

Report: TEAM-1

Title

Heart Rate Anomaly Detector.

Team Member Names

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Abstract

This ECG wearable keeps track of the heart rate . It can be connected to a mobile phone.

The wearable will notify the mobile and ring it if the heart rate is not normal.

GitHub Link (Private Repository)

<https://github.com/born2win685/ecg-wearable>

Project Management

Tasks	Assigned Team Member	Timeline
Literature Survey	Sathiya,Ram,Yathin	21-3-23
Collecting Data	Ram	28-3-23
Checking level	Sathiya	10-4-23
Notifying mobile	Yathin	15-4-23

Level-1 Diagram and Components Required

Components Required

- AD8232
- RP2040
- Breadboard
- Connecting Wires
- BLE module
- Mobile phone

Level-1 Diagram

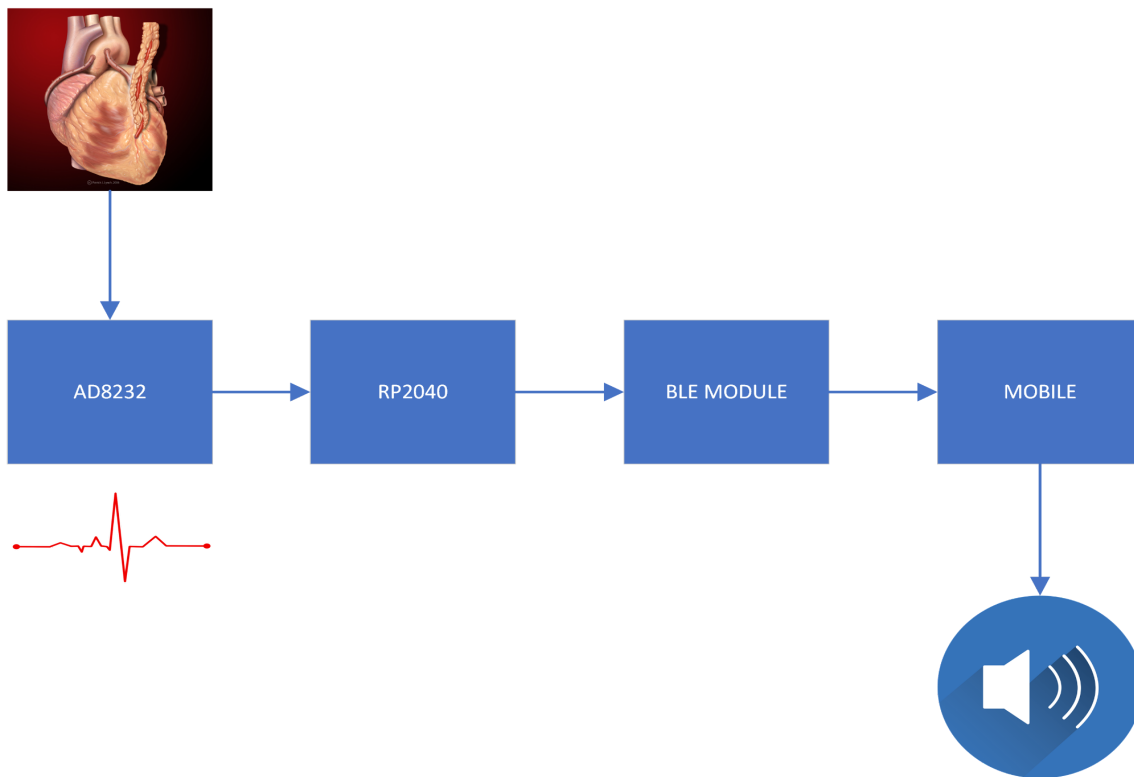


Image credits

https://cdn.pixabay.com/photo/2017/07/09/20/48/speaker-2488096_960_720.png

https://s3.amazonaws.com/static.wd7.us/3/30/Heart_saphenous_coronary_grafts.jpg

https://cdn.pixabay.com/photo/2016/05/06/05/47/heart-rate-1375324_960_720.png

Blocks

AD8232 - Generates ECG signal and sends it to Raspberry Pi using electrodes.

RP2040 - It collects the data and runs TensorLite to see if there is any anomaly in the ECG and notifies the mobile via BLE module upon detecting any.

BLE module - Bluetooth low energy module is used for communication between the RP2040 and Mobile Phone of the user.

Mobile Phone - It is used as an alarm if there is any anomaly detected by the IC.

PCB Form Factor

Size - 51.3mm x 21mm x 3.9mm.

Voltage range - 1.8 V to 5.5 V.

Form Factor - Pico

Literature Survey

https://www.researchgate.net/publication/331870636_Real_time_ECG_on_internet_using_Raspberry_Pi

https://www.researchgate.net/publication/341776278_Raspberry_Pi_Based_ECG_Data_Acquisition_System

https://www.researchgate.net/publication/323358482_Measuring_ECG_Signal_Using_e-Health_Sensor_Platform

Novelty Factor

We will extend it to a wearable device, like a smart glove or smart shoe.