Ruralities

Practice Abstract 4

Climate Simulator to study crops adaptation through IoT sensorization

Climate change is one of the main concerns for agricultural practices, an economic activity highly dependent on weather conditions. At CTIC Rural Tech there is an infrastructure focused on the development of Agriculture 4.0 projects from the perspective of climate research and the development of digital technologies (software and hardware).

This infrastructure is made up of three independent simulators in which different weather conditions can be simultaneously reproduced. In this sense, climate stress experiments can be performed with different types of crops to study their adaptation/resistance degree to future climate scenarios.

This is possible thanks to IoT technology and the LoRaWAN sensor network that allows controlling many variables such as temperature, humidity, radiation, ventilation, irrigation, CO2 concentration. Furthermore, real-time monitoring of the state of crops using IoT technology allows the design of more efficient and sustainable management practices, optimizing available resources.

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Links

https://www.youtube.com/watch?v=pk0_L9DQX98
https://www.fundacionctic.org/es/ctic-ruraltech

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Innovate UK

Ruralities

Practice Abstract 5

Smart sensorization of agricultural farming

This demonstrator is based on application of agriculture 4.0 solutions (sensory + IoT) to monitor small agricultural farms in the Peón Valley through environmental and soil sensor deployment.

Environmental (temperature, humidity, precipitation) and soil (temperature, humidity, conductivity, pH, NPK concentration) data are collected by IoT sensors connected to the LoRaWAN network. Then these data are analysed using IA models and displayed to end-users by an app. The information obtained by this system is very useful for small farmers, who will be able to know the evolution of crops in real time, adjust different variables (acidity, nutrients, irrigation...), thus improving crop quality and quantity. Moreover, the information can be used to prevent and combat pests that occur under certain agro climatic conditions.

This will serve as a reference for small farms in the Valley in order to carry out efficient resource management depending on soil state and plant requirements, as well as accurately estimate the sowing and harvest calendar based on the climatic conditions of the place and year. All this data facilitates agricultural decision making, and thus farm efficiency.

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Links

Include any relevant photos, diagrams, or links to videos or websites.
https://www.youtube.com/watch?v=pc8gz61GV7M
https://www.youtube.com/watch?v=FvScuvsrJUQ
https://www.fundacionctic.org/es/ctic-ruraltech

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