ABSTRACT

Passive Infrared Thermometer is an instrument used to measure body temperature via the forehead. Body temperature was obtained by measuring the heat through infrared energy emitted by the body. The use of these tools simply point the tool at the forehead then press the read button and measurement results will displayed on seven segment directly.

Human body temperature tends to fluctuate at any time. Many factors could cause fluctuations in body temperature. Excessive fluctuations in temperature can cause Hypothermia and Hipertermi, to cope with the condition of the body that changed drastically because of differences in body temperature of the environment, usually used a thermometer to measure body temperature. In making the previous module entitled "Forehead Thermometer Based Microcontroller AT89s51" where the distance measurement tool with a forehead that is 5 cm so it is still possible contracting dangerous diseases from the patient's body. Given fears of infectious diseases and harmful in the body of the patient so that the required temperature gauge non body contact with distance measurements to further minimize the risk of contracting dangerous diseases from the patient's body.

To minimize the risk of contracting dangerous diseases of the body of the patient, the authors designed a "Passive Infrared Thermometer Based Microcontroller AT89s51" with a measurement distance of at least 20 cm. This tool uses a pyroelectric sensor as a passive infrared sensor that functioned to receive infrared energy from the forehead, and utilizing IC ADC 0804 as a voltage converter to be processed on Microcontroller IC AT89s51.

From the results of temperature measurement and analysis of data on distance values obtained average error of 4.4%, 3.6%, 3%, 1.9%, 0.7%, 0.3% at a distance of 5 cm, 10 cm , 15 cm, 20 cm 25 cm and 30 cm. So that the temperature measurement is more accurate at a distance of 30 cm.

Equipment Passive Infrared Thermometer Based Microcontroller AT89s51 is still worth using because the value of the error is still less than 2% and it works well in detecting body temperature via the forehead so that it can be detected fever in the human body.

Key words: temperature, pyroelectric sensor, passive infrared sensor