MSE 2202 B
Summary Report I
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Progress

The group has met 3 times to discuss various organizational topics, concepts for the device, and to work on the sequential stages of the design process as outlined by Professor Naish during his lectures.

During the first meeting, the group outlined the problem definition and decided on platforms for file sharing and communication. The problem definition is “[d]esign a device which can differentiate good from bad tesseracts and translate them to the appropriate location.” The platform for file sharing was decided to be GitHub because of it’s natural set up to store the changes to a text-based code file and compatibility with storing other file types. Slack was decided as the primary means of communication because it stores any files added to the Slack channel for the lifetime of the team’s channel.

During the second meeting, the group took a more organizational turn by outlining the information necessary to construct a Gantt chart. Other organizational steps included marking what information would be needed to write this summary report and what tasks each member of the group would work on overnight to be ready for another meeting the next day. The group did some brainstorming to come up with concepts to begin to outline the ways in which the device will function and how the device will appear, with respect to its overall form, at the end of the project. The overnight tasks included some computer aided design (CAD) modelling in SolidWorks, and the Gantt chart.

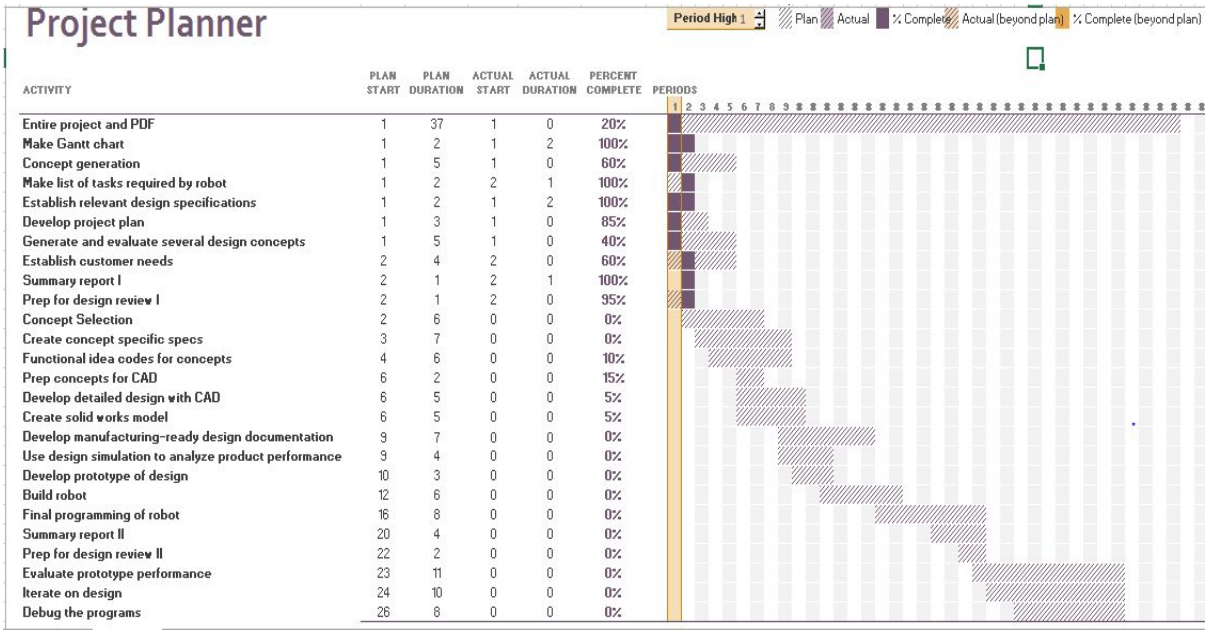
During the third meeting, the group revisited the steps necessary to complete the design process outlined by Professor Naish. With respect to the overnight tasks, each group member had completed his respective CAD assembly or the Gantt chart. As a result of minor difficulties in arranging the meetings, Slack was abandoned as the communications platform in favour of Facebook Chat. Chris and Tyler worked on a Quality Function Deployment (QFD) for the device after outlining functional and dimensional requirements for the device. Jasper worked on the chassis, and layout of the drive-base components and Michael worked on the gate CAD model. The QFD was used to clarify the functional requirements and engineering specifications that are necessary for the Functional Decomposition (FD) of the device. From there, the group moved onto Morphological Analysis (MA). The overnight tasks set during this meeting were for everyone to work on this summary report and 5 to 6 sketches for ideas then compare notes before the design review.

Prognosis

Given the expedient organization of the group in working efficiently to meet deadlines, it is expected that the group will work well together and will finish tasks on-time to get the project done. Due to the end of midterm season, team members will have greater flexibility and will have fewer school-related constraints, freeing them up to do more work on the project. Working with the given development environments should proceed more smoothly than during the previous meetings as all team members familiarize themselves with Github, Solidworks, and Arduino. The future of this design project seems bright and promising.

Plan

The Gantt chart (as seen below) outlines our project plan for the remainder of the project. For the next week, the major tasks can be seen in the top half of the Gantt chart.



ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Entire project and PDF	1	37	1	0	20%
Make Gantt chart	1	2	1	2	100%
Concept generation	1	5	1	0	60%
Make list of tasks required by robot	1	2	2	1	100%
Establish relevant design specifications	1	2	1	2	100%
Develop project plan	1	3	1	0	85%
Generate and evaluate several design concepts	1	5	1	0	40%
Establish customer needs	2	4	2	0	60%
Summary report I	2	1	2	1	100%
Prep for design review I	2	1	2	0	95%
Concept Selection	2	6	0	0	0%
Create concept specific specs	3	7	0	0	0%
Functional idea codes for concepts	4	6	0	0	10%
Prep concepts for CAD	6	2	0	0	15%
Develop detailed design with CAD	6	5	0	0	5%
Create solid works model	6	5	0	0	5%
Develop manufacturing-ready design documentation	9	7	0	0	0%
Use design simulation to analyze product performance	9	4	0	0	0%
Develop prototype of design	10	3	0	0	0%
Build robot	12	6	0	0	0%
Final programming of robot	16	8	0	0	0%
Summary report II	20	4	0	0	0%
Prep for design review II	22	2	0	0	0%
Evaluate prototype performance	23	11	0	0	0%
Iterate on design	24	10	0	0	0%
Debug the programs	26	8	0	0	0%