ABSTRACT

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HYDROPONIC PLANT MONITORING APPLICATION USING REACT NATIVE BASED ON ANDROID
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(xiiv + 67 +Attachment)

Internet of Things (IoT) based monitoring systems are increasingly being applied in the agricultural sector, including household-scale hydroponic cultivation. This research develops a hydroponic monitoring system using the Wick System method, which utilizes an ESP32 microcontroller and several sensors to monitor environmental parameters such as temperature, humidity, water level, and nutrient concentration in the solution. The sensors used include the DHT11, TDS sensor, and HC-SR04. Data obtained from the sensors is sent periodically through the MQTT protocol to the public HiveMQ broker. A mobile application built with React Native using Expo Go functions as the client (subscriber) that receives and displays the data in real-time, both in numerical and visual form. This system is divided into three main parts, namely the sensor node, data communication, and mobile application. The development results show that the system is able to provide accurate and real-time information on plant conditions, so that users can carry out appropriate maintenance actions efficiently. Thus, this system can improve the effectiveness of hydroponic cultivation monitoring in household environments.

Bibliography (2020 – 2025)