Embedded Systems
Project Proposal
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Project expected timeline:

- Set the connections/configuration for receiving data from the sensor, to the internal ADC, then to a processable format.

- Parameterize the sampling rate.

- Buffer 1-minute worth of data depending on the sampling rate

- Make the sampling rate configurable through UART (Tera Term)

- Develop a way to calculate the (bpm) from the sampled data and add a UART command for calculating and retrieving it on-request.

- Implement a UI (Desktop application) for sending the commands and graphing the sampled data.

- Add the ability to choose the COM port and baud rate to the application.

Current Progress:

- Receiving the sampled sensor data and displaying it via a serial plotter.

What to expect (User stories):

At the end of developing the application, the user will be able to do the following via a desktop application:

- The user will be able to change the used COM port.

- The user will be able to change the serial communication baud rate.

- The user will be able to set/change the sampling rate.

- The user will be able to request 1-minute worth of ECG data and display this data as a graph voltage/time.

- The user will be able to ask for a calculated heartbeat rate (bpm)

Policies & Limitations

- For the both requests; 1-minute worth of data and bpm, the user won't be able to do any operation till after approximately 1 minute, which is the required time for gathering, processing the collected data and presenting the results.

System Architecture