

ABSTRACT

Hydroponics is a cultivation technique that uses water without using soil by emphasizing the fulfillment of nutrients for plants. But in monitoring the height of plant, people who want to plant hydroponics or who are doing it at home, still estimate without knowing exactly, so there are plants whose height is not well monitored. These problems created an idea to create a detection system for plant growth and development in order to detect height more accurately.

Image Processing is a branch of knowledge about image processing that are processed digitally. The development of technology is very fast in the field of computer vision that makes image processing not only to improve the image alone, but also to detect or track an object, read barcodes, and others. The stages when doing image processing are acquiring images from images, preprocessing, and recognition.

The method used in this system is the Morphological Image Processing method. The parameter used is to calculate the height of the Pakcoy hydroponic plant. by using this method, obtained an accuracy of the system of 93.81% with a light intensity of 15.7 lux. During the 6 weeks of pakcoy plant growth, the best accuracy was in the 3rd week with an accuracy of 97.24% with an average of 13.65 lux light intensity and the worst accuracy was found in the 2nd week with an accuracy of 86.25% at 15 lux light intensity.

Keywords: growth and development detection, computer vision, Morphological Image Processing