

DESIGNING AND TESTING BLUEBERRY HYDROPONIC PLANTS BASED ON INTERNET OF THINGS (IoT)

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ABSTRAK

Hydroponics is a method of farming or plants cultivation without using soil, but the technology of cultivation using water, nutrients, and oxygen. Using hydroponics system has advantages, such as the quantity and quality of production is better and cleaner, fertilizer and water usage is more efficient, pest and disease are easier to control. However, this system also has disadvantage such as hydroponics require precision, patience, and routine monitoring. Changes in pH, electrical conductivity in nutrients, water temperature, air temperature and light intensity influence the plants growth. It affects the quality of vegetable crops. Therefore, a monitoring becomes necessary by giving notice if there are changes in accordance with the grow crops requirements. The monitoring system uses pH sensor, Electro Conductivity sensor, water temperature sensor, air temperature, Light Sensor, Open Garden Shield, Open Garden Hydroponic, and Arduino Uno as a main board or a microcontroller. The results of tests conducted over several weeks on Blueberry fruit plants showed that a superfood fruit is somewhat sensitive to temperature and pH should not exceed pH 4 - 5 (acid). It only uses high sulfuric fertilizer. It cannot use organic fertilizer or NPK because it can neutralize the pH of the growing media. Therefore, it must be accompanied by a good and a consistent prairting system. The results of this implementation must be able to understand several factors of healing the fruit before conducting blueberry cultivation.

Keywords: Computer System, Hydroponics, IoT