

## Abstract

Hydroponics is a cultivation plant that utilizes water without the use of soil by emphasizing meeting the nutritional needs of plants. Nutrition and water play an important role for hydroponic plants. This hydroponic system has the advantage that it can be used to overcome the problem of land shortages that are getting narrower and smaller. It is expected that hydroponics can be a benefit for the future because it can be empowered in narrow land conditions. Requires less water, this system uses 90% less water than agricultural land. Agriculture takes up 70% of the fresh water available on Earth, of course this is huge. However, using the hydroponic method has several disadvantages, including the lack of a real time monitoring system for water temperatures for hydroponics. Monitoring of the amount of plant nutrients and pH content of water must be in accordance with the needs of the plant, if not, then plant growth is less than optimal. Therefore, we need a system that can overcome these problems. Smart hydroponic applications have the same system accuracy as manual hydroponics in general, only that the accuracy of the ppm still has a difference of 96 ppm but is still below the reasonable limit.

**Keywords:** Hydroponics, nutrients, smart Hydroponics.