LITERATURE SURVEY : “Smartfarmer - Iot Enabled Smart Farming Application”

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YEAR	**TITLE**	**PROBLEM**	**METHODOLOGY**	**INPUT PARAMETRES**	**RESULTS**	**FUTURE SCOPE**
1. IEEE Xplore Part Number: CFP21F70-ART; ISBN: 978-1-7281-8501-9; January 2021	**Automated Indoor Agriculture System Built on the Internet of Things Using NodeRED and IBM Bluemix.**	The author examined indoor and outdoor farming and found that indoor farming was the most environmentally friendly method of producing food. Thus, the project's objective was to automate the procedure for indoor agriculture.	IBM IoT sensors and NodeRED, the flutter framework, IBM Bluemix, and the MQTT protocol were utilised as tools. Implementation **These procedures were used to complete this project:** Connecting Node-RED to IBM Bluemix; obtaining sensor data from Node-RED using MQTT and IBM IoT; automating processes using Node-RED; and integrating with mobile applications	Weather conditions, light intensity, and soil conditions were taken into account as variables.	**Benefits:** The approach suggested by the author performed better than traditional IoT monitoring systems because it just keeps track of the values and keeps the farmer informed however, it also automates necessary parameters leading to healthy plant growth, were possible. **Disadvantages:** High cost for installation of the set-up and high operational costs.	This project might be made much better by adding more sensors, drones, and other devices for different purposes. Future work may focus on predicting the local climate and automating farming practises in accordance with that information.

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2. International Conference on ICT for Agriculture and Rural Development in 2017 organised by IEEE	**Smart Soil Monitoring System for Agricultural Production based on the Internet of Things.**	The goal of this project is to develop an embedded-based system for soil monitoring and irrigation in order to eliminate the need for human field inspections and offer information via a mobile application.	**utensils utilised Microcontroller:** MCP3008 technologies for communication: socket communication, SPI, and WiFi pH, temperature, and humidity sensors are examples of sensors. **Implementation:** MCP3008 is used to digitally transform the analogue detected value. Data are sent and the necessary actions are executed using socket communication. A smartphone app suggests the appropriate crop to the farmer.	pH of the soil, soil humidity, temperature, and cropped picture	1) This approach lowers the farmer's costs Choosing the appropriate crop for the field might be challenging. 2) It enables the farmer to plant appropriate crop by examining sensor data. 3) It boosts agricultural output and cuts down on the time and cost of the farmer. **DISADVANTAGE:** 1) Only effective for short distances communication.	By using a Raspberry Pi 2 Model B processor, which has eight times the processing memory of the previous model, this idea might be further developed. The use of weather forecasting methods might help this be improved.

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3. The Engineering and	**Design and IoT-based implementation of a**	The primary goal of this research is to resolve	ZigBee, ARM7, temperature, humidity, relay driver, and	soil moisture content, humidity level, and	**Benefits:** It was an effective	With this project, crop protection

Applied Science Journal of 2017	**contemporary automated real-time monitoring system for agricultural.**	problems like excessive or insufficient plant irrigation that have an impact on productivity.	solenoid valve were the tools employed. NODE INITIALIZATION, SENSORS INITIALIZATION, RENSOR VALUES READ, SENT TO SERVER USING IOT, IF MOISTURE LOW, MOTOR ON	temperature level.	remedy for irrigation issue **Disadvantages:** Data storage was not provided. Importance The soils weren't the right kind. Considered Weather-wise, there was omitted along the procedure	might be installed to safeguard the crops from animals. Using cloud computing, data might be stored and retrieved.

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4. 2018 by IEEE	**IoT-based automated irrigation systems may be used for crop protection.**	Crop protection may include The goal of this project was to guarantee that the crop received the ideal amount of water without the need for physical labour or wastage.	**HARDWARE USED:**Arduino microcontroller Cloud server: Web server Technology for Communication: Wi-Fi Module Sensors: Implementation of a moisture sensor:To measure the moisture content of farm soil, soil moisture sensors are attached to an Arduino development kit.	Soil moisture	**Advantages:** decreased the labour and water waste The water supplement is controlled by a threshold value. **Disadvantages:** Resolution of data transport is not disclosed. No information about the weather was produced.	Utilizing other sensors, such as a temperature sensor, might help this idea go farther.can increase the precision of checking on th plants. This might be expanded further. Using weather forecasting strategies

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5. Journal of ISMAC (2021), Volume 3, Number 1	**India is implementing smart agriculture using the Internet of Things (IOT).**	This study focuses on the sudden surge in food grain demand and how to address it with all agricultural solutions using IOT-based smart agriculture.	**The following components were used:** zigbee protocol, Agrirobot, and security management for all integrating devices, units of culture analysis, predictive analysis, IOT clouds, IOT devices, and sensor module. **Implementation:** Crop photos were taken, cultured, and subjected to predictive analysis; the outcome was then presented.	Crop Images	Benefits include cost efficiency. • To meet the challenges, the predictive analysis will be helpful. • Increased precision. • Up the production Constraints are also built into the model for platforms and security, which is a drawback. • The procedure of heterogeneity property is quite difficult.	• In the future, we may add more elements for keeping an eye on agricultural fields, such as humidity, temperature, soil sensors, water level, wind direction in the field, and climate, which can help us anticipate difficulties. • Making use of IoT to promote greater e-farming.

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6. 2019 November 4–7 Coimbra, Portugal	**IoT-based smart farming is a way to efficiently monitor farming conditions.**	IoT technologies will boost agricultural production.	ELECTRONIC PARTS USED INCLUDE ESP32s Node MCU, Breadboard, DHT11 Temperature and Humidity Sensor, Soil	Temperature, humidity, UV/IR, visible light index, and soil moisture	**Benefits:** Remote monitoring for farms, water conservation, and other environmental benefits.	Installing multiple prototypes could expand the project, and using the cloud to retrieve

			Moisture Sensor, S11145 UV/IR and Visible Light Index Sensor, LEDs, KY-006 Passive Buzzer, Power Supply, and Power Bank. **Implementation:** The sensor utilised in this instance collects the measurements and uploads them to the blynk app cloud to provide the real-time data. When the farmer didn't hear the sound or get the notice on their mobile device, the LEDs continued to be in a different condition with varied colours.		• effective management and better cattle husbandry. • Excellent and enhanced quality. • Accurate field and crop evaluation allows for the observation of things that are invisible to the human eye. A disadvantage of agriculture is that it is a natural occurrence and heavily depends on the environment.	data could make it better. • These systems could be linked to drones to provide 3D mapping of agricultural lands; • Accuracy could be improved by applying data mining algorithms;

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