Literature Survey

Smart Farmer-IOT Enabled Smart Farming Application PNT2022TMID35839

S. No	Paper	Author	Journal	Year	Objective	Solution
1.	IoT based Automated Indoor Agriculture System Using Node-RED and IBM Bluemix	Valerie David, Harini Ragu, Rohith Kanna Duraiswamy, and Sasikumar P	6th International Conference on Inventive Computation Technologies (ICICT).	2021	The objective of this project is to automate some of the processes of indoor agriculture which is more sustainable nowadays by monitoring the parameters that contribute to a healthy crop growth and automating them to stay within the optimal range, where possible, or alert the owner of the estate to take necessary action immediately	Solution is implemented using a IBM Bluemix and NODE-RED where IBM IoT nodes for sensing is simulated for light intensity, temperature, machine temperature, humidity and Ph level based on which either actuators are simulated to control and maintain values to optimum level or alert is given to user. Values of IBM IoT node are stored to Cloudant DB and shown to users through mobile application developed using Flutter
2.	Smart Agriculture Monitoring System Using IoT	Aman Jain, Abhay Kumar	International Journal for Research in Applied Science and Engineering Technology IJRASET	2020	Main objective of this project is to use IoT as a tool for farmers to to monitor farm conditions remotely and obtain parameters like soil moisture, water level and exact data about weather conditions which was not possible before	Solution is implemented using ARM7 LPC2148 microcontroller to which power is supplied and soil moisture, water level, temperature and humidity is sensed from which pump is operated with a relay and LCD is connected to ARM 7 board to display values. Values are then sent to Thing speak web server using Wi-Fi module
3.	AUTOMATION OF IRRIGATION SYSTEM USING IoT	Pavankumar Naik, Arun Kumbi, Kirthishree Katti and Nagaraj Telkar	International Journal of Engineering and Manufacturing Science	2018	The main objective of this project is to provide an automatic irrigation system thereby saving time, money & power of the farmer. The traditional farm-land irrigation techniques require manual intervention. With the automated technology of irrigation the human intervention can be minimized.	Solution is implemented using Arduino Uno board to which power is supplied and sensing is done by temperature and humidity sensor and moisture sensor based on which pump is actuated with a relay in between. Values of sensors and status of pump are transported from Arduino to a Thing speak web server from which data is sent to a mobile application
4.	Multidisciplinary Model for Smart Agriculture	M. Kumari, A. Kumar, P. Singh and S. Singh	5th International Conference on	2021	The main objective of this project is to create a multidisciplinary model for smart agriculture integrating various concepts like IoT,	Solution consists of modules namely Sensor Kit Module with portable IoT device (Beagle Bone Black) with soil and environment sensors(NPK, Soil Moisture, Soil

	using Internet-of-Things (IoT), Sensors, Cloud-Computing, Mobile-Computing & Big-Data Analysis		Information Systems and Computer Networks (ISCON)		cloud computing, mobile computing and big data analysis which benefits farmers, agro vendors and agro marketing agencies	pH), Mobile App Module providing interface to the users (Farmers, agro vendors, agro marketing agencies) , AgroCloud Module consisting of big data storage to store data, Big-Data Mining, Analysis and Knowledge Building Engine Module for analysis of data and Application module to send notification to users and Government and Agrobanks UI web interface for governments and banks to send information related to agricultural schemes and loans to AgroCloud.
5.	Implementation of a LoRaWAN Based Smart Agriculture Decision Support System for Optimum Crop Yield	Arshad, Jehangir, Musharraf Aziz, Asma A. Al-Huqail, Muhammad Hussnain uz Zaman, Muhammad Husnain, Ateeq Ur Rehman, and Muhammad Shafiq	Sustainability,MDPI(Multidisciplinary Digital Publishing Institute)	2022	The main objective of this project is to develop a comprehensive and detailed Decision Support System that has integrated sensors, cloud employing decision support layers, and networking based DSS to recommend cautions for optimum sustainable yield. to improve agricultural yield with long range communication to cover rural areas with less connectivity	Solution is implemented using variety of sensors including NPK,GPS, Soil moisture, temperature and humidity and air quality to create a wireless sensor network which is interfaced with ESP32 where decision support system is implemented and actuators are controlled and then data is sent over long distance using LoRa transceiver modules to which NODEMCU is connected on receiving side which then transmits the data to cloud using WiFi from which mobile app created using Android studio gets its values to be displayed

References:-

1. Valerie David, Harini Ragu, Rohith Kanna Duraiswamy, and Sasikumar P. “IoT Based Automated Indoor Agriculture System Using Node-RED and IBM Bluemix.” 2021 6th International Conference on Inventive Computation Technologies (ICICT), n.d. doi:10.1109/ICICT50816.2021.9358672.

2. Aman Jain, Abhay Kumar. “Smart Agriculture Monitoring System Using IoT.” International Journal for Research in Applied Science and Engineering Technology IJRASET, 2020. doi:10.22214/ijraset.2020.7060.

3. Pavankumar Naik, Arun Kumbi, Kirthishree Katti and Nagaraj Telkar. “AUTOMATION OF IRRIGATION SYSTEM USING IoT”.International Journal of Engineering and Manufacturing Science.ISSN 2249-3115 Volume 8, Number 1 (2018) pp. 77-88,

4. M. Kumari, A. Kumar, P. Singh and S. Singh, "Multidisciplinary Real-Time Model for Smart Agriculture based on Weather Forecasting Using IoT, Machine Learning, Big Data and Cloud," 2021 5th International Conference on Information Systems and Computer Networks (ISCON), 2021, pp. 1-5, doi: 10.1109/ISCON52037.2021.9702455.

5. Arshad, Jehangir, Musharraf Aziz, Asma A. Al-Huqail, Muhammad Hussnain uz Zaman, Muhammad Husnain, Ateeq Ur Rehman, and Muhammad Shafiq. 2022. "Implementation of a LoRaWAN Based Smart Agriculture Decision Support System for Optimum Crop Yield" Sustainability 14, no. 2: 827. https://doi.org/10.3390/su14020827