

## **ABSTRACT**

Most areas in Indonesia are planted with rice, which is the staple food for the Indonesian people. One area that is a supplier of rice is Sukapura Village, Dayeuhkolot District, Bandung Regency, West Java. This region is characterized by fertile soil and adequate water supply. In addition, the area does not experience flooding during the rainy season, making it very suitable for agriculture.

One of the factors contributing to the onset of HDB disease is the application of inappropriate doses of fertilizer, either too much or too little, which reduces the resilience of rice and makes it more susceptible to disease. To address this issue, a solution is proposed in this capstone design project, which is to provide information through mapping the dosage of fertilizer application according to the recommendations shown through the Soil pH color chart. The main objective of this solution is to increase the resistance of rice to disease.

Based on the quantitative data analysis that has been carried out, several important conclusions can be drawn regarding the performance and effectiveness of the system. Testing the soil pH sensor resulted in an error value of 6.2%, indicating good accuracy in measuring soil pH levels. The use of the IDW interpolation method in mapping provides an error value of 4%, indicating an adequate level of accuracy in mapping soil conditions. Meanwhile, the website performance test results showed a performance of 72%, indicating sufficient performance for user needs.

**Keywords:** Bacterial Leaf Blight, Fertilizer Application Dose, Fertilizer Crisis, Fertilizer Efficiency, IoT (Internet of Things), Mapping, Rice Durability, Soil pH.