LITERATURE SURVEY : SMART FARMER - IOT BASED SMART FARMING

TITLE	AUTHORS	ABOUT	LIMITATIONS
1. IoT-Equipped and AI-Enabled Next Generation Smart Agriculture: A Critical Review, Current Challenges and Future Trends [2nd march 2022]	• SAMEER QAZI 1 (Senior Member, IEEE) • BILAL A. KHAWAJA (Senior Member, IEEE) • QAZI UMAR FAROOQ	The author speaks about the evolvement of wireless sensor networks over the years and various sensors used in the field to collect data and by using AI the analysis is done which will help farmers to make better decisions and will understand in depth analysis of the crops.	• Possible hacking of smart machinery like smart tractors or UAV's. • Not every farmers could able to implement this smart farming as it require a lot of investment • Paradigm shift from cloud based to edge AI applications for smart agriculture.
2. A Virtual Soil Moisture Sensor for Smart Farming Using Deep Learning [2022]	• Gabriele Patrizi , (Member, IEEE) • Alessandro Bartolini (Graduate Student Member, IEEE) • Lorenzo Ciani , (Senior Member, IEEE) • Vincenzo Gallo , (Graduate Student Member, IEEE) • Paolo Sommella , (Member, IEEE) • Marco Carratù , (Member, IEEE)	A virtual soft sensor is created by using artificial neural networks which can be used to track various necessary values for agriculture such as moisture, temperature, humidity, atmospheric pressure, Co2 concentration etc. by combining various normal sensors such ah temperature and humidity sensors and using DL (deep learning) algorithms to identify plant diseases.	• Long training time for installation of the node. • Complexity in designing the node.

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3. Comparative analysis of wireless technologies for internet- of-things based smart farm [March 2017]	• Asad Abbas • Muhammad Taha Jilani1, • Muhammad Khalid Khan	In this paper an overview of different wireless technologies is presented to provide connectivity to the physical things, particularly for a poultry farm. In a farm, connecting several sensors and automate various tasks and some data analytics, can be used to improve farming. It can also be used to easily monitor the environment of the poultry farm, thus providing better monitoring and control. The analysis of different technologies is carried out and the ZigBee and LTE technologies are found to be the most feasible and economical solutions for a smart poultry farm.	• The paper analysis various different technologies that can be used but does not give a clearer info on how various technologies can be implied in real life scenario. • It has some critical issue and one of the most important challenges affecting sensor lifetime, especially in those applications where power resources are limited. • Also most of these solutions which are implied to improve zigbee are simulation-based and have not been validated practically. • SMS alert system is mentioned for in case of risks while this system lacks in response time and efficiency while costing high.

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4. IoT based Intelligent irrigation support system for smart farming applications [2019]	• Neha Kailash Nawandar • Vishal Satpute	This paper presents an irrigation management system with sensor data fetching and compression, compressed data transfer, data processing, decision making and action invoke capabilities. A network of sensors implanted for the plants and three basic blocks form the whole system, compress the sensed data, send it to the FTP server which reconstructs it back into original form. A 2-layer Neural Network that utilizes the 4 inputs is used here for decision making. The proposed system monitors the test object 24×7 and it is capable to monitor a farm for its water and other requirements. It has compression and decision making capabilities which makes it useful for home gardens, greenhouses, etc.	• The output is notified to user via email which might cause unwanted power and storage usage which in turn might reduce battery life. • The use of neural networks for decision making increases the system complexity and the data flow process might get difficult to understand.

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5. A Novel Framework for Smart Crop Monitoring Using Internet of Things (IOT) [2018]	• Ghanshala K.K. , • Chauhan.R , • Joshi R. C.	Unlike the traditional agricultural trends followed in India, this system mainly focussed on the soil nutrients and its adequate utilization. Earlier most of the crop monitoring techniques were based on temperature and humidity and limited to user end only but proposed system is based on soil nutrients and based on IOT. Thus increase the reach and use of edge computing and cloud computing make it globally accessible for data analytics. Cloud data analysis can be easily done for generating the soil nutrient requirement through machine learning techniques. Thus this system ensures that access is available to the farmers and ultimately fertilizers can be efficiently utilized for high yield .	• Power consumption is neglected here which is one of the prime factors to be taken care of while implementing the system . • The Zigbee wifi module used (ESP8266) is a 3.3V device so it might not be much compatible with all the peripherals used and the wifi code takes more CPU power . • The error percentage in calculating accurate Soil nutrients might be higher when compared to Temperature and humidity and also different crops require different ideal nutrients