ABSTRACT

BTS Shelter is a place that serves as a storage media devices such as telecommunication device itself BTS, Microwave indoor unit, and Rectifier system. Currently, AC(Air Conditioner) is used to keep the temperature at BTS shelters generally can work at a temperature of 22-26 ° C, the device in it to work optimally. However, the use of air conditioning is still considered to be less effective in terms of cost, due to the electrical power used is quite large.

Therefore, at the end of this time the project is a microcontroller-based instrument to regulate the temperature of the BTS shelter named FCB (Free Cooling Box) by using the temperature of the environment outside the shelter with the help of Axial Fan. When the SHT11 sensor detects the temperature inside and outside the room is lower than or equal to the temperature of the shelter and humidity no more than 85% then replace AC Fan will work by releasing air from the inside out of the room, a new air conditioner will work when the temperature in the room is larger than working temperature or humidity exceeds shelter 85%. On the LCD, there are tools which shows changes in temperature and humidity inside and outside the room, and there is an alarm that will work when the temperature in the room is too high or there is damage to the cooling system.

Based on the results of testing conducted, found that the device can function as expected, which could replace the Axial Fan Air Conditioner performance as a cooling system at BTS shelter indoors and outdoors when the temperature is at working temperature shelter. So the power consumption can be saved from the previous power saving reaches ± 30-50%.

Keywords: *Microcontroller, Air Conditioner, Axial Fan, Free Cooling Box, LCD, SHT11 sensor.*