EMPATHY MAP

IoT Based Smart Crop Protection System for Agriculture

Advantage:

•Core components and significant technologies used by IoT-based smart agriculture.

•Sensors, application domains, software, and hardware of IoT-based smart agriculture.

•Security concern, and other challenges of using IoT components in smart agriculture.

•Future direction to address the research challenges in smart agriculture.

Abstract:

The Internet of Things (IoT) is an evolving paradigm that seeks to connect different smart physical components for multi-domain modernization. To automatically manage and track agricultural lands with minimal human intervention, numerous IoT-based frameworks have been introduced. This paper presents a rigorous discussion on the major components, new technologies, security issues, challenges and future trends involved in the agriculture domain. An in-depth report on recent advancements has been covered in this paper. The goal of this survey is to help potential researchers detect relevant IoT problems and, based on the application requirements, adopt suitable technologies. Furthermore, the significance of IoT and Data Analytics for smart agriculture has been highlighted.

Problem statement:

Internet of Things (IoT) applications are deeply revolutionizing our lives, due to the continuous, outstanding development of innovative platforms including, for instance, accurate sensors, cloud solutions, and involving relevant advancements in standards and protocols. One of the recent trends of IoT applications is smart agriculture, which is evolving to solve several relevant problems from producers. In this paper, we present an IoT solution for precision agriculture aimed at repelling ungulates and preventing damages to crop fields. Moreover, this paper provides an in-depth technical description of a complete architecture we designed and deployed for this application, that consists of the low-power wide-area network (LPWAN) and the backend system. The deployment also explores the performance of LoRa network in terms of its reliability in a rural area under different scenarios, i.e., in an open, dense and very dense vegetation environments. Experimental results show that vegetations have high impact on LoRa performance. Finally, this paper discusses how the proposed technology is the right one for smart agriculture in relation to crop protection.