ECE 342 Final Project

Executive Project Summary

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March 5, 2021
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1 Design

The SpyderCam design comes from the need of a cheaper alternative for a HyperRail. With the use of only three pylons, strings and motors, the SpyderCam is far cheaper than the mechanical components that the HyperRail requires. The downside of SpyderCam however, is that it requires a lot more unobstructed space to work properly.

Initially it was necessary to decide where the pylons would be placed, their height, and what kind of triangle was required to achieve the maximum possible area that the moving payload could cover. After the measurements were decided, the development of different parts of the project started independently from one another. The Arduino Code and MATLAB GUI were developed separately based on standards that were defined during team meetings, and then put together during week 8 of the project to work in conjunction. The hardware was developed separately from software and and then put together during week 7 of the project for testing.

Something that was learned during this project is that not only both software parts must agree, but also software must agree with hardware. The hardware and software were developed without spoken standards, which created problems that were only fixed after it was visible that the assumptions made on one or both parts were no longer valid. This independence generated some discrepancies that are still present in the final design and often create unexpected deviations.
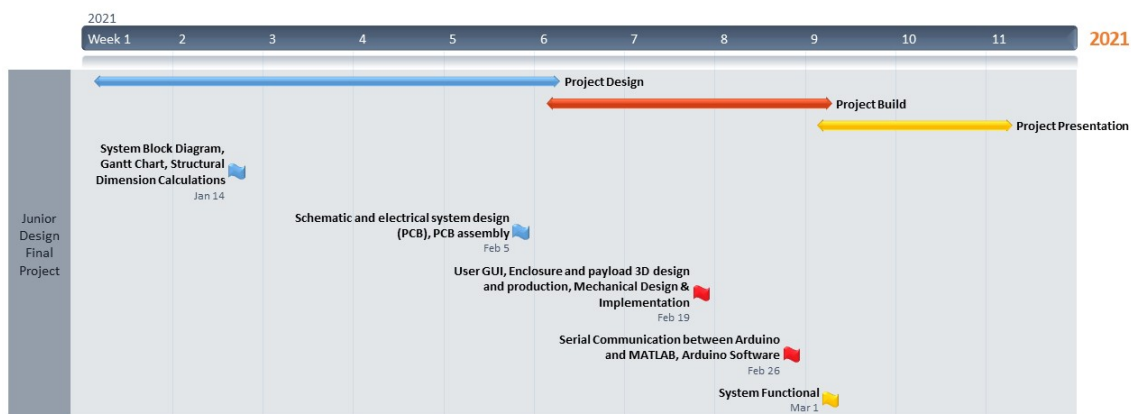

Figure 1: Project Timeline with Milestones