ABSTRACT

Lighting, warming, and protecting from extreme climate can guarantee and improve a quality of plant. To determine how a good condition for growth of plant, we need a system that can produce the ideal condition in a closed room. The parameters used to generate the ideal room for growth of plant in general is the intensity of the light, humidity, and temperature. Generally, the system was created in the closed room is made of glass or plastic. Another constraint is the unpredictable weather in which the system commonly depends on the weather in this case is the sunshine.

Based on these needs, in this final project was created a system that can provide ligh intensity, temperature and humidity which accordance with the needs of a plant. The system consists of several devices which is sensor SHT-1x (temperature and humidity), Ambient Light Sensor (Light intensity), Arduino Uno as microcontroller and output like heater and bulb. The Sensors receives input data and processed with 9 rules *fuzzy logic* and additional *first-order logic* on the Arduino Uno. Microcontroller sends ouput to the power suply systems which can control heater and bulb.

From testing, this system can work well. The system can create a stabel intensity, temperature and humidity inside the prototype in accordance with the conditions which expected for growth of plant. The conditions of being obtained is 23^0C - 28^0C with humidity 50% - 70% and (+/-) 400 lux intensity of light.

Key word: Sensor, Arduino Uno, Lighting and warming, Fuzzy Logic