ABSTRACT

Hydroponics is one of the future agricultural systems because it can be cultivated in various places. Total land area is narrow, critical soil conditions, pest and disease control, the limited amount of irrigation water, the season is uncertain, and the quality is not uniform can be overcome with a hydroponic system. Many types of hydroponics can be a way out for the land is narrow, one one Hydroponic NFT (nutrient movie technique) - DFT (deep flow technique) that allows the plants to grow faster, and more efficient treatment time. Taguchi method to save direct labor costs, simplify and accelerate the process of monitoring, and to minimize errors due to negligence of the operator. This research aims to design Hydroponic NFT - DFT with the automation system, optimize the mixing of nutrients in plants by using the Taguchi method. The results showed that the main factors that influence the process of mixing the nutrients hydroponics is the quality factor, P = 0.040, and the value of F = 24.02. Based on the results of data processing and analysis of experimental design Taguchi produced material composition based on factors and the optimal level of nutrition factors on level 3 by 15 ml of water at level 1 for 1 L, and quality at the 7.5 pH level 3.

Keywords: Hydroponics, automation, android, Taguchi method, S / N Ratio larger the better