

## ABSTRACT

Indonesia is a country that has a tropical climate, most of the town had hot weather so most people need air conditioning to cool the temperature in a room especially indoor practice/laboratory and buildings lectures. But sometimes the air conditioning is not used as it should, which can result in wasteful power consumption and damage to the AC. Along with the development of technology that can solve human problems, one of which is a microcontroller technology, it is now applied to many microcontrollers instrument - instrument relating to daily life - the one on the air conditioning.

On the implementation, this tool is used to control room temperature on the Mechatronics workshop of the Faculty of Applied Science Telkom University. Final project aims to control the temperature of the room, where the results of the reading room temperature can be displayed on the LCD screen and arranged 16x2 and at the room temperature regulator tool box. This system using Arduino Mega 2560 mikrokontroller as main controller with input from LM35 temperature sensor. With a temperature range that have been set automatically by threshold upper limit temperature of 28 ° C and the lower limit temperature at 20 ° C, and can be set manually by using the push button on the range the temperature comfortable, cool, and warm, at the time of any soldering cooling air can be controlled manually by push button.

From the results that have been made and carried out testing, it is known that a room temperature control system made accuracy  $\pm 98.95\%$  with room temperature thermometer manufacturer, maximum distance infrared communications on a tool made with air conditioners is  $\pm 250$  cm. Active Tool automatically upon the condition of the room rises and will be non-active when the room temperature has decreased outside the normal temperature.

**Keywords:** *Arduino, Microcontroller, air conditioner*