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A WEATHER-FORECAST-UTILIZING AUTOMATIC AGRICULTURE IRRIGATION SYSTEM

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ABSTRACT:

The Internet of Things (IoT) is a new frontier with the potential to improve many agricultural uses. The Internet of Things may be used to execute applications like smart gardening, water maintenance, the automated installation of other pieces of equipment dependent on human activities, etc. In order to solve the problem of watering crops, this proposal proposes a network of wireless sensors. Pumping water to plants in a garden is the first issue to solve. The water pumping system is activated by monitoring the temperature using an atmospheric pressure, temperature, and humidity sensor, and by measuring the water level with a soil moisture sensor. The rain sensor detects impending precipitation and shuts off the motors accordingly. Using the data collection method, the data is gathered and saved to the server. Open-source hardware, including microcontrollers, GSM, etc., is used in the deployment and demonstration of proposed systems.

1. INTRODUCTION

Every aspect of our lives in the modern digital age must be automated to the greatest extent feasible. Today's increasingly complex electronic circuits simplify and streamline many aspects of human existence. The energy crisis and the water crisis are the two most pressing issues of our day. So, it's important to find ways to reduce water use. The goal is to set up an automated watering system for the field. Just think about how beneficial it will be when your field is being automatically watered at a minimal cost while you go on to the next duty.

II. LITERATURE SURVEY

According to the article "Sensor-based Automated Irrigation System with IoT," irrigation may be triggered by a change in ambient temperature or humidity. There is a solenoid valve in charge of controlling the water flow. When the microcontroller receives a signal, the valve opens or closes accordingly. Dripping water from a rain gun reaches the plant's roots, and when the moisture level returns to normal, a sensor sends a signal to the microcontroller, closing the value. GSM is used to link the two mobiles together. MAX232 is used to link the GSM to the microcontroller. When the soil's Moisture level drops below a certain threshold; a moisture sensor detects this change and transmits a signal to a microcontroller, which in turn sends a signal to a mobile device, which in turn triggers a buzzer. When the button in the called function is pressed, signals are sent back to the microcontroller, alerting the user that the valve needs to be opened. Power consumption and system lifetime are both improved by using a microcontroller. Their product has no unique characteristics and is just capable of automating irrigation systems.

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III. PROBLEM STATEMENT

Most people in India rely on agriculture as their major or only source of income. There is a substantial effect on the national economy from the agricultural sector as well. Water shortage might become an issue if water usage keeps rising. It's getting more difficult to grow plants inside and out these days, too.

IV. PROPOSED SYSTEM

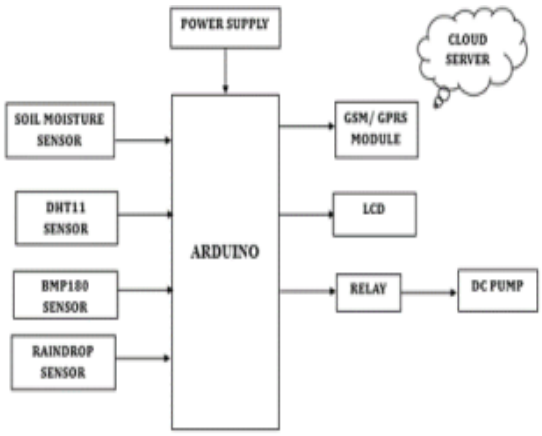
The user has made enough technological contributions to agriculture in the Proposed System. Here, we use the DHT11 sensor to keep tabs on humidity and temperature in the fields while the Moisture Sensor determines the soil's moisture content [1]. The LCD shows the user the sensor data in real time, so they can readily monitor the field's temperature and humidity.

V. METHODOLOGY

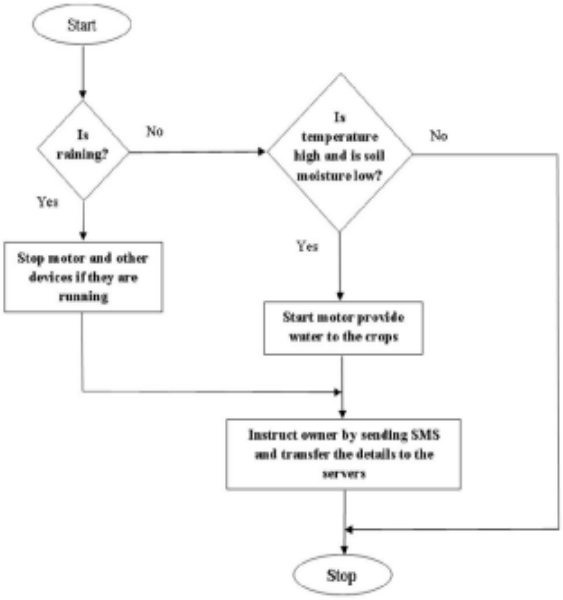
Resources, agricultural significance, • census organization customs, and national interests are all factors in determining the breadth of an agricultural census. The fundamental purpose of an agricultural census is to give information on the size of holdings, land usage, land tenure, etc., which does not vary rapidly over time. However, an agricultural census should be considered as part of an integrated system of agricultural statistics.

VI. DESIGN OF PROPOSED SYSTEM

The user has made enough technological usage in agriculture in the Proposed System. • The Moisture Sensor in this setup is used to determine the soil's moisture [3] level, while the DHT11• sensor keeps tabs on the relative humidity and temperature out in the fields. This user may quickly and easily get information on the field's temperature and humidity thanks to the sensors' data, which is shown immediately on the LCD.



VII. FLOW CHART



When the soil moisture level is low and the temperature is high, an SMS is sent to the landowner and a pump is activated to bring the water level up [4]. This mechanism is designed to shut off the motor and any other connected equipment should it begin to rain. The server receives the same data• regarding precipitation as before. Simultaneously,

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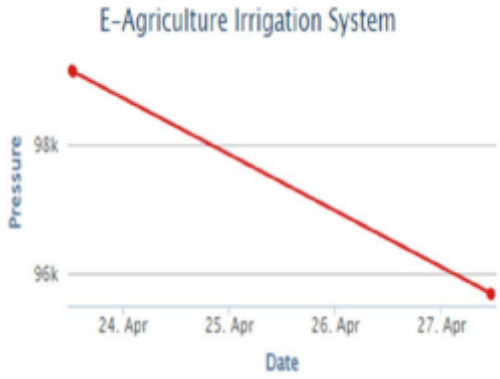
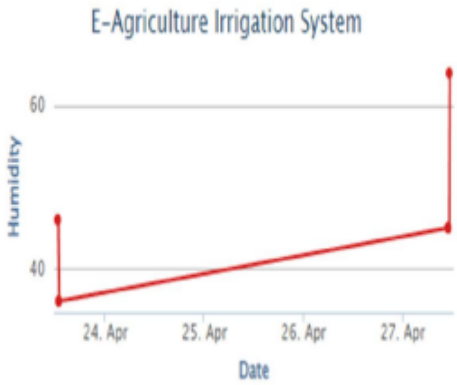
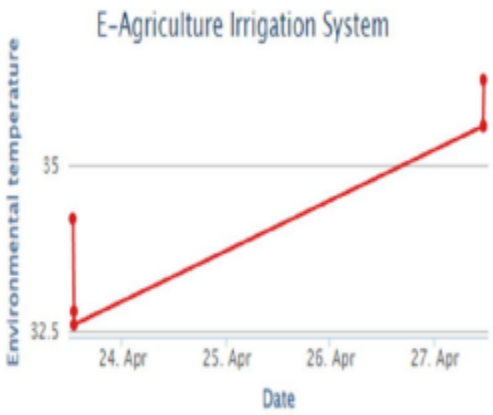
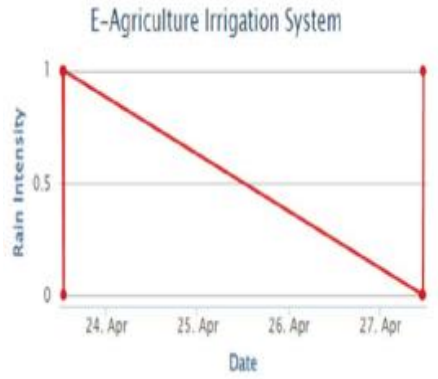
these data are gathered and sent to the server for storage and processing.

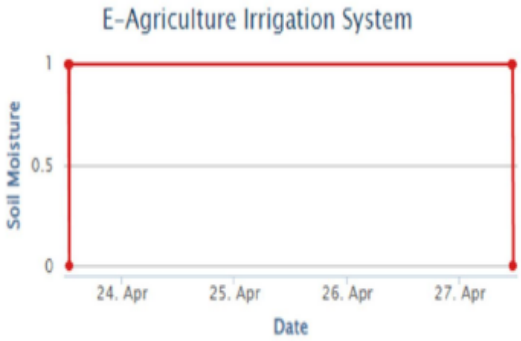
VIII. RESULT











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IX. CONCLUSION

This model of the project takes into account a renewable energy source for electrical power, as well as automated control, dependability, and cheap cost. The operator will have an easier time keeping their crops adequately watered because to the system's autonomous nature. To further ensure the motor's safety and to save water, the water level indicator is used in this model. If implemented, the suggested technology has the potential to free our farmers from reliance on energy and the irrigation infrastructure.

REFERENCES

[1]. Karan Kansara, Vishal Zaveri, Shreyans Shah, SandipDelwadkar, and KaushalJani, "Sensor-based Automated Irrigation System with IOT", International Journal of Computer Science and Information Technology Vol. 6, Issue 6, 2015.

[2]. Joaquin Gutierrez, Juan Francisco Villa-Medina, and Alejandra Nieto-Garibay, Miguel Angel Porta-Gandara, "Automated Irrigation System Using a Wireless Sensor Network and GPRS Module", IEEE Transaction on Instrumentation and Measurement,2013.

[3]. VandanaDubey, NileshDubey, and ShaileshsinghChouchan, "Wireless Sensor Network-based Remote Irrigation Control System and Automation using DTMF Code", IEEE Transaction on Communication Systems and Network Technologies, July 2013.

[4]. G. Nisha and J. Megala, "Wireless Sensor Network Based Automated Irrigation and Crop Field", Sixth International Conference on Advanced Computing ICoAC, 2014.

[5]. Kavianand G, Nivas V M, Kiruthika R, and Lalitha S, "Automated drip Irrigation system", IEEE International Conference on Technological Innovations in ICT for Agriculture and Rural Development, 2016.