

ABSTRACT

Edge computing is a computing paradigm that distributes data processing tasks to edge devices to enhance network efficiency and responsiveness. In the agricultural sector, the use of edge computing is increasingly crucial to ensure sustainability and operational efficiency, especially in areas with limited internet connectivity. This research aims to develop and implement an edge computing solution

The methodology used in this study includes the design and implementation of an edge computing network with appropriate hardware and software, as well as performance testing under various network conditions. Data from agricultural sensors will be collected and processed locally by edge devices, while the processed data will be sent to the cloud when internet connectivity is restored.

The results of this study are to test the waiting time or delay from sending local data to online with the internet and also prove that data that is not sent to the internet due to network constraints is still stored and waiting to be sent to the internet when the network returns to normal so that no data is lost because the internet is disconnected, in addition, recording the efficiency of storage usage and bandwidth paths is proven from this study because the data sent to the internet is the average data from local data.

Keywords: *Edge Computing, Network Optimization, Compute Optimization*