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# Electrocardiogram Monitor

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ECE 153B - Winter 2019

## OVERVIEW

An electrocardiogram (ECG) is a test that measures the electrical activity of your heart to show whether or not it is functioning normally; when analyzed by a healthcare professional, ECG monitors can be used to detect high cholesterol, arrhythmia, and an enlargement of the heart. Our project proposal is to create our own ECG monitor that can monitor your heart activity, display the live results, and store the data in an SD card for post-processing/analysis.

## PERIPHERALS

1. ECG front end board
2. Analog-to-Digital Converter
3. LCD Screen
4. Real-Time Clock
5. Micro SD Card

## SOFTWARE DESIGN

Our program will use the ADC to sample and convert the analog signal coming from the ECG front end board to a digital signal. This data along with the RTC will then be simultaneously sent to the LCD module via SPI for real time display, and to the SD card OpenLog board via UART for data storing and recording.

## GOALS

1. To accurately capture a person's heart activity and interface with the LPC 4088 Dev. Board
2. To display heart activity on an LCD module, along with the date and time from the RTC
3. To save the test data (heart rate, data and time) and write it to an SD Card for external uses and/or processing.

## GROUP RESPONSIBILITIES

Both Blake and Evan will work in tandem to get the ECG front end board communicating with the LPC 4088 Dev Board. Once the heart signal can be communicated to the microcontroller, Evan will focus mostly on controlling the LCD display, while Blake will mostly be focusing on the task of storing the data to an SD Card and implementing some post-processing for further analysis.

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