# **Team Charter**

**Adviser:** James E. Fowler, fowler@ece.msstate.edu

**External adviser:** Tracy Blackstock, tmblackstock@yahoo.com

**Team membership:**

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Name | NetID | Major (EE or CpE) |
| Leader | Zoe Fowler | zmf39 | EE |
| Member | Chris Slagell | cjs814 | EE |
| Member | Ryan Hopson | rh1583 | CpE |
| Member | Holiday Garrison | hlg171 | CpE |
| Member | Muammar Saeed | mas1489 | CpE |

## **Team Name:** GAS (Gait Analysis System)

**Mode & Frequency of Communication**

Team communication will occur electronically via text, GroupMe, phone calls, and video calls as necessary. In person meetings will occur during the scheduled class times and some days outside of class. A minimum of one (1) team meeting per week will be scheduled. Acceptable response times for team members for electronic communication should be before the upcoming meeting, unless team members specify they need a response before a particular time.

## **Submission Schedule**

August 17: Project proposal due, register for design and tech writing

August 18: Project proposal deadline

August 24: Pitch Deck and Team Charter draft deadlines

September 1: Submit finalized Pitch Deck and Team Charter, have website running

September 7: Design Constraints Draft

September 10: Submit finalized Design Constraints file, finish the general belt and app designs, have parts ordered

September 16: Approach draft deadline

September 17: Team Evaluation #1

October 6: Mid semester review deadline

October 13: Submit finalized Approach file

October 15: Team Evaluation #2

October 17: Complete design phase, start testing

November 2: Website draft deadline, Evaluation and Executive Summary draft deadlines

November 5: Correct any mistakes, add changes as necessary, finish testing, finalize results

November 10-12: Final design review

November 16: Submit finalized Evaluation and Executive Summary files, finalize website

## **Team Roles**

*Everyone:*

* Being present during team meetings
* Research
* Documentation

*Responsibility framework suggestion:*

Zoe Fowler: (Leader) Keeping everyone on track, setting project goals, working on the device circuit, overseeing project website

Holiday Garrison: (Member) Working on and overseeing app development, any coding necessary, and project website

Ryan Hopson: (Member) Working on app development, any coding necessary, and project website

Muammar Saeed: (Member) Working on app development, device circuit, and project website

Chris Slagell: (Member) Working on device circuit, and project website

**Potential Obstacles**

Our biggest technical challenge is that the HC-SR04 ultrasonic sensor, which will be used to detect the distance in between the user’s legs, has a range of 1 inch to 13 feet. When the user is walking down a hallway or near other people, the sensor could possibly detect the leg of another person or object and record it as part of the user’s data. This can be avoided if the ultrasonic sensor activates when the PIR motion sensors are activated from the legs moving past one another. The difficulty with this method is that the PIR motion sensor has a detection range that reaches out 20 feet. If the user is near other people, then both sensors will take readings on the other individual. This only makes the foreign object/hallway problem solved. A couple things can be done to bypass the close-by-person obstacle. The first one being that another set of two motion sensors can be placed on the ankle bracelet that has the ultrasonic sensor. This makes ‘both horizontal sets of ankle motion sensors need to be activated’ the condition for the ultrasonic sensor to activate. Another way to bypass the measuring problems presented by the PIR and ultrasonic sensors is the use of LED sensors instead.

Another huge obstacle is the safety concern of a team member coming in contact with COVID-19. If a person must be quarantined, team meetings will continue online. Shared work involving hardware will require the rest of the team to temporarily replace the infected team member. Furthermore, all shared hardware will have to be sanitized. If the infected team member is working on software, then they will have to communicate from a distance until they are well.

**Conflict Resolution**

The team will normally discuss a roadblock or multiple options in order to overcome or narrow down the solution. Usually, a majority vote will be conducted in order to figure out the next steps for the project. However, if the entire team disagrees on something, the members will ask for advice from the team advisor and external advisor as to what the best course of action is. If a team member isn’t participating as they should, they will be expected to make up whatever work they have missed. If the team member continues to not participate, a group meeting will scheduled to see if the problem can be resolved internally. However, if more problems arise with that team member, a team meeting will be scheduled with Dr. Jones. The penalty for missing a team meeting will be having no say in the decision making processes made for the project during that meeting.

## **Additional Comments or Concerns to Discuss with Dr. Jones & Ms. Nordin**

N/A

## **Signatures**

|  |  |  |
| --- | --- | --- |
| **Name** | **Net ID** | **Date** |
| Ryan Hopson | rh1583 | 08/30/20 |
| Holiday Garrison | hlg171 | 08/31/20 |
| Zoe Fowler | zmf39 | 08/30/20 |
| Chris Slagell | cjs814 | 08/30/20 |
| Muammar Saeed | mas1489 | 08/30/20 |