ABSTRACT

One type of farming that can be done at home is using hydroponic planting methods. The hydroponic planting system is very effective to do at home because it doesn't require a large area of land for its application. However, the working system of hydroponic plants requires proper nutrient content and pH as well as water reservoirs that must be routinely controlled.

Based on these constraints, this Final Project is designed to design an application that can be integrated into a measuring device for measuring nutrients, pH levels and temperature in plant water solutions, able to control the administration of nutrients and pH manually and automatically. The application is made connected using the Android operating system using an internet connection through the MQTT broker and using the SQLite server database to make it easier to monitor hydroponic plants remotely.

This final project produces an application that can monitor and control the automatic hydroponic planting system. In the alpha testing phase using the white-box and black-box methods, it shows that almost all features have been successfully executed. Beta testing uses a validity test which shows the questionnaire items are valid. The reliability test of the questionnaire obtained a high reliability category with a value of 0.641. In the work test on the application it displays the appropriate data match every 4.9 seconds for the hydroponic planting system tool correctly.

Keywords : *Android, Automatic, Mobile Application, Hydroponics, MQTT, SQLite.*