IR Thermometer Design and Code

Approach Document

Version 1.0

Background –

Thank you for your interest in developing IR thermometer.

This is an arrangement to make a quick IR thermometer which can be used for screening. This may NOT be as accurate as the industrial or medical thermometers. We have calibrated it manually using readily available thermometer. It has not been calibrated and certified by authorised laboratory as of now in the interest of time.

For this reason, this kind of unit should only be used for preliminary screening. In case of any high temperatures detected, they should be tested again with the medical thermometer.

We have been using it at Pune NCL gate and have found that most of the visitors have temperatures around 98-99F which is normal. Anything 3 digit should is qualified for further checking.
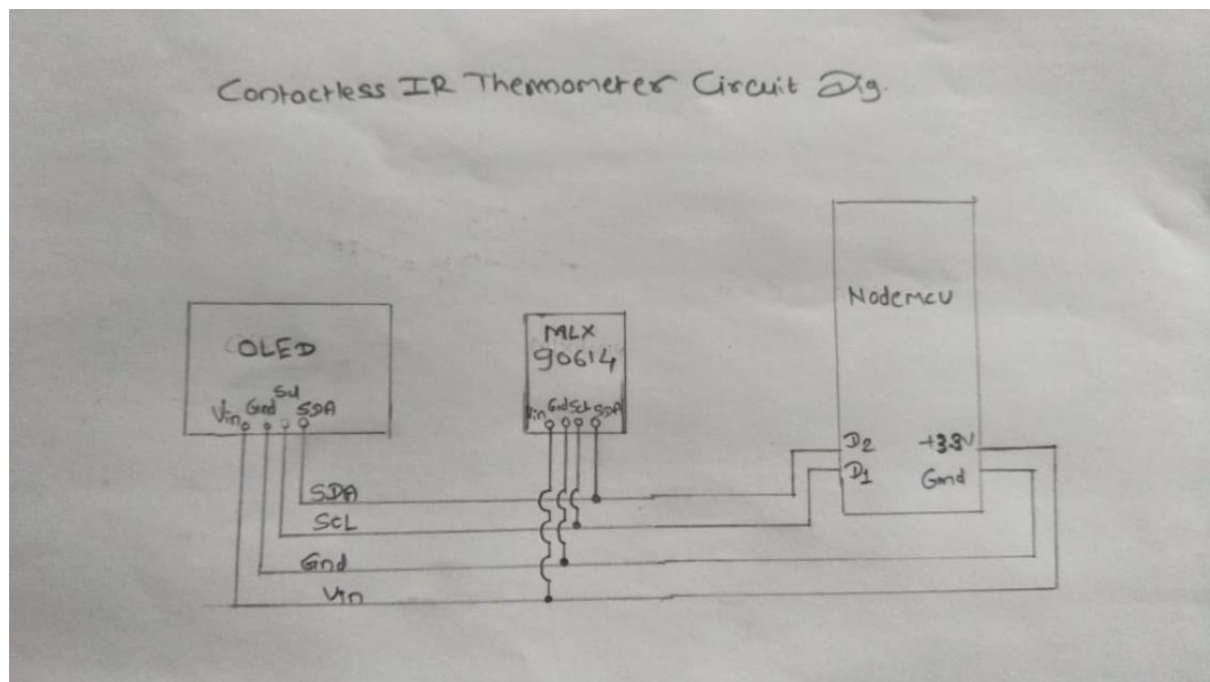
This folder contains code, libraries used and 3D design files. 3D printing is optimal, you can fit it in any available enclosure.

List of components (BOM)

Component Name	Approx. cost	Notes
MLX90614	INR 700-1500	Check this components availability first
OLED SSD1306	INR 330	
NodeMCU (ESP8266)	INR 300	
3D Printing	INR 1000-1500	Optional

Above components are normally available in any Electronics components shops.
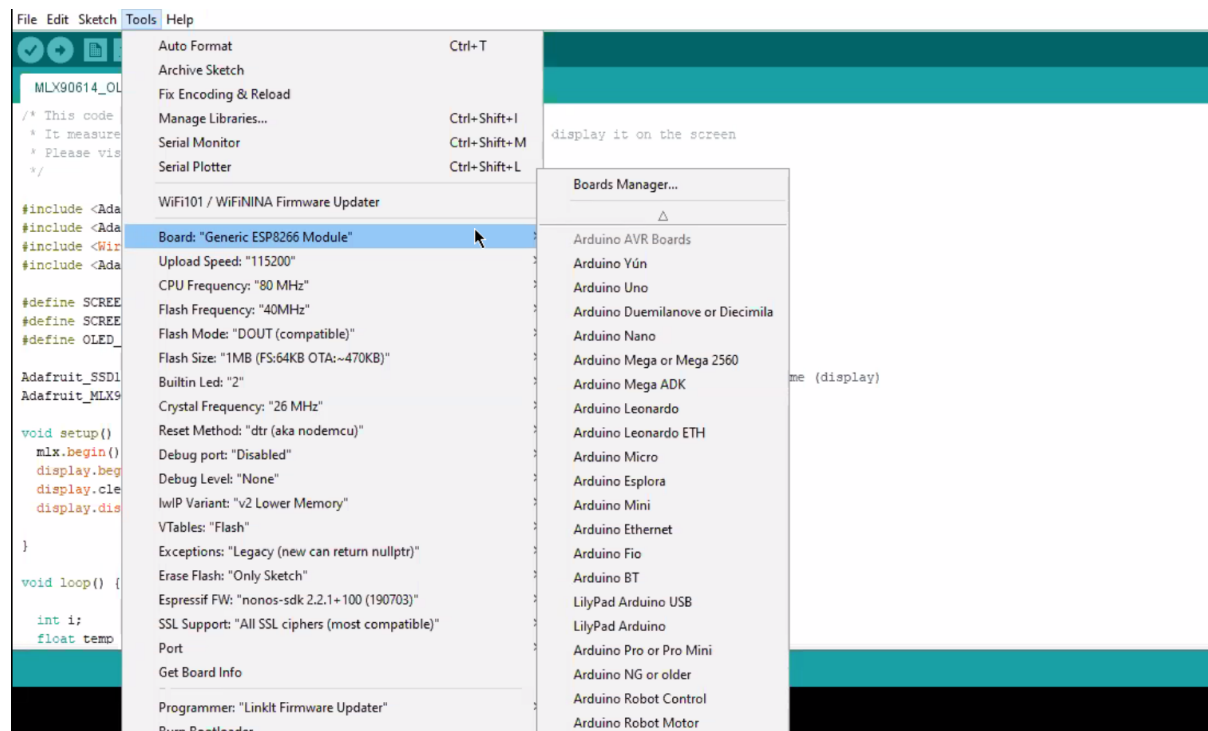
Circuit Diagram –

Please solder as per above connections.

Power bank or mobile phone can be used as a USB power supply.

Programming –

- o Once hardware is setup, use Arduino IDE for programming.
- o Select NodeMCU (ESP8266) board as shown in figure

- o Copy the program in IDE, upload the attached libraries, compile and upload it to hardware
- o In case of any difficulties using Arduino IDE, there are ample resources available online

Support –

Most of the required support for hardware, Arduino IDE and programming is available online and all the components are generic. In case you could not find required information online, please feel free to email us for the further assistance. Our team will be available for support 24x7.

Precautions while testing –

This device detects the temperature of the forehead surface, therefore, if the person is coming from harsh sunlight, it can show high temperatures. Therefore it is advised to cool down for some time and then check again.

You may have to recalibrate this thermometer according to your environmental conditions as temperature and humidity may affect the readings. Comment in the program mentions the line of code where you need to adjust.

Attached Files –

Code

3D design files

Libraries