ABSTRACT

Currently the development of technology is developing very quickly and rapidly. One technology that is currently being developed is the automation process in the house and we often hear it as the smart home. In the conventional home that we usually encounter, still use the tools manually like open doors, turn on lights, or open and close the windows or curtains, in smart home we will see the differences. However, unlike the case with smart home, where the homeowners are very spoiled by automation technology.

In this final project, a prototype system will be designed. This prototype system had a functions to regulate and control the open and closed blinds and window automatic with fuzzy logic control methods and optimize the Arduino board as a controller and data collectors. The data then will be input into the system is obtained from the measurement of three types of sensors. LDR light sensors will detects the light intensity from the outdoors and LM35 sensor will detect the temperature in the room. As for detecting the number of people in the room a counting method by maximizing the function of two LDR sensors will be used. The output of this system is the swivel angle servo motors to move the window and the turntable cycle of the stepper motors to move the curtain.

Prototype smart home system by controlling open close windows and blinds automatically based on Arduino UNO will be tested in three conditions which is in the bright daylight, cloudy and night. By maximizing the fuzzy logic method changes of any room condition that the sensor measures affects the open or closed windows and curtains automatically. The system is made capable of adjusting the window angle and the width of the curtain open according to the conditions that have been tested, with the highest error test results no more than 15 ° at the corner of the window and 3Cm on the curtain.

Keywords: Smart Home, Fuzzy Logic, Arduino Uno, LDR Sensor, LM35 Sensor