# Brief CENG Capstone Project Charter

**Project area:** Health and Wellness: e.g. Wearable
**Project Title:** Heart Rate Monitoring System

**Names of Students Involved in Project:**
**Kanjav Patel (N01278539) - Project Lead**

- Complete parts kit
- Mulitmeter
- Seven-segment display
- STM32
- ST-Link
- Breadboard

**Pushpinder Kaur (N01282623)**

- Complete Parts kit
- BME280
- STM32
- ST-Link
- Breadboards-3
- Jumper wires

**Jaivkumar Shah (N01283714)**

- Complete parts kit
- STM32
- ST-link
- Jumper wires
- Breadboard
- FTDI USB to TTL Serial Adapter Module for Arduino

**Alexandra Hutan (N01297262)**

- Complete parts kit
- Arduino Uno (older model)
- Raspberry Pi 2 Model B
- Raspberry Pi 3 Model B+ - Kit
- STM32
- St-Link
- SDcard Adapter
- Breadboards - 3

**Github Repository link:** https://github.com/Jaiv24/Heart-Rate-Monitor-
**Hours per student:** 14*3=42 in class hours, 14*3=42+ outside of class.
**Supervising Faculty:** Kristian Medri

**Hours per faculty:** 14(3/20*3)=6.3 in class, 14(1.05+1.49)/20*3=5.334+ outside of class.
**Executive Summary/Description of the Project (75 to 100 words):**

Our goal is to create a Heart Rate Monitoring System. The user will use this device as a wearable to check heart rate and/or blood oxygen levels. It has compatibility to provide accuracy of the results as well.

The main board for this device will either be an Arduino or Sparksfun Red board. This board will be connected to the Firebase database where our app will be in constant communication to show real-time values.

MKR WiFi 1010 will be one of the peripherals. It contains an ESP32 module to simplify connecting to the WiFi. The second peripheral is SparkFun Pulse Oximeter and Heart Rate Sensor. This chip will be on the user's finger where the sensor will pick up data.

**Scope:** Prototype that is not to be left powered unattended.
**System Requirements:** Arduino Uno R3, Arduino MKR WiFi 1010, SparkFun Pulse Oximeter and Heart Rate Sensor - MAX30101 & MAX32664, Raspberry Pi
**Design approach:** Arduino<->Firebase<->Android
**Mandate:** Self funded