

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Data Collection Stage

The data of this study were taken from the room temperature data and the object distance data from the fan obtained by the LM35 sensor and ultrasonic sensor.

3.2. Library Study Stage

Literature study was conducted to collect journals, materials and tools related to the manufacture of automatic fans. From several journals that have been read, it can be used as a reference to make a fan.

3.3. Program Design and Development Stage

At this stage, the design of the tool is carried out using Arduino UNO, LM35 sensor to detect room temperature, Ultrasonic sensor to detect distance from object with fan, Servo Motor as fan driver. Then create a program using the Arduino IDE. Fuzzy Sugeno algorithm to determine the final value of the temperature and distance values obtained from the sensor.

3.4. Trial Stage

Tests on the tool use temperature data from the LM35 sensor and distance data from the Ultrasonic sensor. To get temperature data, use a lighter that is lit. To get distance data from Ultrasonic sensor, use hand object or other object. After the two data are obtained, the two data will be calculated using the Fuzzy Sugeno algorithm to get the final value. Then the final value will affect the fan speed and LED brightness.