St. Francis Institute of Technology

Department of Information Technology

Mini Project – Sensor Lab (ITL 603)

Smart Heart Rate BPM Meter
TEITA-A2

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Designation

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INTRODUCTION

- There are many low-cost pulse sensors in the market that can be used to make a pulse BPM meter, but when it comes to accuracy and stability, the sensors are not reliable.
- This project describes the design of a very low-cost device which measures the heart rate of the subject by clipping sensors on one of the fingers and then displaying the result on a laptop.

PROBLEM STATEMENT

To develop a heart rate monitoring system using an SEN-11574 pulse sensor and display heart rate value on an web application using an HC-05 Bluetooth module.

OBJECTIVES

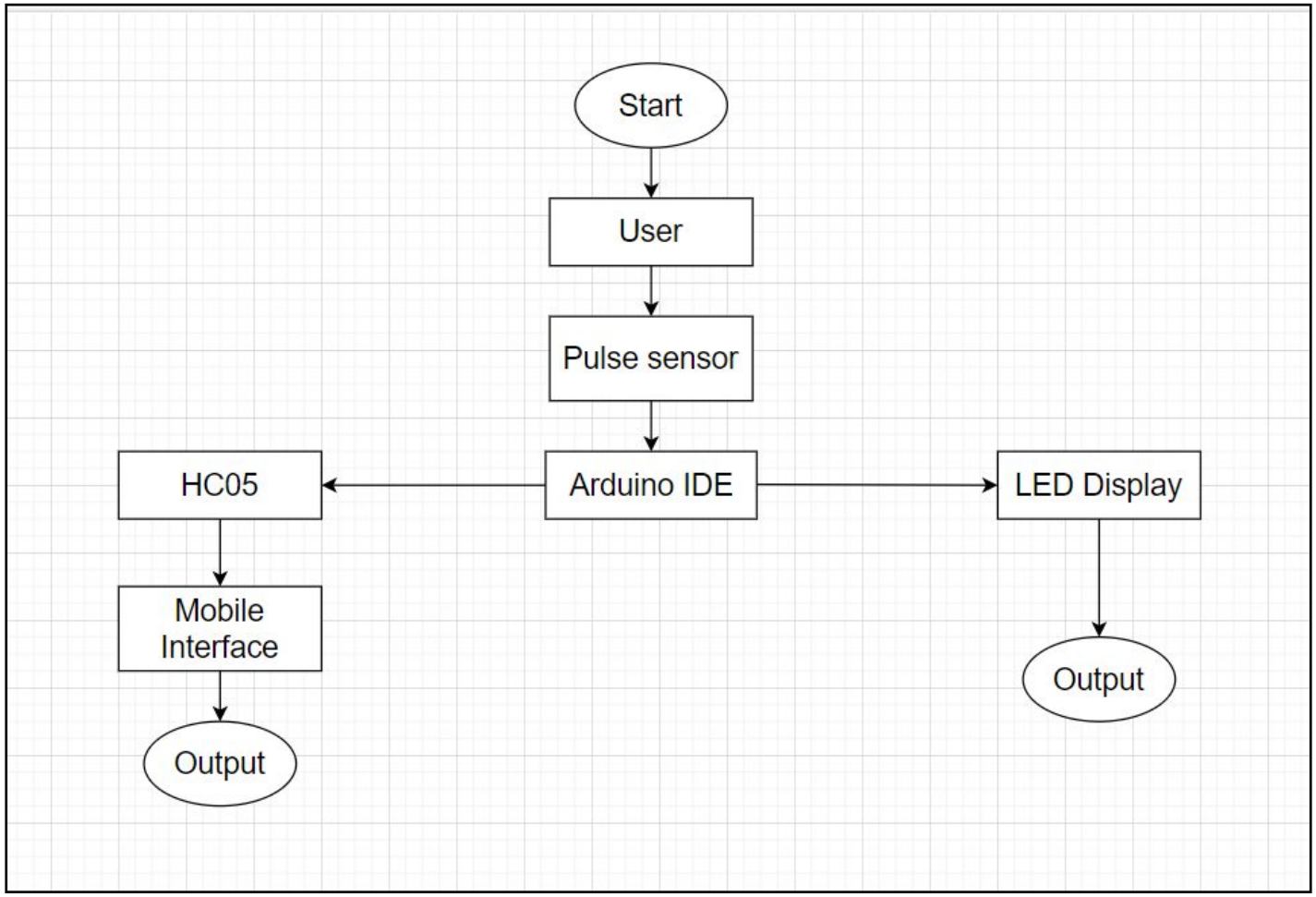
- To develop a heart rate monitoring system using and SEN-11574 pulse sensor,arduino uno, breadboard, Lcd display and use an HC-05 Bluetooth module to display results on a mobile application.
- To give an detailed and accurate analysis of one's heart rate.

LITERATURE SURVEY

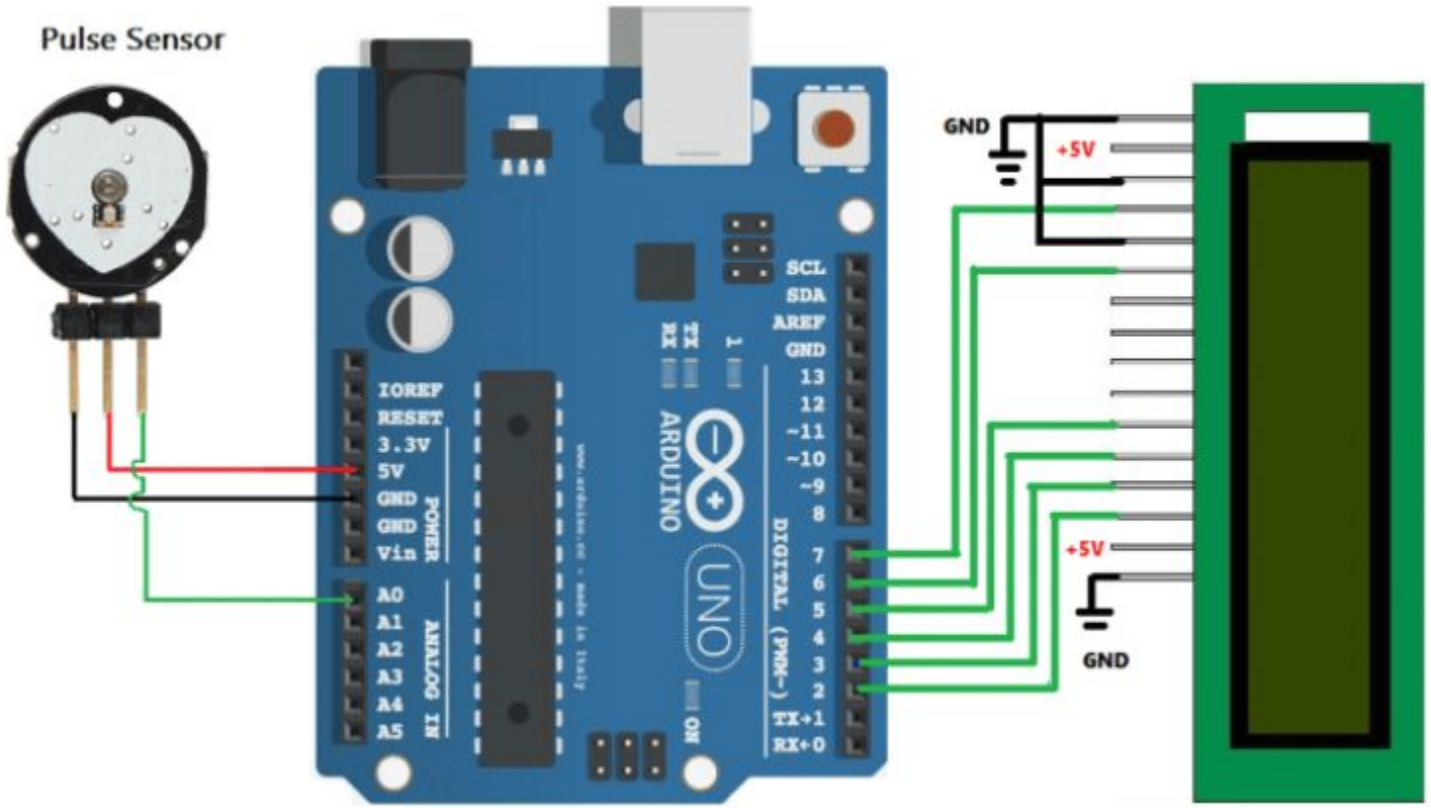
Sr.No	Title	Advantages	Future Scope
1.	Heart Rate Monitoring System Using Labview	Device is economical and user friendly and uses optical technology to detect the flow of blood through index finger.	Can extend and implement our project to find out the heart rate and store it in a memory to find out the variations in it.
2.	Beats-Per-Minute (BPM): A Microservice based platform for the monitoring of Health Related Data via Activity Trackers.	The efficacy, reliability and integrity of BPM when utilised as a monitoring solution for health conditions, such as Cardiovascular Disease.	Develop analysis services for the onset detection of conditions such as Atrial Fibrillation to evaluate BPM's utility

Sr.No	Title	Advantages	Future Scope
3.	Heart Rate Monitoring Using GSM Technology	In this system, heart beat sensor continuously monitors the patient's heart beat and in case of any abnormalities the system will send message to the doctor or relatives of the concerned person	The system can be miniaturized into a small wearable device like a glove or a ring that can monitor the heart rate continuously.
4.	Heart Rate Monitoring System using Pulse Sensor with Data Stored on Server	Small device which can be fixed to any atmosphere. It is a less bulky and a portable WiFi module and the person can be connected to their android mobile using Wifi hotspot settings.	Can connect this module to the emergency alert to the nearby hospital ambulance. This can be later upgraded to other module like microcontroller, vlsi and advanced types of integrated boards.

SYSTEM DESIGN



CIRCUIT DIAGRAM



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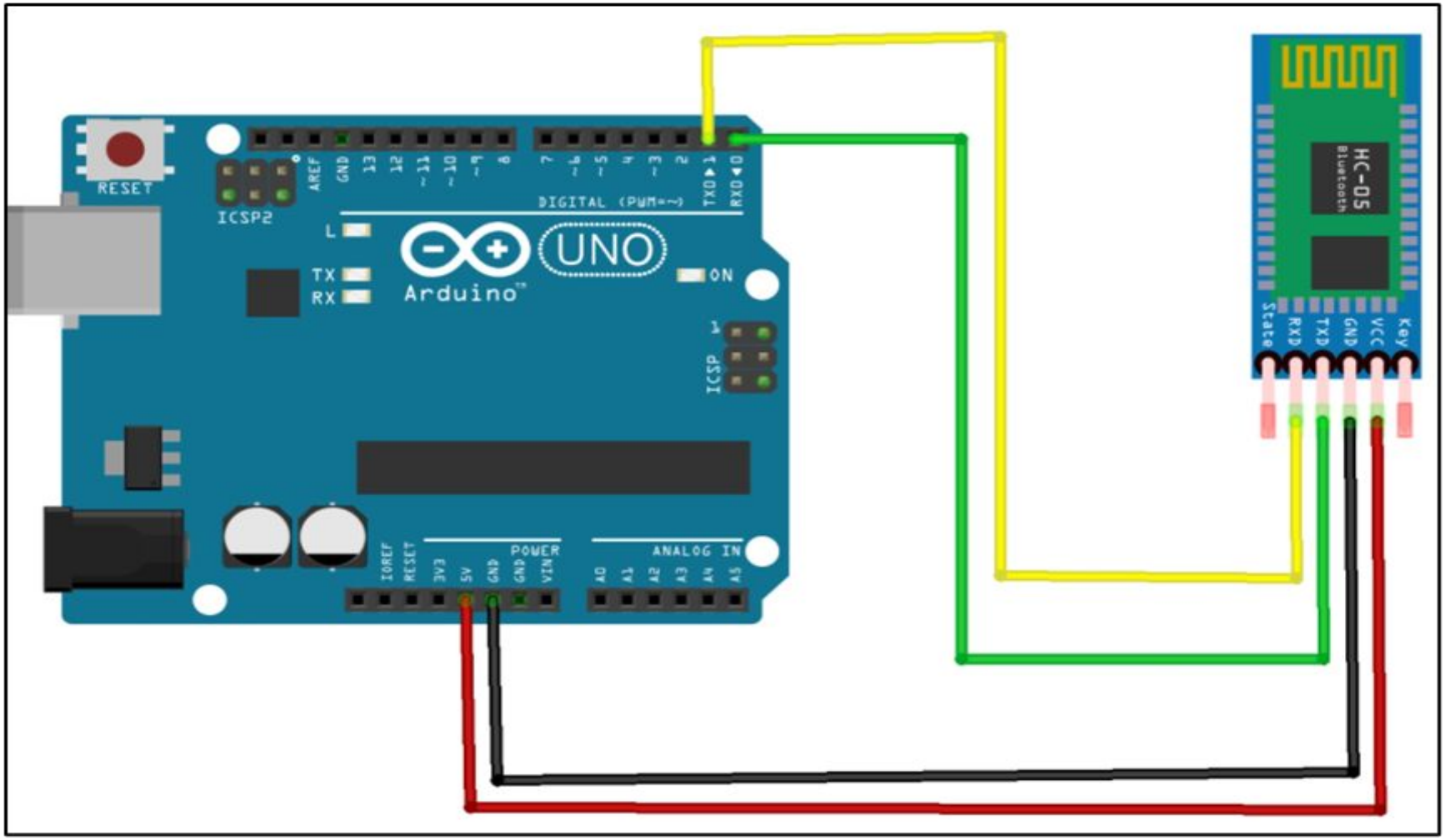


SYSTEM REQUIREMENTS

Hardware:

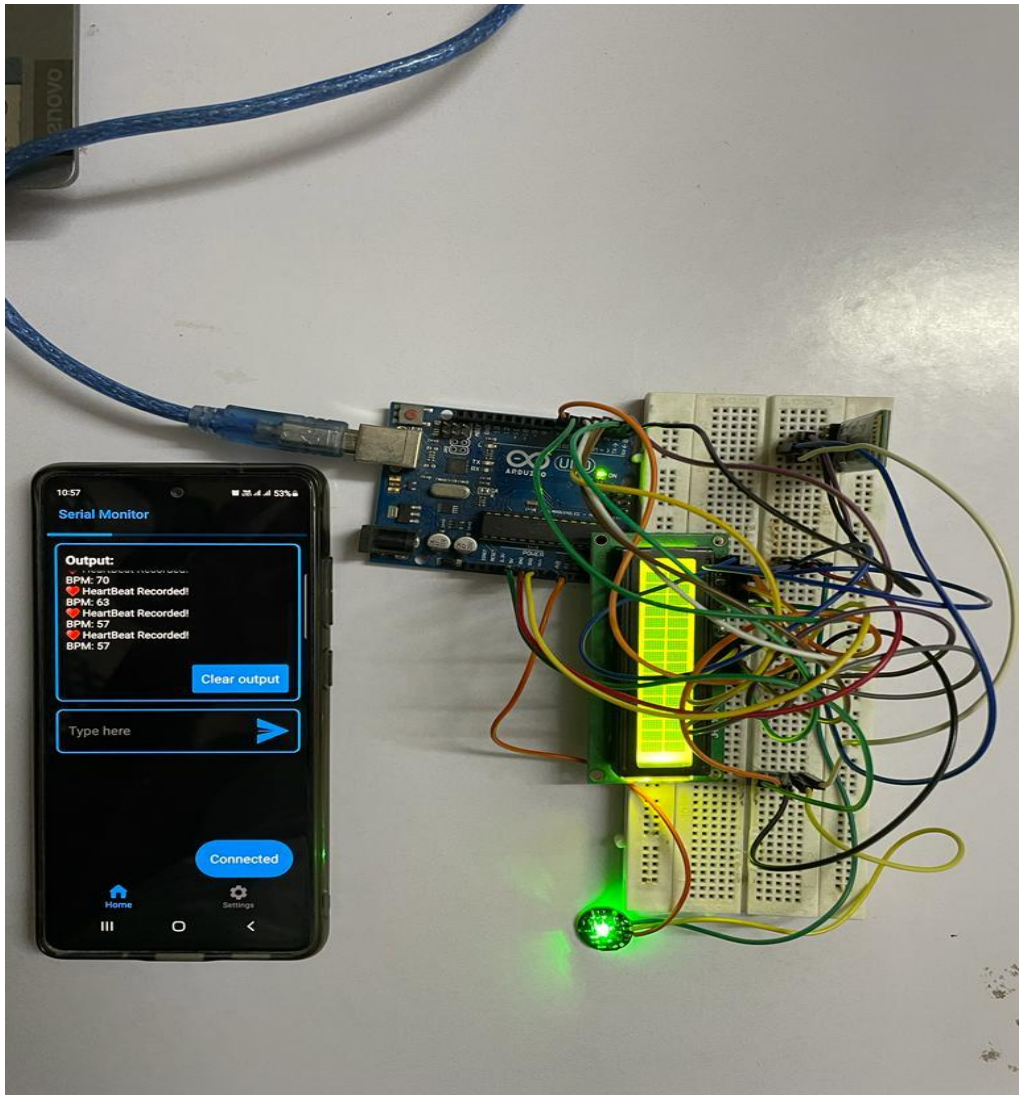
Sr.No	Components	Quantity	Cost
1.	Arduino Uno	1	450
2.	HC05 Bluetooth Module	1	300
3.	SEN-11574 Pulse Sensor	1	150
4.	Breadboard	1	60
5.	Power Supply	1	50
6.	Lcd Display	1	150
7.	Connecting wires	20	80
TOTAL			**1240**

SYSTEM REQUIREMENTS

Software:

1. Arduino IDE
2. Arduino Serial Monitor

IMPLEMENTATION & RESULTS



CONCLUSION

- This project will provide a detailed analysis of the user's heart rate.
- This project claims to be a Low-cost setup and can be easy to implement.
- A user can take his daily readings & will be alerted on High and Low heart rate.

REFERENCES

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