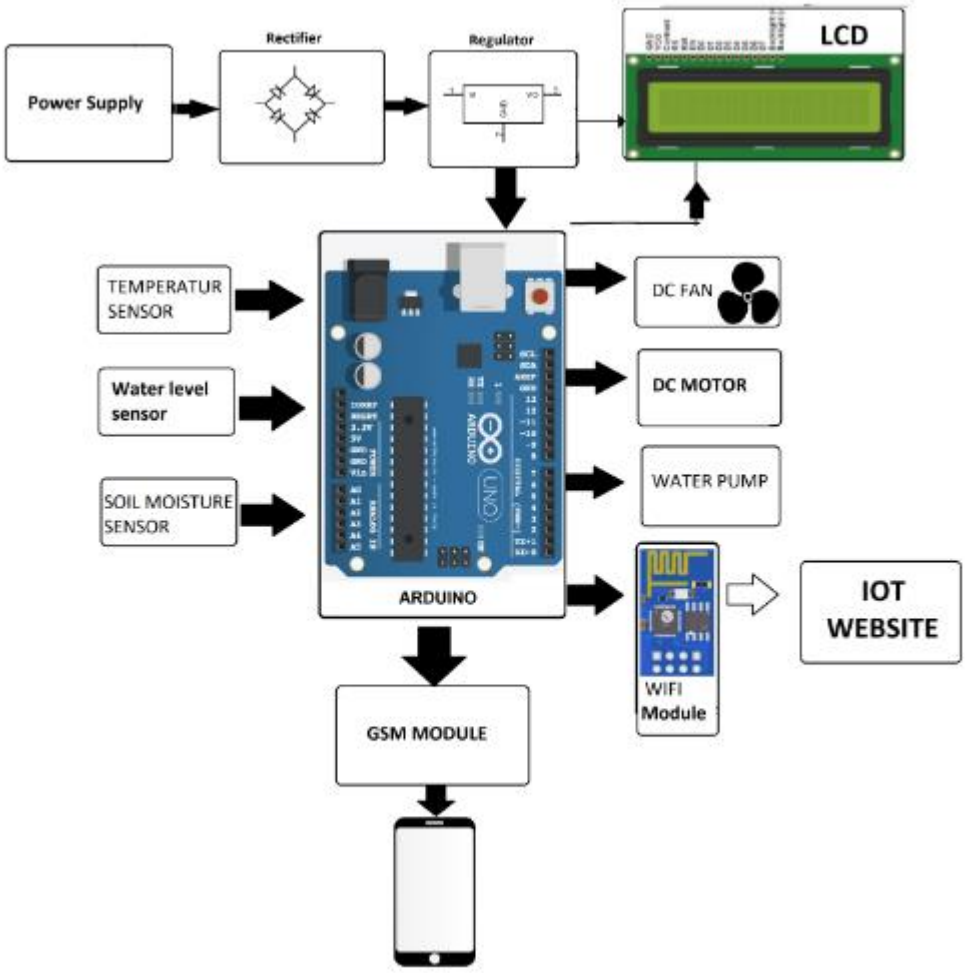
Farming being practiced throughout with the ancient methods used has resulted in possibility of less yield. The need to increase the yield with minimizing the efforts of farmers and the cost for cultivation motivates us to do this project.

JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452

4.1. Objectives

The main aim of our project is to reduce complexity and design a user friendly robust, accurate and economical device to help the farmers.

5. Circuit Architecture:



- The circuit diagram is self-explanatory.
- You have to supply 9 to 12V with at-least 1 ampere.
- IC 7805 is employed here for providing power to MQ135 sensor's heater element which will consumes around 150mA.
- Note that BMP180 works on 3.3V and 5V will kill it and the pins for DHT11 could be different for your DHT11 sensor.
- The LCD display is interfaced with I2C adapter, that's why only 4 wires are connected to display in the circuit diagram.
- You can adjust the contrast of the display by rotating the (blue) potentiometer on I2C adapter.

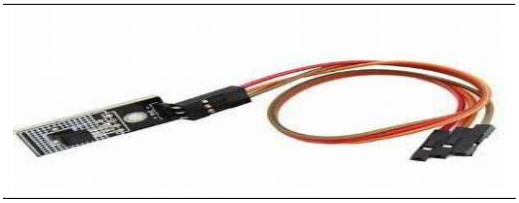
JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452

6. Block Diagram

Rain sensor- Rain water detectors detect rain and sound an alarm; they're utilised in irrigation, home automation, communication, and autos, among other things. Here is the basicand reliable circuit of rain water detector which may be created at little cost.

Soil moisture sensor- The Soil Moisture Sensor is used to determine how much water is in a given amount of soil. This makes it perfect for investigations in soil science, agricultural science, environmental science, horticulture, botany, and biology classes.

Humidity and Temperature Sensor- It produces digital output that is precisely calibrated Sprinkler irrigation applies water in a manner similar to those of raindrops falling from the sky. A pump is used to move water through a network of pipes. Using sprinklers, water is sprayed into the air, where it breaks down into smaller droplets and falls to theground below.



A motor controller- Starting and halting the motor, selecting forward or backward rotation, selecting and regulating the speed, regulating or restricting the torque, and protecting against overloads and electrical failures are all possible.

JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452

Wi-Fi module- Generally contains two main parts: a wi-fi chip and an application host processor.

ThingSpeaks server- is an open data platform and API for the Internet of Things that enables you to collect, store, analyze, visualize, and act on data from sensors. At the heart of ThingSpeak is a ThingSpeak Channel. A channel is where you send your data to be stored. Each channel includes 8 fields for any type of data, 3 location fields, and 1 status field.

Arduino - is an available as an open electronics platform centred on user-friendly hardware and software. Arduino boards can read inputs including a light on a sensor, a finger on a button, or a Twitter tweet and convert them into outputs such as operating a motor, turning on an LED, or publishing anything online.

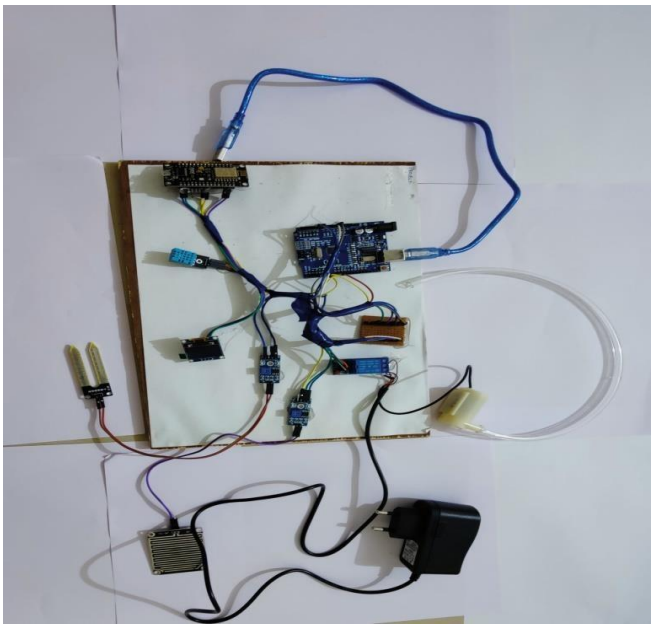
7. Advantages & Disadvantages

Advantages

- Increases farm income.
- Increase Crop Safety.
- It reduces Crop harming.
- It saves time to taking care.
- Easy to use.
- Cost effective.

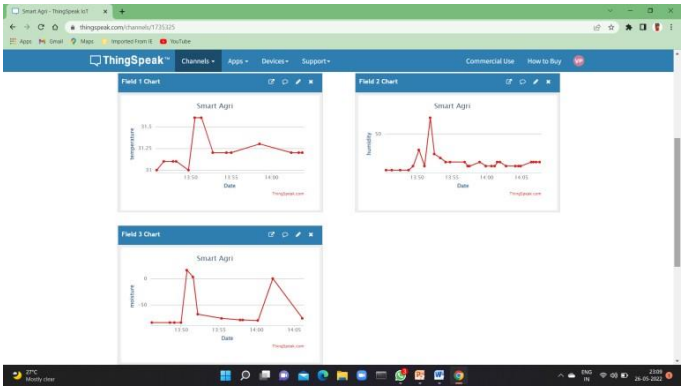
Disadvantages

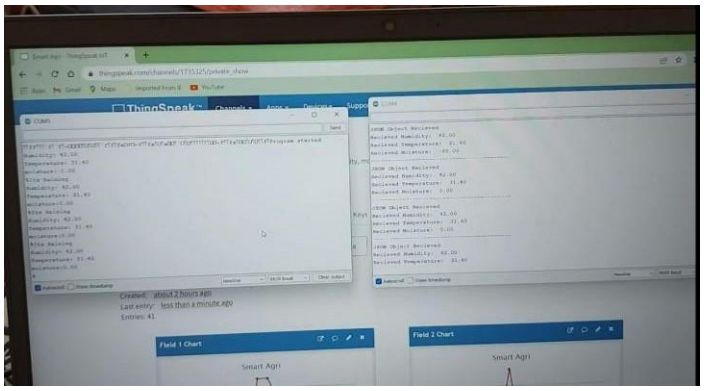
Internet of Things (IoT) – smart farming necessitates constant internet access...
IoT related equipment enables the farmer to grasp and learn how to apply technology. Even with security precautions in place, the system has limited capability and can lead to a variety of network attacks.



JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452

8. Results:





9. Conclusion:

As a result, the system presents a concept of combining the most recent innovation in the agrarian area to transform traditional water system procedures into modern tactics, resultingin simple, profitable, and temperate trimming. A level of mechanization is demonstrated, enabling the concept of using cloud administrations to monitor field and product conditions over great distances. Sensors are used to start points of interest like water conservation and work conservation, which work as they are changed. This concept of agricultural modernization is simple, practical, and implementable.

9. Future Scope:

Climate Conditions: Climate change has a significant impact on agriculture. In addition, having a poor understanding of climate has a significant impact on the quantity and quality ofcrop production. However, IoT technologies allow you to monitor weather conditions in real time. Agriculture areas have sensors installed both inside and outside of them.

Data Analytics: The data collected from IoT devices requires more storage than a traditional database system can provide. The smart agriculture system relies heavily on cloud-based data storage and an end-to-end IoT platform.

Precision Farming: Precision farming's purpose is to analyse data supplied by sensors and react accordingly. Precision farming enables farmers to produce data using sensors and evaluate that data in order to make informed and timely decisions

10. ACKNOWLEDGMENT

The authors wish to thank Prf. Vikas Maral Sir. This work was supported in part by a grant from Prf. Vikas Maral Sir.

JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 5233-5239
https://publishoa.com
ISSN: 1309-3452

11.References:

[1] Dr. Sanjay N. Patil1, Madhuri B. Jadhav, et.al. "Smart Agriculture Monitoring System Using IOT", Ind. J. Pure App. Biosci,**2019.**

[2] Priyanka Bhardwaj, Adarsh Srivastava, Abhishek Kumar Pandey, Abhishek Singh, Bhartendu Tripathi, et.al." IoT Based Smart Agriculture Aid System using Raspberry Pi ", International Journal of Engineering and Advanced Technology (IJEAT),**2021.**

[3] T. Rajesh, Y. Thrinayana, D. Srinivasulu, et.al." IoT based smart agriculture monitoring system", International Journal of Scientific Engineering and Research (IJSER),**2020.**

[4] Zuraida Muhammad,Muhammad Azri Asyraf Mohd Hafez,Nor Adni Mat Leh,Zakiah Mohd Yusoff , Shabinar Abd Hamid,et.al." Smart Agriculture Using Internet of Things with Raspberry Pi", 10th IEEE International Conference on Control System, Computing and Engineering (ICCSCE),**2020.**

[5]Dr. T.PriyaRadhikaDevi "Android Application Forspontaneous Soilconstant Monitoring And Controlling Systemusing Raspberry Pi"Journal Of Critical Review Vol 7 Issue 16.

. [6]Murali. D, Prasanna. S, Mathavan. V,Priyaradhikadevi. T" Linear Regression And Neural Networks Algorithm To Predicting The Real-Time Parameters Of Temperature And Humidity" Journal of Critical Review Vol 7 Issue 16