ABSTRACT

In recent years, horticultural modernization has become a major focus in an effort to increase agricultural productivity and sustainability in Indonesia. Bonsai plants are one of the most popular ornamental plants. However, bonsai care requires special attention to environmental factors such as temperature and humidity. In addition, there are problems in the ornamental plant trade such as fraud and product counterfeiting that often occur, reducing consumer confidence in sellers.

To overcome these problems, this research offers a solution in the form of integration of Internet of Things (IoT) technology with blockchain in an e-commerce platform. The system allows real-time monitoring of bonsai conditions using sensors and cameras, and stores the data securely and transparently on the blockchain. This technology ensures that the data displayed is accurate, real-time, and unalterable so as to increase trust in buying and selling transactions.

The test results show that the IoT system built is able to monitor the condition of the bonsai environment with good accuracy, and send data stably with a throughput between 382.4 bit/s to 386.61 bit/s. Blockchain technology can be applied in transaction management and data security, 3.001.721 units of gas were obtained as the average usage, indicating that transactions in the blockchain network are quite controllable transactions, although further optimization is needed regarding the use of gas for certain types of data. Overall, the integration between IoT and blockchain in this e-commerce platform can function well in improving transparency and data security, as well as providing an innovative and sustainable solution for the management and sale of bonsai plants.

Keywords: Blockchain, Bonsai Plants, E-commerce Platform, Internet of Things