Dodecatimer: Executive Summary

The purpose of this project is to build a dodecahedron that times down depending on what number is facing upward. This project will provide a convenient way of setting a timer without the need to use a smartphone, tablet, or other electronic device. It will also be an aesthetically pleasing device that can be used at home or be taken out with the user for daily use.

The project will serve individuals who want a fast and easy-to-use interface to time an action. This can help children who don't have or can't use other digital timers. It will also be very helpful for people, such as the elderly, who prefer not to use devices such as phones, tablets, or computers.

We needed to create the electronic circuit first with initial coding implementation for a proof of concept. This will only be our gyroscope sensor giving position feedback. This will let us determine how we will differentiate between the 12 sides. The circuit can then be placed into a prototype enclosure to tune our ability to discern the 12 unique sides. Once the system can correctly determine which side has been selected 9/10 times, we can implement the timing. Each side will have a specific amount of time assigned to it. Our group will also add feedback functionality in the form of vibration and sound to alert the user when an action, such as timer start and end, is carried out.

The progress evaluation of our project was simple: we would come together with our project partner and discuss our findings, ideas, and progress regarding the project once a week. The team got split into three categories: Power, Code, and Enclosure. Shane was in charge of the Enclosure along with the vibration and audio feedback, Christian was in charge of the Code, and Omar was in charge of the Power. We began with research within our respective categories. Next came to building our designs and testing. Some testing had to be delayed until other designs were complete, such as coding; it couldn't be tested until the gyroscope was chosen. Once the testing for the designs were complete, we had to bring our designs together to make sure the designs worked in tandem. There were some changes made to some designs during this phase since there were unforeseen results i.e. audio wasn't working as intended. Finally, after changes were made, we put the designs in the enclosure that Shane worked on for final testing.

Project Timeline

Dodecatimer				
PROJECT NAME		9/7/2020 START DATE	6/1/2021 END DATE	5/17/2021 LAST UPDATE DATE

Task ID	Task Name	Due Date (Week)	% Completed
1	Team Protocols and Standards	3	100%
2	Risk Registers	4	100%
3	Block Diagram	9	100%
4	Block Validation	10	100%
5	Engineering Requirements	9	100%
6	First Block Check-offs	13	100%
7	Design Reviews	14	100%
8	Engineering Requirements Lock	15	100%
9	Second Block Check-offs	16	100%
10	Final Block Check-offs	19	100%
11	System Review 1	20	100%
12	System Review 2	23	100%
13	Final System Review	27	100%

Notes:

Approved By

Mark van der Pol
PROJECT MANAGER

10/10/2020
DATE

Key Lessons

- Get our schematic designs put together sooner so that there is more time to work with our PCB. This way we are able to debug, if the PCB doesn't work the way it was intended.
- A little communication between group members goes a long way. If the team knows a person is struggling with their assigned blocks, the team can offer help so that the project does not suffer later.
- The first iteration of the project will probably not be the same as the last one. Things don't normally work out the way we want them to on the first attempt, and designs will have to change in order for the project to come out successful.