

IOT based Non-contact Infrared Thermometer

INTRODUCTION

Due to the COVID uprising of 2019, we decided to make an IOT Smart Infrared Thermometer (IRT) that connects to smart devices to show the recorded temperature, this is not only a cheaper alternative, but also a great teaching module for technology and IOT that we can use in collaboration with schools, government institutes, and in our own workshops.

Indoor living environments include several types of spaces, workplaces such as offices, hospitals, public service centers, schools, libraries, leisure spaces and also the cabins of vehicles. In particular, schools are an important place to monitor. Typically, a large number of occupants spent times indoors, and the higher density of occupants justify the need to develop automatic supervision systems to provide a healthful and productive workplace for the students, teachers and the school staff.

PROBLEM STATEMENT

Since the COVID-19 outbreak, it has become very difficult to identify those who are affected by the virus or not. To solve this issue, temperature devices are often used to measure body temperature. These devices have non-contact IR temperature sensors which can measure the body temperature without any physical contact.

The integration of the IR temperature sensor with the IOT device require complex coding. Moreover, using OLED along with the IRT makes is more challenging to integrate it with Node MCU.

OBJECTIVE

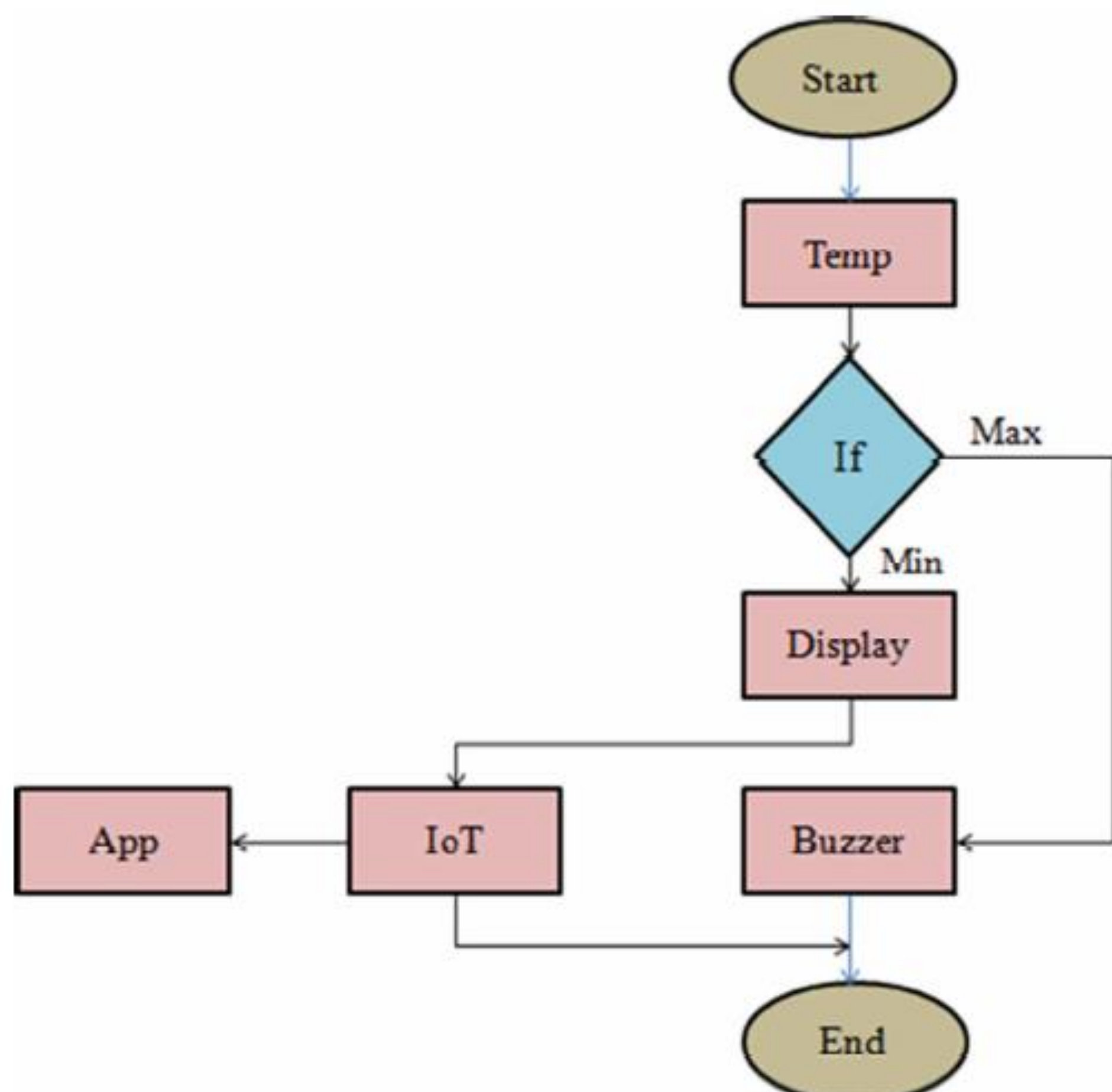
The objective of this project are as follows:

- IOT solution for temperature real-time supervision
- Hardware prototype for temperature data collection and Web compatibility for data access
- To use Node MCU module which will incorporate an MLX90614 and provides object and ambient temperature supervision in real-time.

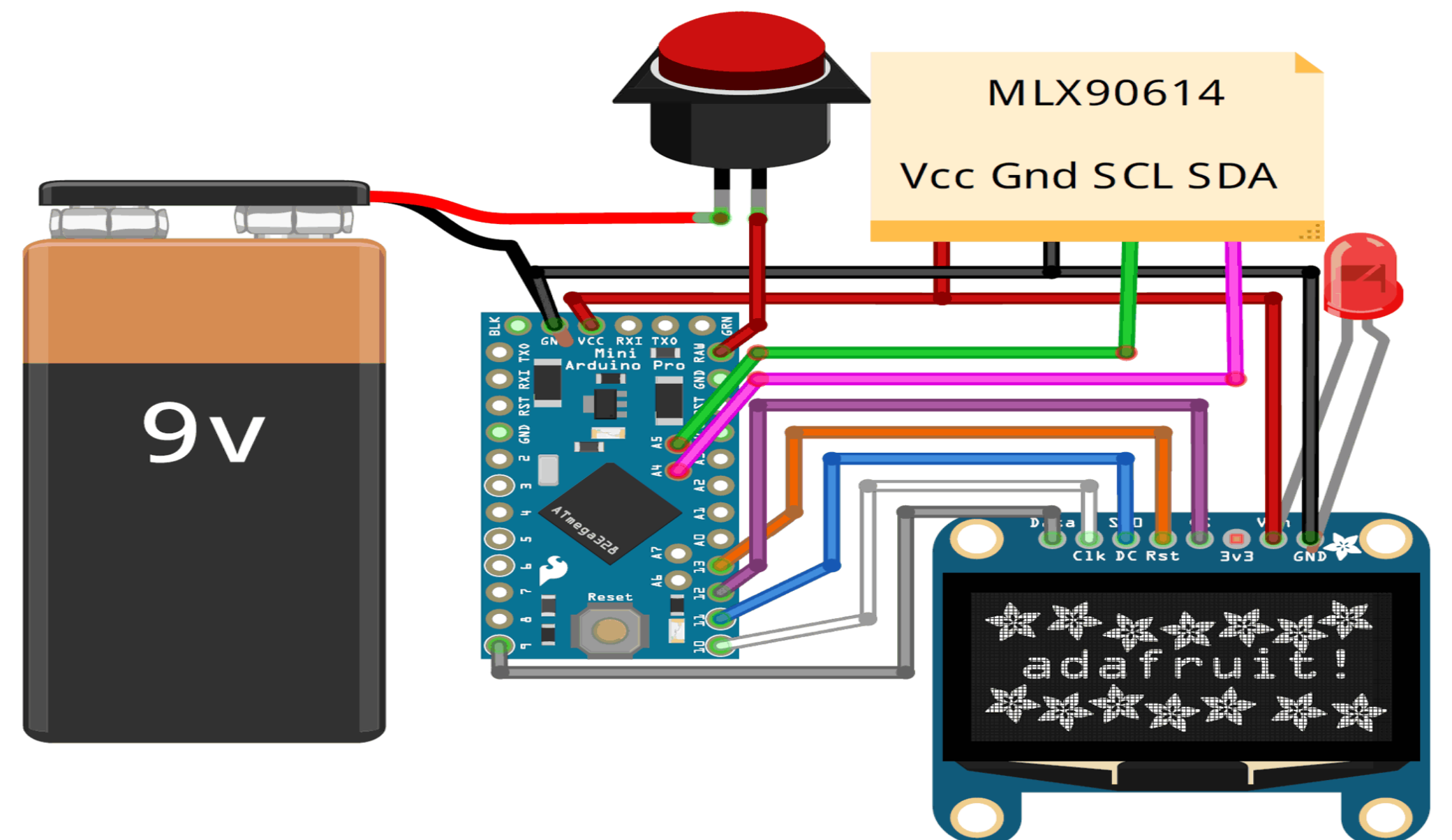
METHODOLOGY

We have contactless temperature sensor which utilizes Laser or IR to calculate the temperature of an object. The MLX90614 is a sensor that uses IR energy to detect the temperature of an object. IRT Sensor has following features:

- Operating Voltage: 3.6V to 5V
- Object Temperature Range: -70°C to 382.2°C
- Ambient Temperature Range: -40°C to 125°C
- Resolution/Accuracy: 0.02°C

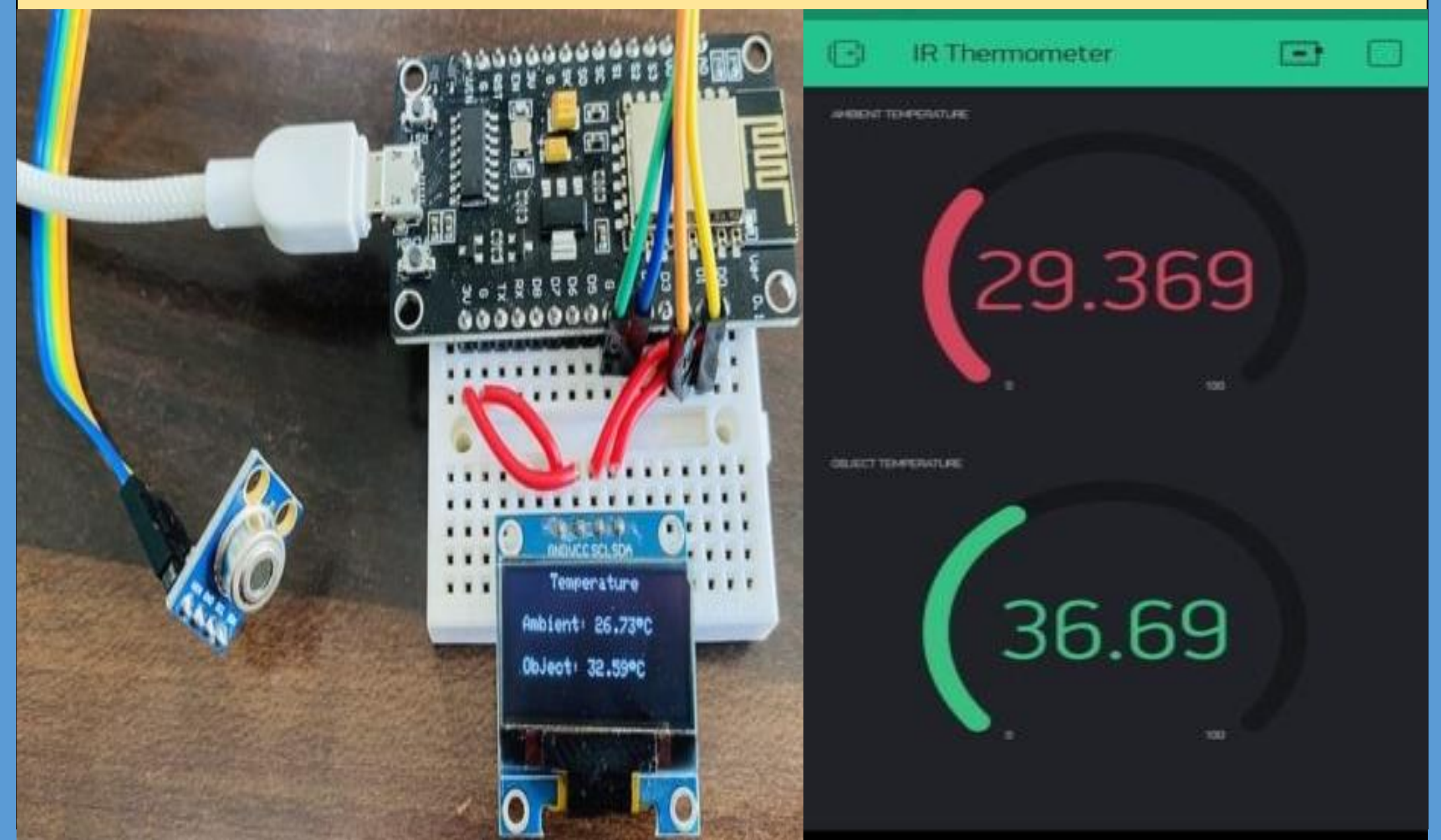


CIRCUIT DIAGRAM/ SCHEMATICS



RESULT AND DISCUSSION

- The measured temperature can be observed on Blynk App.



FUTURE WORK

- IRT device can be fixed in lobbies, hallways, and other access points to help businesses, institutions, hospitals, malls to create a safer environment for their workforce, customers, members, and patrons, patients etc.
- Healthcare institutions, institutions, malls, shops, and many businesses ventures find it challenging to perform temperature monitoring and screening at high speed. IOT can use the processors with thermal camera to seamlessly detect people who have fever, and showing abnormalities due to rise in body temperature.
- In future, This product gives relief from pandemic COVID-19. User friendly device will be very useful to the society to prevent the spreading of pandemic virus to human. Temperature monitoring device helps to reduce the severe problem created by infectious virus for human.

CONCLUSIONS

- In this project we proposed an IOT based contactless IR thermometer, the approach is studied, implemented and successfully achieved the transmission of data to a server for supervision. We got the results same as expected, although running the code and finding the temperature was bit difficult. Deficiencies can be improved and we as students can also make them more efficient and even on a vast level to help people in pandemic crisis.

REFERENCES

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