INDY-5 – Concussion Helmet

CS 4860 - Section 02 – 2024 Spring

1/17/24

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| A person wearing sunglasses and smiling  Description automatically generated  Patrick O’Connell | A person in a white sweatshirt  Description automatically generated  Brian Bergmann |

## Project Team

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| --- | --- | --- | --- |
| **Roles** | **Name** | **Major responsibilities** | **Cell Phone / Alt Email** |
| Team leader | Patrick O’Connell | Developer | 240-812-2237  [Poconnell20055@icloud.com](http://Poconnell20055@icloud.com) |
| Team members | Brian Bergmann | Documentation | 412-735-9704  [Brian.bergmann144@gmail.com](http://Brian.bergmann144@gmail.com) |
| Advisor / Instructor | Sharon Perry | Facilitate project progress; advise on project planning and management. | 770-329-3895 |

## Final Deliverables - Specific to Your Project

1. Final Report
2. Software files
3. Website (more on that later)
4. GitHub link
5. Final Video Presentation (40% how you did it, 60% demo of project) – you record this on your desktop and post it on your website.

## Milestone Events (Prototypes, Draft Reports, Code Reviews, etc.)

#1 Helmet Prototype- By \_End of Feb\_\_\_\_\_\_\_\_\_\_

* Working crude prototype
* Begin footage for final demo video to show progression throughout the project.

#2 Helmet Revision- By \_Middle of March\_\_\_\_\_\_\_\_\_\_

* Make necessary adjustments to physical helmet as well as the code.
* Quality Assurance Testing

#3 Website/Video Demo- By \_Middle of April\_\_\_\_\_\_\_\_\_\_

## Abstract

The project centers around integrating these technologies into a smart helmet system designed to monitor and assess the force experienced by football players during gameplay. The accelerometer, placed within the helmet, captures real-time data on impacts and calculates the force exerted on the player's head. The Raspberry Pi processes this information and utilizing a programmable communication tool for, sending, and receiving text messages. The communication platform sends an immediate text message alert to the coach if a threshold force indicative of a potential concussion is exceeded. This comprehensive system not only promotes player safety by providing instant notifications to coaching staff but also serves as a valuable tool for long-term monitoring and analysis to enhance concussion prevention strategies and hopefully reduce the number of players who get CTE in sports.

This is a list of Deliverables for the entire course, but you can list additional events

Team/Project Selection document (Individual Assignment)

Weekly Activity Reports (WARs – Individual Assignment)

Peer Reviews (Individual Assignment)

Project Plan (Group Assignment)

Present Prototype for Peer Review (Group Assignment)

Website (Group Assignment)

Video Demo (Group Assignment)

C-Day Application/Submission (Group applies to C-Day but you submit individual bonus points documentation in Individual Assignments)

Final Report Package (Group Assignment)

## Meeting Schedule Date/Time (Applies to All)

Meeting Times:

1:00PM – 2:15PM MW

## Collaboration and Communication Plan (Applies to All)

Collaboration and Communication – Microsoft Teams

## Project Schedule and Task Planning (Applies to All)

See the Project Work Plan (Gantt chart) file attached.

A screenshot of a spreadsheet

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## Risk Assessment (if applicable)

Since we will be using physical hardware that is involved in collisions there is a chance that the hardware could break. This would require us to set up protocols for if the hardware were to break.

## Version Control Plan (Applies to All)

We will be using GitHub to organize and maintain all the code and documentation for the project this will allow for all the information to be organized. Our GitHub link for the repository is <https://github.com/INDY5-2024/INDY5>

**STATEMENT OF PARTICIPATION** (put this at the bottom of your document and everyone signs it)

By signing below, I \_\_\_Patrick O’Connell\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (type or print name here) acknowledge that I will participate in all meetings, communications, deliverables and other tasks necessary to complete the project. If I do not participate, I understand that Professor Perry will meet with me to remedy the situation.

## Signed by:

\_\_\_\_\_\_\_\_\_Patrick O’Connell\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_1/17/24\_\_\_\_\_\_\_\_\_\_\_

Team Member 1 Date