# Literature Survey on "Smart Farmer - IOT Enabled Smart Farming Application"

## 1. Design and Implementation of a Smart Farm System

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Most nations around the world depend on farming for their way of life, and it also affects their economies. In dry or rain-scarce places, irrigation becomes challenging; as a result, it must be managed remotely for farmer safety, Agro-resource protection, and productivity preservation. Farmers frequently over-irrigate their fields. Various irrigation regimens were required for various types of soil, and the irrigation also depends on a variety of parameters, including temperature, wind speed, and moisture levels at the time, season, crop growth stage, etc. This study proposes that a smart farm would include configurable scheduling and automatic tank level detection for an automated watering system regulating for irrigation water storage and farm-based.

## 2. IoT-Enabled Smart Agriculture: Architecture, Applications, and Challenge

(Vu Khanh Quy 1, Nguyen Van Hau 1, Dang Van Anh 1, Nguyen Minh Quy, Nguyen Tien Ban 2, Stefania Lanza 3, Giovanni Randazzo 4 and Anselme Muzirafuti 4,*)

Food security is becoming a serious worry for all countries in the globe due to the development of the global population, the depletion of natural resources, the loss of farmland, and the rise in unpredictable environmental conditions. These difficulties are factors influencing the agricultural sector's shift to smart agriculture include the use of big data and Internet of Things (IoT) technologies to enhance operational productivity and effectiveness. Wireless sensor networks, cognitive radio, and other cutting-edge technologies are all integrated into the Internet of Things (IoT). Big data, ad hoc networks, cloud computing, and user applications. This research provides a IoT solutions study and shows how IoT may be included into the smart agricultural industry. We address the idea of IoT-enabled smart cities in order to accomplish this goal.

## 3. IoT based Smart Soil Monitoring System for Agricultural Production (Divya J., Divya M.,Janani V)

Both the economy and the existence of the Indian people depend on agriculture. The goal of this project is to develop an embedded-based irrigation and soil monitoring system that will lessen the need for manual field monitoring and deliver data via a mobile app. The technique is designed to assist farmers in boosting agricultural productivity. The equipment used to inspect the soil includes a pH sensor, a temperature sensor, and a humidity sensor. Farmers may choose to plant the best crop for the land based on the findings. Wi-Fi is used to transmit sensor data to the field manager, and a mobile app is used to generate crop recommendations. Use of an automatic watering system is necessary when the soil temperature is high. The crop picture is collected and sent.

## 4. Development of Smart Drip Irrigation System Using IoT (Anushree Math, Layak Ali, Pruthviraj U)

Agriculture is extremely important in the country of India. Therefore, it's essential to water the plants properly to maximise yield per unit of space and thus produce good output. The act of irrigation involves giving plants a certain amount of water at a specific time. This project's goal is to use a sophisticated drip irrigation system to water the plants on the National Institute of Technology Karnataka campus. The system's primary controller for accomplishing this is the open-source platform. To provide the most recent characteristics of the factors that continuously affect plant healthiness, a variety of sensors have been used. Depending on the data obtained from the RTC module, a solenoid valve is controlled to supply water to the plants at regular intervals. The entire irrigation system may be managed and monitored using the website. This website has a feature that lets you manually or automatically regulate how often plants are watered. Using a Raspberry Pi camera that provides live streaming to the webpage, the health of the plants is tracked. Through a wireless network, the controller gets information about water flow from the water flow sensor. The controller examines this data to see if the pipe has any leaks. Weather forecasting is also done to limit the amount of water provided, making it more reliable and effective.

## 5. IoT Based Smart Crop-Field Monitoring And Automation Irrigation System (R. Nageswara Rao, B.Sridhar)

India and other agrarian nations are significantly dependent on agriculture for their development. The country's progress has traditionally been hampered by the agricultural sector. The only way to overcome this problem is through smart agriculture, which entails modernising current agricultural systems. In order to make agriculture smarter, the suggested plan makes use of automation and Internet of Things technology. The Internet of Things enables applications such as irrigation decision support, crop growth monitoring, and crop selection (IoT). A Raspberry Pi-based autonomous irrigation Internet of Things system has been suggested to modernise and increase crop productivity. The primary goal of this project is to grow crops while utilising the least amount of water feasible. On order to concentrate on the water accessible to plants, most farmers squander a lot of time in the fields. The proposed system calculates the necessary amount of water based on the sensor data. Two sensors measure the soil's temperature and humidity as well as the amount of sunshine received each day and transmit the information to the base station. The suggested methods must compute the irrigation water quantity based on these factors. The system's integration of Precision Agriculture (PA) and cloud computing, which increases crop yields, decreases water and fertiliser consumption, and aids in the assessment of field weather conditions, is its main advantage.

## 6. IOT Based Smart Agriculture System (G. Sushanth1, and S. Sujatha)

Since Internet of Things (IoT) sensors may provide information about agricultural area and then act on it based on user input, smart agriculture is a revolutionary notion. The goal of this research is to create a smart agricultural system that uses cutting-edge technologies including wireless sensor networks, the Internet of Things, and Arduino. The study makes advantage of upcoming technologies like smart agriculture and the Internet of Things (IoT) through automation. Crop efficiency can be increased by having the ability to monitor environmental conditions. This study's goal is to create a system that uses sensors to track temperature, humidity, wetness, and even the movement of animals that could harm crops in agricultural areas. If there is a discrepancy, the system will then use Wi-Fi, 3G, or 4G to send the farmer's smartphone

both an SMS notification and a notification on the corresponding app. Using an android app, the system's duplex communication link, which is based on a cellular Internet interface, enables data inspection and irrigation schedule modification. The device has the potential to be helpful in water-scarce, remote places due to its energy independence and low cost.