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AGROTECH: A Smart Agricultural System Using IOT and ML

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Abstract: *Agriculture remains one of the most important sectors that support human survival which supplies basic needs, a source of income for many dependants' community. Despite these advantages, resource scarcity, adverse environmental conditions and pest infestations remain serious threats to crop products. To mitigate these concerns, we present a smart agriculture system which uses the most modern technologies like IoT (Internet of Things) machine learning (ML) and sensors with automation. The system consists of an intelligent irrigation mechanism for efficient utilization of water, an animal detection system used to trace cattle, and a Light Dependent Resistor (LDR) Sensor joined with buzzer for early detection of any global environmental changes. Additionally, the integration of plant disease detection capabilities further enhances the system's effectiveness. By employing various sensors to collect data on environmental factors, including moisture and temperature, the proposed framework enables timely decision-making for crop management. The aim is to provide farmers with actionable insights, ensuring food security while minimizing resource consumption and economic losses. This review paper discusses the potential benefits and implementation strategies of such an intelligent agricultural system, emphasizing the need for innovation in agricultural practices to meet the growing demands of an increasing population.*

Keywords: Smart Agriculture System, Animal Detection, Smart Irrigation, Plant Disease, IOT, ML, Wireless communication