

ABSTRACT

Hydroponics is a planting method that not use soil as a planting medium but uses water to provide nutrients to plants. Hydroponics has many advantages, better planting results because the nutritional needs of plants are given directly and also does not require large areas for hydroponic. However, hydroponics has a drawback, owner needs to spend extra time because he has to check the conditions of the plants and the hydroponic environment every day. The purpose of this final project research is to help users of hydroponic planting media to monitor growth and information about the harvest period via a smartphone.

To detect the plant harvest period, training is carried out by taking plant images and determining the percentage of leaf area in the image. When the boundary of leaf area has been passed, information will be given to the user if the plant can be harvested. This information is sent via the IoT platform.

In this final project, the system is working properly, the accuracy obtained for the calculation of plant area and height can reach 90%. Applications can also work properly and can carry out all its functions. The time it takes to send data from the time it is captured by the camera to the user is around 1767 milliseconds.

Keywords: plant monitoring, machine vision, plant growth.