

ABSTRACT

In summer, several parts of Indonesia experience an increase in temperature which makes people feel uncomfortable when outdoors, especially if there is no device for temperature conditioning in a room, the temperature in the room will make people in it uncomfortable. In general, people will use air conditioner (AC) to make the air temperature in a room cool. In its application, air conditioning can be a solution for people who live in areas with high temperatures. However, with constant use of power, air conditioning can lead to wasteful use of energy. In one of the previous studies, by setting a temperature setpoint on the Air Handling Unit (AHU) in the central air conditioner, it can lead to energy savings. Therefore, in this final project, we will discuss how to design a system that can regulate the temperature released by the central air conditioner based on indoor temperature, outdoor temperature, room area, and number of people.

In this system there are two DHT22 temperature sensors that are used to measure indoor and outdoor temperatures, a website to enter the value of the room area and display information on outdoor temperature, indoor temperature, room area, number of people, detection response time, and response time. fuzzy, and a webcam to detect the number of people in the room. In this system, two DHT22 sensors have an accuracy of 98.63% and 98.74%. This system will use a Raspberry Pi to process the four variables where the output is a recommended temperature using algorithm fuzzy using the Mamdani method. This study obtained 100% accuracy in testing alpha and contesting beta, the user satisfaction value was 83.23% from 38 respondents by filling out 7 questionnaire questions.

Keywords: Fuzzy Logic, Mamdani, DHT22, Raspberry Pi, Air Conditioner, Temperature