ABSTRACT

Indonesia is a developing country where the majority of people still work as farmers. The caisim plant is one of the most extensively farmed plants. Caisim production increases year after year. Farmers, on the other hand, have been unable to satisfy the demands of a very high market demand because they frequently encounter crop failure due to caisim plants harmed by pests and diseases.

The difficulties encountered are due to the scenario for remote plant monitoring and a lack of understanding about growth parameters in caisim plants. Based on these issues, the development of a website and growth prediction model will provide a solution for producing caisim plants with optimal growth. The website will serve as a remote monitoring medium for plant growth, while the prediction model will determine the parameters that have the greatest influence on the growth of caisim plants.

Python will be the primary programming language used in this thesis. The website will provide plant and greenhouse information gathered through IoT device sensors and saved in a database, such as light intensity, room temperature, humidity, and soil moisture. Hosting will be set up so that it can be monitored from any location.

Firebase plays an important role in IoT (Internet Of thing), the function of firebase is to provide a service that will make it easier for authors and farmers to find out the results of each dataset submitted through the database in raspberry pi. Firebase is important for monitoring the data of every plant that is placed by the sensor. the author uses firebase to support the ease of farmer monitoring farmers' crops.

The tests revealed that the system was capable of working properly. When measuring QoS (Quality of Service) for data transmission from the tool to the website, the average latency was 371,57 ms. During the QoS test, the average throughput for reading data from the device to the database was 3469,14 bit/s. Meanwhile, data for the plant growth prediction model was retrieved from the website and converted to a CSV file dataset. In this classification model, the KNN approach was used. This algorithm will generate classification results in the form of optimal and non-optimal values for each characteristic used.

Keywords: Smart Farm, Caisim, MySQL, Machine Learning, IoT, Firebase