

ABSTRACT

In Indonesia, the decrease in agricultural land due to the shift from the agricultural sector to non-agricultural sectors has caused problems in agricultural activities. One alternative farming system for small plots that is widely applied is hydroponic cultivation using AB Mix nutrients. The implementation of the AB Mix nutrient mixer is an important innovation to help hydroponic farmers manage the nutrient needs of their plants. This system is designed to mix AB Mix nutrients according to the set point determined by the user using the Blynk application with an ESP32 microcontroller, and it utilizes TDS and DS18B20 temperature sensors to measure the total dissolved solids concentration in ppm units in the reservoir during mixing to ensure that the nutrient levels match the predetermined set point. The prototype of the AB Mix nutritional mixing equipment for hydroponics successfully mixes nutrients according to the set point established in the Blynk application dashboard. The prototype calculates the volume of water and the TDS value to determine the volumes of concentrate A and B to be added to the reservoir to achieve the set point of the mixture. The accuracy of the sensors used in this prototype is high, with the DS18B20 sensor achieving 96.76% accuracy and the TDS DFRobot sensor achieving 97.14% accuracy. The nutrient mixer prototype has an accuracy of 97.92% in mixing nutrients.

Keywords: *AB Mix Nutrition, Blynk, DS18B20, Hydroponics, TDS Sensor*