ABSTRACT

One of the problems in agriculture is the decrement of harvest value that occurs because of the lack of irrigation water in dry session or the irrigation water exceeds from the desired limit. Case of drought and flood that often occur in paddy fields is located in Andir, Baleendah, Kabupaten Bandung. Based on these problems, an automated irrigation system based on wireless sensor network is developed from previous research. The system is divided into three working points based on the main function of its point, that is sensing point as the water level detector, filling point as the controller of the water filler pump in the paddy field and discharge point as the controller of the discharger pump when irrigation water exceeds the limit. Automated systems made using water-detecting sensors, XBee Pro S2C radio frequency modules, Arduino Nano, current sensors, voltage sensor, water pumps. The results show that system can control the filler and discharger pump to maintain irrigation water in paddy fields at depth of 2-5 cm and send information water level, battery percentage, pump working status, and availability of irrigation water source to the monitoring point.

Keywords: irrigation, automation, XBee, water, wireless, sensor.