MECH 328 Weekly Progress Report *Dates: Oct 28 - Nov 03*

Group: 10 Project Title: TrailRider 5.0

Last Week's Goals:

1. Choose a gear train value with justification and calculations
2. Choose all components for the drive system
3. Choose wheels and a caster
4. Complete Appendix D
5. Make substantial progress on Appendix E
6. Complete the second DFMEA

Last Week's Activities:

Name	Activities	Hours Worked	
		Last Week	Total
Andrea	• Worked on the life cycle analysis appendix	8	57
Carson	• Determined preliminary train value range • Specified chair width per engineering calculations	8	57
Julia	• Researched various bike components to explore synergies and compatibility issues.	8	57
Lukas	• Completed a draft of 50% of the report body. • Wrote this weekly report.	8	57
Ratthamnoon	• Completed preliminary engineering design calculations to address prime areas of concern	8	57
Stephen	• Finished DFMEA 2 • Made significant progress towards DFMEA 3	8	57

Summary of progress:

- A preliminary gear ratio range has been determined to provide a general value such as to enable the specification of other drivetrain components.
- The second DFMEA is complete, and the third is nearing completion with only minor further revisions required per final design information.
- Life cycle analysis is 50% complete.
- Significant progress was made on the report in lieu of Appendices D and E.

Assessment of Overall Progress:

- Our team has approximately 7 meetings before the report is due. Our design decisions moving forward will be greatly constrained by time. The majority of our efforts will be

put into designing a drive-system, while other components such as frame material, fasteners and seat cushion will be chosen such that they are 'good enough for a prototype'.

- Appendices of the report are in various stages of completion and have been assigned 'leaders' who have begun their respective sections to ensure rubric deliverables are met.
- Drivetrain component selection is proving to be more time consuming than we initially anticipated. As such, we plan to primarily focus on the aspects relevant to propulsion and potentially abandon the specification of parts that at not unique to our design such as disc breaks.
- A MATLAB optimization has been value-engineered out of our plan based on time constraints as our time is better spent on ensuring we have a working set of components. Detailed optimization can be completed at later stages that are out of the scope of this project.

Goals for Next Week:

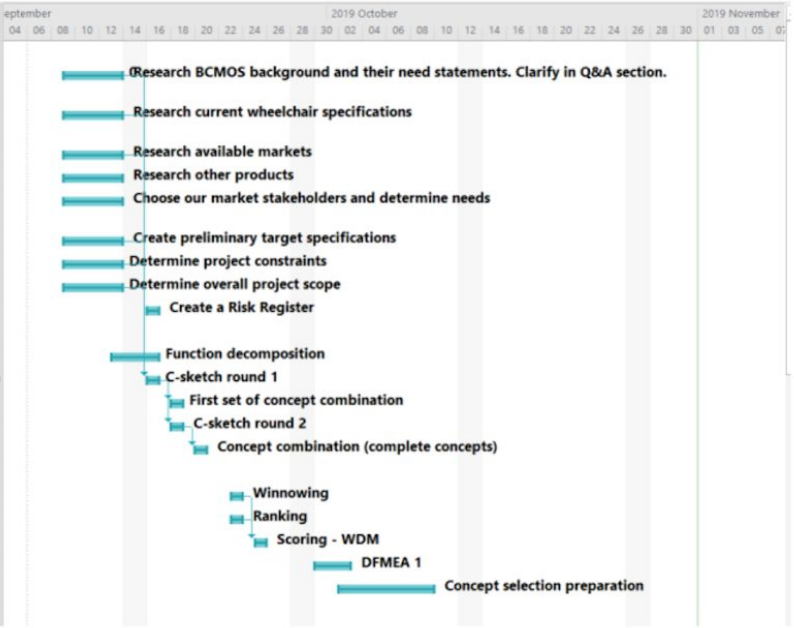
1. Finalize the specification of all drivetrain components.
2. Develop a working draft for all appendices to better evaluate progress.
3. Complete the third DFMEA
4. Complete all minor appendices

Action Items for Next Week:

Name	Action(s)	Due Date(s)
Carson	Finalize part specifications; intent towards producing a detailed list of components and associated costs.	11/06
Julia	Complete assigned minor appendices.	11/01
Friend	Refine calculations per final part specifications. Assemble the CAD model of the drivetrain system; intent to deliver engineering drawings and report images.	11/06
Stephen	Complete the failure modes appendix and assists with finalizing part specifications.	11/06
Lukas	Continue assigned in progress sections of the report body.	11/01
Lukas	Complete Appendices D and E	11/04
Andrea	Complete the life cycle analysis appendix and other minor appendices as per Goal item 4 for next week.	11/06

Detailed Design Gantt Chart:

Task Mode	Task Name	Duration	Start	Finish	Predecess
	Needs Assessment				
✓	Research BCMOS background and their need statements. Clarify in Q&A section.	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Research current wheelchair specifications	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Research available markets	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Research other products	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Choose our market stakeholders and determine needs	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Create preliminary target specifications	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Determine project constraints	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Determine overall project scope	5 days	Mon 19-09-09	Fri 19-09-13	
✓	Create a Risk Register	1 day	Mon 19-09-16	Mon 19-09-16	
	Concept Generation				
✓	Function decomposition	2 days	Fri 19-09-13	Mon 19-09-16	
✓	C-sketch round 1	1 day	Mon 19-09-16	Mon 19-09-16	2,3,4,7,8,9
✓	First set of concept combination	1 day	Wed 19-09-18	Wed 19-09-18	13
✓	C-sketch round 2	1 day	Wed 19-09-18	Wed 19-09-18	13
✓	Concept combination (complete concepts)	1 day	Fri 19-09-20	Fri 19-09-20	15
	Concept Evaluation				
✓	Winnowing	1 day	Mon 19-09-23	Mon 19-09-23	
✓	Ranking	1 day	Mon 19-09-23	Mon 19-09-23	
✓	Scoring - WDM	1 day	Wed 19-09-25	Wed 19-09-25	19,18
✓	DFMEA 1	3 days	Mon 19-09-30	Wed 19-10-02	
✓	Concept selection preparation	6 days	Wed 19-10-02	Wed 19-10-09	
	Design				



Task Mode	Task Name	Duration	Start	Finish	Predecess
✓	Concept selection preparation	6 days	Wed 19-10-02	Wed 19-10-09	
	Design				
	General CAD assembly of Trailrider	18 days	Wed 19-10-16	Fri 19-11-08	
✓	Determine key equations for analysis	4 days	Wed 19-10-16	Mon 19-10-21	
	Outsource list of key components	5 days	Mon 19-10-21	Fri 19-10-25	
✓	DFMEA 2	1 day	Wed 19-10-23	Wed 19-10-23	
	Costing & LCA	1 day	Wed 19-10-30	Wed 19-10-30	
	DFMEA 3	1 day	Wed 19-10-30	Wed 19-10-30	
	Create detailed CAD of key components	4 days	Wed 19-10-30	Mon 19-11-04	
	Engineering drawings of key components	3 days	Wed 19-11-06	Fri 19-11-08	
	Closeout				
	Report mock deadline	21 days	Fri 19-10-11	Fri 19-11-08	
	Report actual deadline	26 days	Fri 19-10-11	Fri 19-11-15	
	Presentation mock deadline	6 days	Fri 19-11-08	Fri 19-11-15	
	Presentation actual deadline	9 days	Fri 19-11-08	Wed 19-11-20	
	Logbook submission	2 days	Thu 19-11-28	Fri 19-11-29