IOT Based Smart Crop Protection System for Agriculture

TEAM LEADER:
 A.ABDUL MAJID (190801001)

TEAM MEMBERS:
A.ANAS MOHAMED (190801009)
V.ASWIN MUTHIAH (190801017)
ESWARARAJU MONISH (190801041)

Paper 1: Smart IoT Monitoring System for Agriculture with Predictive Analysis.

Author: A. A. Araby *et al.*

Published in: 2019 8th International Conference on Modern Circuits and Systems Technologies (MOCAST).

Description:

The future of many businesses can be shaped by the Internet of Things (IoT) technologies. Data is the language used by distinct nodes in a network to communicate with one another; networks serve as the communication channel. Precision agriculture uses IoT features to help in managing crop production by optimising the quality of the crops through the application of necessary nutrients and reducing the negative environmental effects due to the application of excess pesticides. The cloud is the source and destination of the data that adds intelligence through data analytics software. In this study, we set up a sensor network to collect data from some crops (such as potatoes, tomatoes, etc.) in the field. We then fed this data to a machine learning algorithm to get a warning message that eventually appeared on the screen.

Paper 2: Intelligent Crop Monitoring and Protection System in Agricultural fields Using IoT.

Author: S. S. Ramaprasad, B. S. Sunil Kumar, S. Lebaka, P. R. Prasad, K. N. Sunil Kumar and G. N. Manohar.

Published in: 2019 4th International Conference on Recent Trends on Electronics, Information, Communication & Technology (RTEICT).

Description:

The most valuable natural resource that is available to us is water. Due to causes like urbanisation, population growth, and many others, we must use resources very sparingly. Water is a key component of agricultural production, and if it is applied to crops in an ad hoc manner, it will waste water and reduce crop yield. The goal of the study is to use a scientific irrigation method that is based on soil moisture content. In order to create this smart irrigation system, we used an Arduino microcontroller and a few sensors. These sensors will monitor the soil's moisture content, and depending on that level, the water pump will turn on or off.

Paper 3: IoT based Crop Protection System during Rainy Season.

Author: R. M. Joany, E. Logashanmugam, E. A. Devi, S. Yogalakshmi, L. M. Therase and G. Jegan.

Published in: 2022 Second International Conference on Artificial Intelligence and Smart Energy (ICAIS).

Description:

Smart agriculture uses the internet of things, usually for irrigation purposes. IoT is employed in this case to manage the water log on fields. The soil moisture sensor is used to keep track of the soil moisture in agricultural areas. The Cloud Service Brokerage issues a directive to the relay telling it to turn ON the suction motor when the moisture level reaches a specific level. The farmland's extra water is removed by the suction motor. With this project, we want to use IoT to analyse the availability of micronutrients and control the farmland's excess water log. This semi-automated water management system can operate independently or be managed using a smartphone app. The weather there is determined by the DHT sensor readings.

Paper 4: Design, Development and Evaluation of an Intelligent Animal Repelling System for Crop Protection Based on Embedded Edge-AI.

Author: D. Adami, M. O. Ojo and S. Giordano.

Published in: IEEE Access (Volume: 9)

Description:

By bringing processing and storage capabilities close to end devices, edge computing has recently emerged as a crucial technology for the development of real-time applications. This reduces latency, boosts response times, and ensures secure data transfer. In this study, we concentrate on a Smart Agriculture application that intends to build virtual fences using computer vision and ultrasound emission to protect crops from ungulate attacks and thereby drastically minimise output losses. This paper presents a thorough explanation of the design, development, and evaluation of an intelligent animal repulsion system that allows to detect and recognise the ungulates as well as create ultrasound to drive away the ungulates and protect crops from their attack.

Paper 5 : **Smart Irrigation and Security System for Agricultural Crops and Trees.**

Author: R. Sachan, S. Kaur and A. K. Shukla.

Published in: 2021 9th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO).

Description:

The current effort, in particular, focuses on a smart water-irrigation and security system that protects agricultural seeds during the sowing time while also predicting the quality and fertility of the soil. Small sirens will be placed in the field to assist deter birds from flocking to the crops. The system's tanker will receive an additional section of fertiliser, which will add the necessary fertiliser in accordance. The system will be made up of various sections that may transport various fertilisers. These fertilisers will be mixed with the water tanker used for irrigation supplies. Based on location (GPS) and online user input, different fertilisers will be needed.