

ABSTRACT

*The agricultural sector in Indonesia plays a crucial role in meeting the food and fiber needs of the community. However, in urban areas, agricultural land is shrinking. This is due to the rapid development of dense settlements, industry, offices, and other non-agricultural areas. For hydroponic lettuce farmers, routine monitoring is very important to ensure quality and accelerate the harvest period. The main indicators that must be considered are the quality of water pH and nutrient levels. So from the problems above, in this study the author created a TDS (Total Dissolve Solid Sensor) and water pH monitoring system for hydroponic lettuce (*Lactuca Sativa L.*) plants based on IoT which aims to help farmers by monitoring hydroponic lettuce plants in real time more easily and optimally using Internet of Things (IoT) technology via smartphones. This study uses a TDS sensor (Total Dissolve Solid Sensor) to measure the level of nutrient concentration and a pH-4502C sensor to measure the pH concentration of acid and base solutions contained in plant nutrients. The results of the pH sensor accuracy test obtained an average accuracy value of 93.623% with an average error percentage of 6.125%. Then the results of the TDS sensor accuracy test obtained a value with an average accuracy of 92.580% with an average error percentage of 7.419%. The system successfully reads the TDS and pH values of the nutrient solution in real-time which are displayed on the Blynk application dashboard.*

Keywords: *Blynk, Hydroponics, NodeMCU ESP8266, TDS Sensor, pH Sensor.*