

## ABSTRACT

Hydroponics means free farming techniques by emphasizing the fulfillment of nutritional needs for plants, or in the everyday sense of farming without soil. From this understanding, it can be seen that the emergence of hydroponic farming techniques was initiated by the increasing attention of humans to the importance of fertilizer needs for plants. Hydroponics itself has the principle of functioning the soil as a plant buffer and water reserves to function as a nutrient solvent so that it can be absorbed by plants. The hydroponic system also has advantages, namely, it does not need to use such a large area of land, uses 90% less water compared to land agriculture, hydroponic production is also maximized and easy to manage. However, behind these advantages hydroponics itself has a weakness, namely, monitoring related to temperature, humidity, nutrition and the amount of water pH must be carried out intensively. Therefore we need a system that can solve these problems. Thus the Smart Hydroponic Development and Monitoring application using LoRa Communication is made to overcome the shortcomings of the hydroponic system so that hydroponic plants can grow and develop optimally and monitoring can be done without worrying about the location of the hydroponic plants being reached by the internet.

**Keywords:** Hydroponics, Nutritions, Smart Hydroponics, LoRa Communication.