

## **ABSTRACT**

*Humans have the outermost layer of skin that covers the entire body. In plain sight, the layer seems to only serve as a restraining impact so that there is no inflammation in the internal organs, the skin is a very important human body organ that serves to receive stimuli such as touch, pain, and other influences from the outside.*

*This research aims to design a skin surface measuring tool. To measure the surface of the skin, it takes a measuring device consisting of an infrared LED (Transmitter) that emits a near infrared beam of light reflected to the skin and received by a monitored temperature photodiode (Receiver) using the MAX 6675 thermocouple temperature sensor displayed by the display. The error value obtained in the near infrared sensor 1 in the range of 0.00-3.03%, on the near infrared sensor 2 is stretched by 0.00-2.89%, the sensor pada near infrared 3 is stretched by 0.00-2.80%, and the average error value of sensor accuracy obtained in the user Maximum Thermocouple Temperature sensor rate of 6675 by 0.1%.*

*Measurements taken for 10 minutes and 20 minutes whose data will be taken every minute, in the measurement of the temperature of eight experiments can be concluded the maximum temperature is in the 5th and 6th minutes and the temperature increase in the range of 0.5-2 ° C, on the measurement of the voltage of the near infrared sensor 1, 2, and 3 can be concluded on the dark skin color is stretched to 0.429-0.484(V) . While on light skin can be concluded in the range of 0.590-0.690(V). While in birthmark skin disorders can be concluded in the range of 0.442-0.572(V). While in keloid skin disorders can be concluded in the range of 0.585-0.723(V).*

**Keywords:** *Skin, Near infrared, Thermocouple MAX6675, Microcontroller, Display.*