

ABSTRACT

The problem of limited agricultural land can be overcome by implementing a hydroponic farming system. Hydroponics is a technique of cultivating plants without using soil, but using water. Planting using hydroponic techniques requires special attention to produce healthy and good plants. Hydroponic activists often experience failure during the process of plant growth, lack of care is one of the factors that causes these plants to not grow properly, wither, and die.

To help reduce failures in hydroponic planting, an idea arose to create a Hydroponic Monitoring System with Electrolysis using this IoT. IoT can be utilized in monitoring and control systems in hydroponic cultivation. This system will later monitor plant growth elements using sensors and cameras to see the growth of red spinach plants. This system is also connected to the Android application so that users can monitor anywhere.

In preparing the Hydroponic Monitoring System with Electrolysis final project using IoT, the author focuses on Android-specific applications. This Android application will be connected to the monitoring system using the IoT Platform. This application is intended as a monitoring for Hydroponic Systems with Electrolysis to prevent failure during the growth process. In this design a system test is produced with an accuracy value of the BH1750 sensor of 96.4% outdoors and 96.4% indoors after calibration with an offset of +9 and a DHT22 sensor accuracy value of 99.95% for temperature after calibration with +9 offset, and 99.68% for humidity after being calibrated with +2 offset. The Streaming Camera feature in the application has a low delay of 0.53 seconds. As well as Quality of Service has good results with a throughput of 2084 bit/s, no packet loss, and a delay of under 2 seconds.

Keywords: Hydroponics, Android App, Monitoring, IoT.