

ABSTRACT

Hydroponics is a method of growing crops without using soil, but using water media. This method is very suitable in urban areas that have narrow land for cultivation, because this method does not require very large land or can be said to be more space-saving. This method requires good water quality as a planting medium so that plant growth is good. One parameter that is always neglected in maintaining good water quality is to maintain oxygen levels in hydroponic water, oxygen levels are also important to maintain because lack of oxygen levels in water can affect the growth of plants.

To help maintain water quality in hydroponics, the final project designed a water oxygen content monitoring system in hydroponics. This system uses a DO (Dissolved Oxygen) sensor that functions to measure oxygen levels in hydroponic water. This system is also equipped with an aerator connected to this monitoring system which is expected to function to help the aeration process to increase oxygen levels in water. This system was tested against 3 reservoirs, reservoir 1 with a drain below the water level, reservoir 2 with a drain above the water level, and reservoir 3 with a drain like reservoir 1 but added an aerator system. The average dissolved oxygen level is also measured based on its temperature.

The results of the test of the design of this water oxygen level monitoring system with an average water temperature of 22-23 ° C show that the average value of oxygen levels in each reservoir is only 3-5 mg / L, the use of aerators does not have a significant effect because it does not have much impact on oxygen levels in hydroponic water. And the results of measuring the average dissolved oxygen content based on temperature show that the lower the temperature has a better dissolved oxygen level.

Keywords: *Hydroponic, DO Sensor, Aerator, NodeMCU, DS18B20 Sensor*