

3rd International Conference on Electrical, Computer and Energy Technologies (ICECET 2023),
16-17 November 2023, Cape Town, South Africa

A review on edge computing in 5G-enabled IoT for agricultural applications: Opportunities and challenges

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Abstract

Many sectors, including agriculture, have benefited significantly from the introduction of Fifth Generation wireless technology (5G). One of the most interesting benefits of 5G is how it may optimize the latency of the Internet of Things (IoT). The amount of data generated by IoT devices like sensors, cameras, and actuators in smart farming is growing at an exponential rate. The traditional way of processing and storing IoT data is done on cloud data centers, which are mostly located far from the data sources. Thus, the underlying network is unable to cope with the increasing traffic while also meeting the strict low-latency requirements of different IoT applications. The emergence of Edge Computing (EC) has the potential to address this latency issue by deploying network functions such as User Plane Function (UPF) near the IoT sensors, this will allow data processing to be done close to the sensors and latency will be reduced. This paper primarily reviews the smart farming enabling technologies, and latency issue presented by the Cloud based 5G architecture. The challenges and opportunities of integrating the EC in the 5G-enabled IoT applications are reviewed. Finally, this paper reviews the real-time IoT monitoring applications and the latency reducing techniques.