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| Submission Date | 18-09-2017 |
| Project Name | Pulse Rate Sensor |
| Student Name | Karandeep Singh |
| Project website | <https://github.com/N01150244/pulsesensor>  N01150244.github.io/pulsesensor |
| My project will | My project will be based on a heart rate sensor or pulse senor which is a part of the Breathalyzer. Pulse sensor will measure Beats per minute (BPM) to produce a digital output. Basically it will work on the principle of light modulation by blood flow through finger at each pulse. |
| The database will store | The database will store the different pulse rate readings when used by different individuals. |
| The mobile device functionality will  include | The data collected by the sensor can easily be analyzed by the mobile application to check whether the heart rate of the person is within a normal range for a certain activity.  For example, the heart rate increases when a person is drunk or for any other reason so the mobile application would alert the person, not to drive in that situation. |
| I will be collaborating with the following company/department | Prototype lab, Humber Parts Crib and Humber Tech Group. |
| My group in the winter semester will include | Karandeep Singh (N01150244), Maheshwerie Samaroo(N01075838), Mohita Prabhakar(N01148681) |
| 50 word problem  statement | Every year there is a huge loss of lives due to high blood pressure and alcohol consumption. People do not give much attention to their heath as well as their habits. As a result of this people get caught in the cases of drink and drive and others lead to fatal accidents. This project aims at helping the individuals as well as law enforcements. |
| 100 words of  background | So, in order to solve this problem I am working on a pulse rate senor and one of my partners is working alcohol level sensor. When integrated with mobile application it can help the person to understand how alcohol affects the body and avoid the consequences of driving while intoxicated.  Scientific background:  When a heart beats, blood pressure increases and thus the concentration of blood within the finger or earlobe does as well. When this occurs, light cannot reach the sensor due to the density of the blood. The light will reach the sensor in between pulses, thus signaling that a heartbeat has occurred. |
| Current product APA  citation | Heartbeats in Your Project, Lickety-Split ♥. (n.d.). Retrieved September 16, 2017, from <https://pulsesensor.com/>  #237238, M., #321089, M., #661774, M., O., #721982, M., #554862, M., . . . G. (n.d.). Pulse Sensor. Retrieved September 16, 2017, from <https://www.sparkfun.com/products/11574> |
| Existing research IEEE paper APA citation | (n.d.). Retrieved September 16, 2017, from <http://ieeexplore.ieee.org/document/4618175/> |
| Brief description of  planned purchases | Raspberry Pi 3 starter kit  XD-58C Sensor from Sparkykit heart rate sensor  Jumper Wires(Male-Female, Female-Female, Male-Male Jumper Wire Cables)  *3-bit LED Displays (5 pack)* |
| Solution description | This is an opportunity to integrate the knowledge and skills developed in our program to create a collaborative project which will lower the rate of alcohol consumption and bring us closer to a solution to prevent drink and drive.  I request approval of this project. |