
Abstract

One of the most popular types of vegetables is water spinach. Kangkung has a high level of nutritional value, and its cultivation is very simple and easy. One of the production technologies used to improve the quality of water spinach production is using hydroponics. Hydroponics is a method of growing crops without using soil media. The hydroponic method carried out in a greenhouse or closed place is better for maintaining optimal plant growth and being protected from outside influences that can interfere with plant conditions. One of the factors that affect the growth of hydroponic water spinach is the lighting needed for the photosynthesis process. If hydroponic cultivation is carried out in a closed room, additional lighting is needed instead of sunlight, one of which is the use of LED lights. Therefore, in this study, the design and manufacture of an automatic lighting system tool for indoor hydroponic plants to improve optimizing the photosynthetic process using Arduino as a microcontroller and RTC module to store time data so that the tool can operate automatically based on a predetermined time and intensity. In the test results, it can be seen that the 12-hour LED automatic lighting system is able to provide the best results so that it can be said that the automatic lighting system can help the photosynthesis process for indoor hydroponic plants.

Keywords: *water spinach, hydroponics, led, arduino, rtc module.*
