Chapter 4

Farming in the Cloud Computing Applications in Agriculture

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Abstract

With the objective to address constraints and promote sustainability in climate-smart agricultural practices, this study investigates the technological foundations of cloud-based Internet of Things (IoT) applications in agriculture. This study explores the establishment of a cloud-based and artificial intelligence (AI) platform for digital agriculture that provides farmers with a complete solution. Leveraging knowledge from previous research, it analyzes the benefits of combining cloud computing and AI. The aim of climate-smart agriculture is to promote sustainability and productivity in agriculture. Agricultural digitization can be greatly supported by cloud computing, an emerging field. This survey examines at the technology behind cloud computing and how it's employed in climate-smart agriculture, with an emphasis on trends and limitations. In an effort to maintain food production while boosting resource management, cloud-based monitoring can be streamlined in an array of industries, including agricultural. The objective of this chapter is to implement Agriculture 4.0 by exploring the application of IoT, cloud computing, and big data in agribusiness. It also discusses emerging trends and a conceptual design for the Digital Farming ecosystem.

Keywords

Precision Agriculture, Cloud Computing, Smart Agriculture, Digital Farming, Agri-Tech Innovations

1. Introduction

For the purposes of cost control, upkeep, and performance monitoring, smart information technology (IT) solutions must be integrated with agriculture. Remote crop and equipment monitoring is made possible by precision agriculture, Internet of Things (IoT), and satellite imaging [1]. Smart Agriculture has emerged as a result of the integration of IoT and cloud computing technologies in a number of

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