

A Research Paper on Smart Farming using IoT

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Abstract: *The Internet of Things (IoT) is revolutionizing various industries and impacting people's lives by introducing intelligent capabilities. It encompasses a network of interconnected devices that form a self-configuring system. One of the areas experiencing significant advancements through IoT is smart farming, which is reshaping traditional agricultural practices by optimizing operations and reducing costs for farmers while minimizing crop wastage. In this context, I propose a technology that can generate notifications for farmers through various platforms. This product aims to assist farmers by providing real-time data on crucial parameters such as temperature, humidity, soil moisture, UV index, and infrared radiation from their farmland. Armed with this information, farmers can make informed decisions and implement smart farming techniques to increase crop yields and conserve valuable resources such as water and fertilizers. By leveraging IoT, farmers gain access to a wealth of data from sensors strategically placed throughout their fields. These sensors continuously monitor environmental conditions, transmitting the collected information to a central hub or cloud platform. The data is then processed and analyzed, allowing farmers to receive actionable insights and alerts through different messaging platforms. For instance, the system can send instant notifications to farmers' smartphones or tablets, providing them with updates on the current status of their crops and environmental conditions. They can receive warnings if the temperature exceeds a certain threshold or if soil moisture levels indicate the need for irrigation. These messages can be sent via SMS, mobile applications, or even through voice-enabled assistants to ensure farmers stay informed at all times. With this technology, farmers can take necessary measures promptly, such as adjusting irrigation schedules based on real-time soil moisture levels or deploying protective measures when extreme weather conditions are detected. By optimizing resource allocation and implementing precision farming techniques, farmers can significantly reduce wastage and improve overall productivity. Furthermore, the availability of historical data and analytics allows farmers to gain insights into long-term trends and patterns. They can identify correlations between specific environmental conditions and crop performance, facilitating better decision-making and planning for future seasons. In summary, the integration of IoT technology into smart farming practices enables farmers to make data-driven decisions and optimize their agricultural operations. By receiving live data on temperature, humidity, soil moisture, UV index, and infrared radiation, farmers can increase crop yields while conserving resources. This technology's messaging capabilities ensure farmers are promptly notified of critical information, empowering them to adopt sustainable and efficient farming practices.*

Keywords: Internet of Things (IOT), Smart farming using IOT, Soil Moisture Sensor, Water level Sensor, crop management.

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