Driver's Safety

Falling Asleep Behind the Wheel

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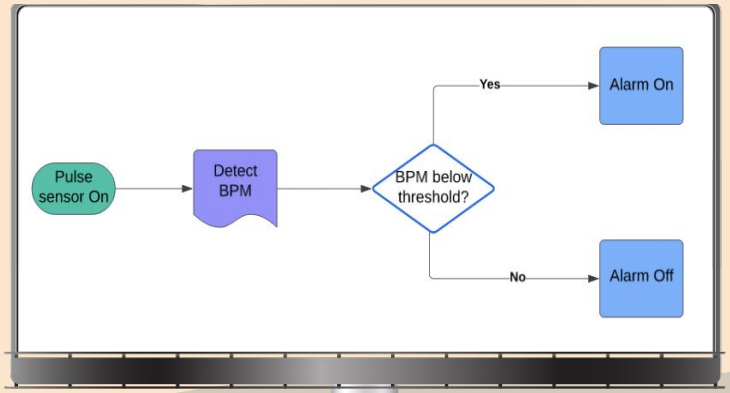
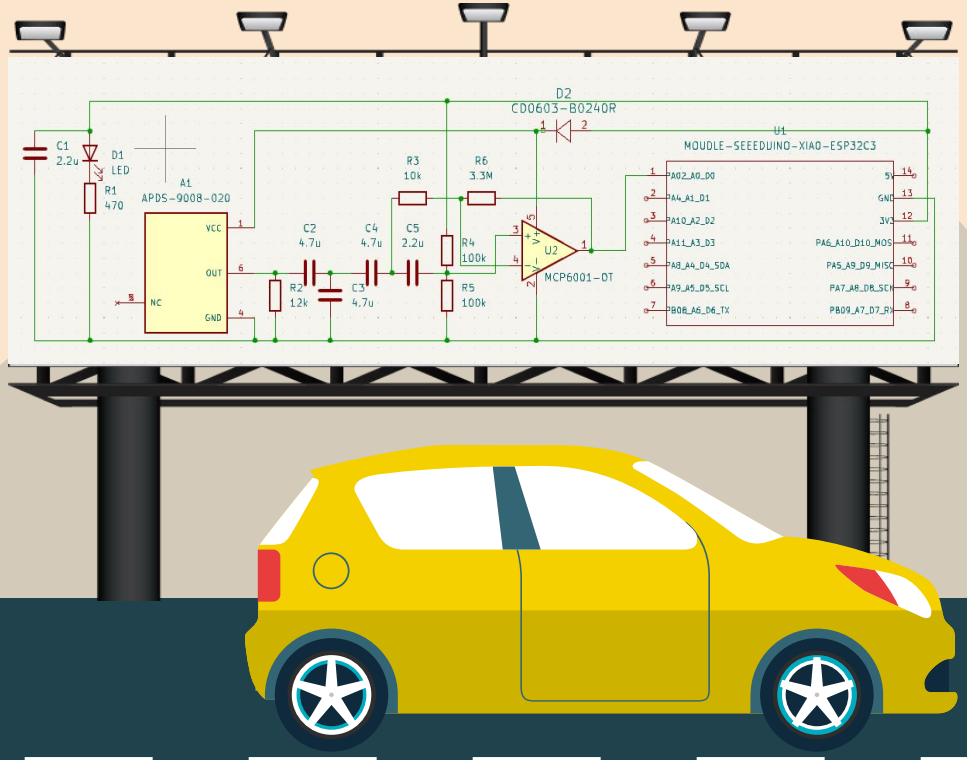
ECE 196 | 5/20/2024

Problem Definition

Drivers Falling asleep or feeling drowsy may lead to accidents which puts the driver's and others' lives in danger.

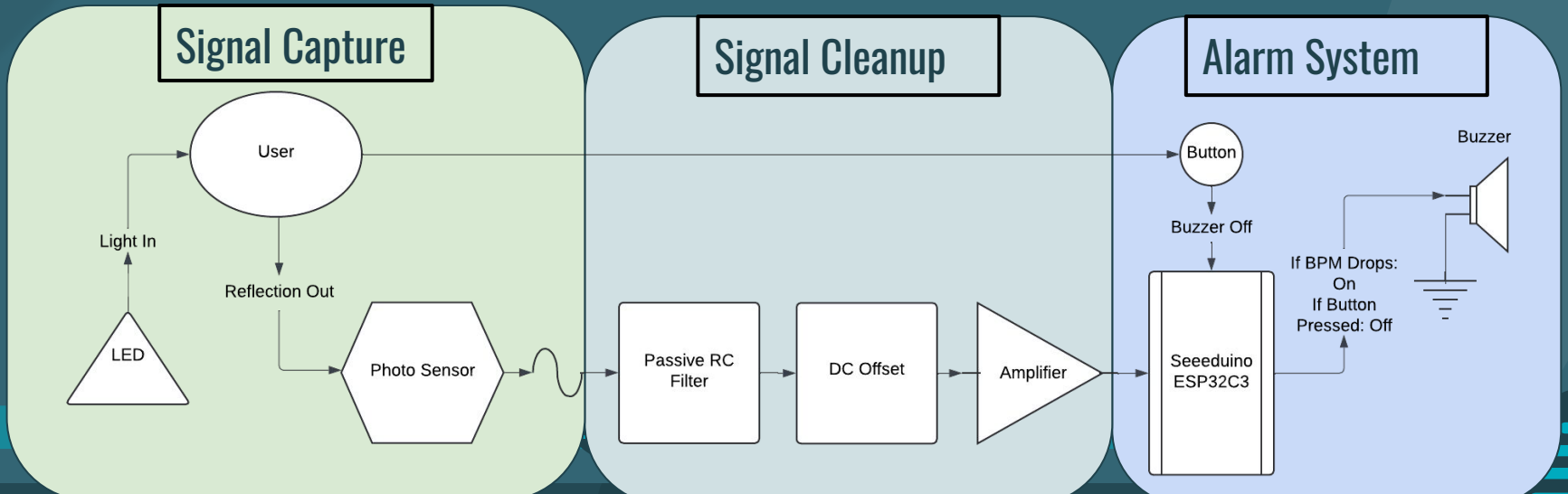
Proposed Solution





Testable Hypothesis:

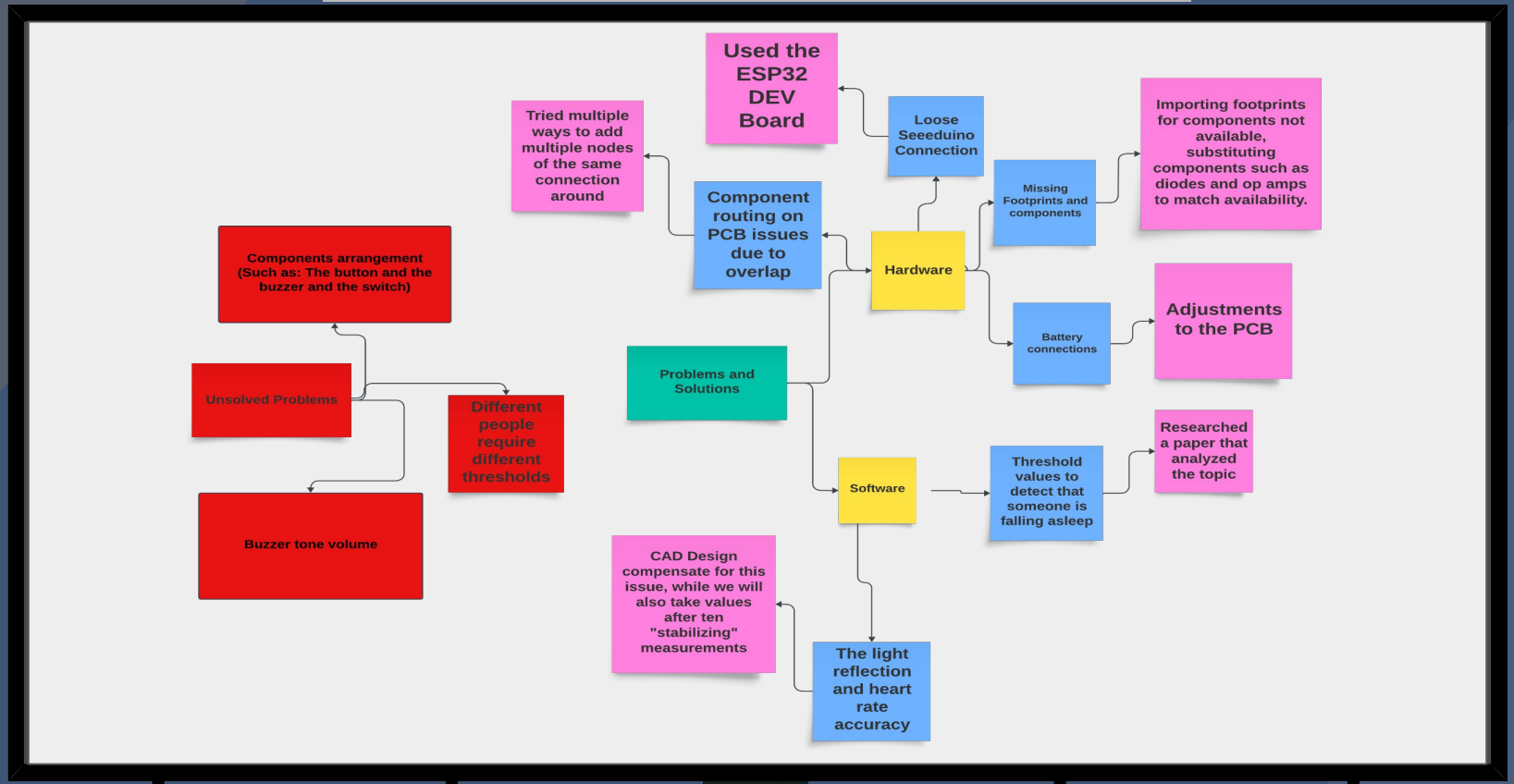
We will deliver a driving pulse sensor that will be able to measure a user's heart rate. This will then get processed using an seeeduino and will alert the user if he/she is falling asleep



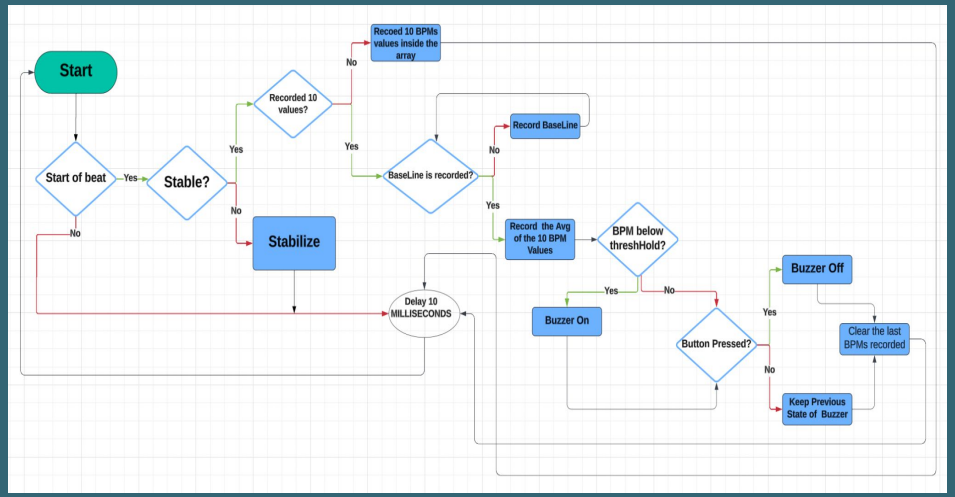
ECE 196 Final Project Milestones

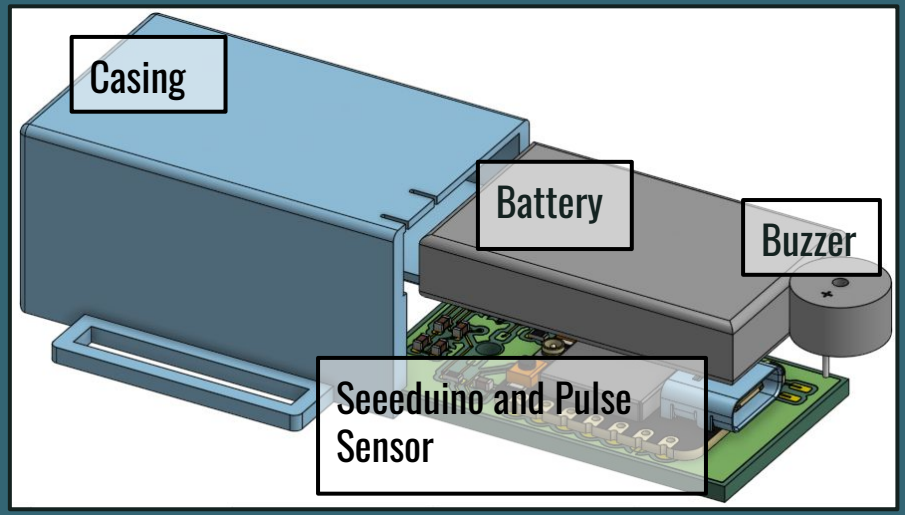
Wednesday Week 5	Impulse Sensor Prototype testing with alarm
Friday Week 6	PCB and 3D printed shield Design
Wednesday Week 8	Finalized Model and Wearable device
Friday Week 9	Finalized Adjusments and Rigorous Testing

Milestones and Problems



Milestones and Problems





Code Technical Challenges

- The activity of the user when wearing the device might affect the baseline.
- Choosing the specific threshold of the user.

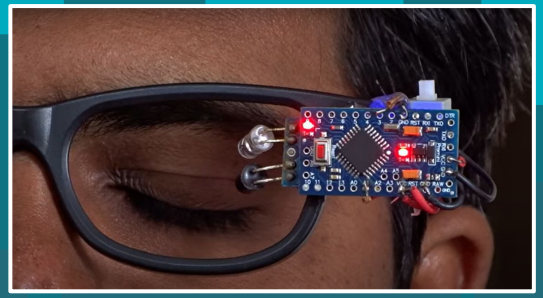
CAD Technical Challenges

- Placement of Buttons and Switch
- Preventing Sensor Interference
- Current Buzzer Limitation

Resources

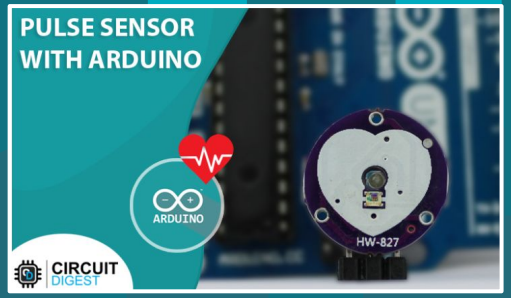
Anti Sleep Glasses

How to Make Anti Sleep Glasses - YouTube



Pulse Sensor for Arduino

How Pulse Sensor Works and Interfacing it with Arduino (circuitdigest.com)



Anti Snooze Helmet

How to make Anti Snooze Helmet (youtube.com)

Proof of Concept

- Introduces a Complex Solution
- Demonstrates Arduino Application
- Produces a Comfortable Solution using Unobstructing Devices

Device Composition

- Describes How Pulse Sensing Works
- Explains How to Implement the Circuit
- Provides a Device & Code for Prototyping

Alternative Approach

- Relatively Easy Solution
- Opens Scope of Solution

- **Feedback**
  What did you like/dislike?
  What would you add/remove?

- **Consumer Awareness**
  Would you be comfortable using this device?

- **Expectations**
  What would you expect to gain by using a device like this one?