

## ABSTRACT

*Along with the development of science and technology, now there are many ideas in the field of digital electronics. Developed digital system applied to microcontroller technology. This system simplifies the system from conventional to automatic. The final project examines the use of a fan control microcontroller. Generally, the fan in the house is still regulated by a switch, so the use of turning the fan on and off and setting the fan speed manually. With a series of electrical device controllers, users can control the fan on and off and change the fan speed level automatically. The automation process is controlled using a microcontroller program so that it can move the relay and adjust the fan rotation speed. The preparation of this final report requires a prototype method, which is a method of making a tool that has never been made before by others, designed and developed so that a new tool can be created. The prototype provides input on the level of automation of the fan based on a microcontroller using a temperature sensor. The test results on each pin on the DHT11 sensor have an error of 0.3% on the GND pin, an error of 0.3% on the VCC pin and an error of 0.6% on the DATA pin. The test results on each pin on the PIR sensor have an error of 0.2% on the GND pin, 0.4% on the VCC pin and 0.2% on the OUT pin. The results of testing the entire system in experiments with a distance of 0.5 meters to 5 meters at temperatures of 30 , 35 , 40 , 45 , and 50 with an angle position of 18°-140° when the fan is on or the sensor reads the temperature and human movement, but if the object moves to the right or to the left or goes out of the range of the PIR sensor angle, the object will not be read by the sensor and the sensor condition will turn off in this case there is still a blank spot area.*

*Keywords: Microcontroller, DHT11 sensor, PIR sensor, automatic fan*