ABSTRACT

Cities are identic with skyscrapers and tight activity schedules. So for the people who live in city, have limited land and time for growing crops. As the science and technologies dawned, a new technique of cultivating in limited spaces around the house or other area had been invented so that urban people can get groceries in a quick and fresh manner. Therefore, monitoring of factors that affect plant growth during the growing phase are needed.

This final project built plant monitoring system based on soil moisture sensor, light exposure, and plant height by utilizing machine-to-machine (M2M) communication in OpenMTC and ZigBee platform. Data acquired by the sensors were relayed to server and the result could be viewed from desktop application. Spinach was used in this final project because of its relatively quick growth.

Based on the test, the system could acquire and process parameters that affect plant growth by using OpenMTC M2M communication platform and ZigBee networking standard. Light exposure measuring acquired an average difference of ±0,652 lux between the sensor and digital tool. Plant height sensor acquired an average difference of ±2,3 cm compared to ruler. Plant watering could be done automatically based on the data acquired and processed from the sensors.

Keywords: Monitoring of plants, light, high, soil moisture.