Deliverable E - Project Schedule and Cost

Introduction

The purpose of this document is to outline the plan for the project and to provide a cost estimate of our product. The plan of the project will include the tasks that need to be completed, the team members that will be responsible for that particular task, the dependencies of the task, as well as the estimated time required to complete each task. The cost estimate of the product will outline the materials that are going to be required for the development of each of the prototype and its estimated cost.

Engineering Analysis

TBS: Functional Requirements

Design Criteria	Relation (=, < or >)	Value	Units	Verification Method
Functional Requirements				
Support lines would be hidden by infinite design	=	YES	N/A	test
void in the middle will be a reflection	=	YES	N/A	test
Provides a dimly lit hall and staircase if STEM lights are out	=	YES	N/A	test

TBS: Constraints

	Design criteria	Relation (=, < or >)	Value	Units	Method of verification
	Constraints				
1	Weight	<	800	lb	Analysis
2	Deployed Dimensions	=	5x3x2	m	Analysis
3	Size/ Volume	=	30	m3	Analysis
4	Conditions of operation: sensor detection	=	yes	N/A	test
5	Cost	<	100	$	Estimation, final verification

TBS: Non-Functional Requirements

	Design Criteria	Relation (=, < or >)	Value	Units	Verification Method
	Non-Functional Requirements				
1	Aesthetics	=	yes	N/A.	observation
2	Product Lifetime	>	5	year	Analysis

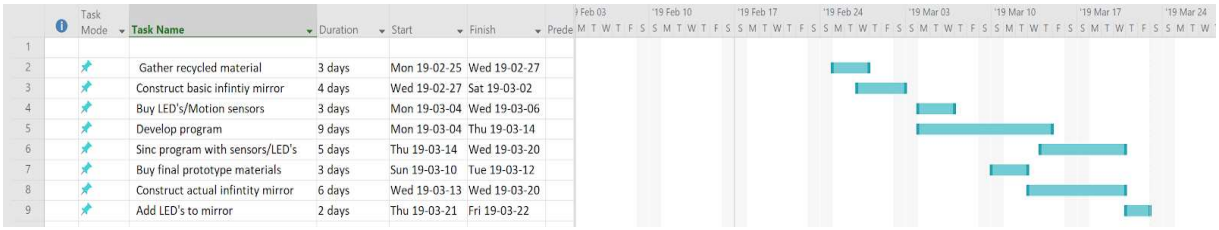
Material Selection

	Infinity Mirror	value	unit

Weight:	1m x 1m x 1mm	5.51	lb

Weight calculation:
760lbs

Gantt diagram



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1						
2		Gather recycled material	3 days	Mon 19-02-25	Wed 19-02-27	
3		Construct basic infintiy mirror	4 days	Wed 19-02-27	Sat 19-03-02	
4		Buy LED's/Motion sensors	3 days	Mon 19-03-04	Wed 19-03-06	
5		Develop program	9 days	Mon 19-03-04	Thu 19-03-14	
6		Sinc program with sensors/LED's	5 days	Thu 19-03-14	Wed 19-03-20	
7		Buy final prototype materials	3 days	Sun 19-03-10	Tue 19-03-12	
8		Construct actual infintity mirror	6 days	Wed 19-03-13	Wed 19-03-20	
9		Add LED's to mirror	2 days	Thu 19-03-21	Fri 19-03-22	

Project risks/contingency plans

Our Infinity mirror project should not have too many project risks but keeping a track record of possible risks is important to ensure the project has backup plans for a smooth timeline progression

Problems

1. The price of the model exceeds $100
   Solution: If the price exceeds $100 we will have to try to downscale the model so the price of the material is within our projects bounds

2. The frame, plexiglass, and mirror do not match well in dimension
   Solution: we either have to find a company to provide us with properly measured materials or use the Brunsfield maker center to take large sheets of material and cutting it to our customized requirements

3. We go behind on schedule
   Solution: to rejig our MS project timeline to have critical events be prepared and committed to, in order to get the project ready for design day

4. Our materials purchased online do not arrive on time for the presentation day
   Solution: to talk to the TAs or the Professor to get permission to add to the material list receipt whether it is within or over the budget and buying the required materials in-store or buying materials on campus to make it ourselves

5. If we cannot find the materials required for the projects at the given price
   Solution: either get permission to go over budget or find materials with similar properties to make replacements

Cost estimate

Materials and Components Required for Prototyping and Corresponding Costs

	Materials	Cost
Prototype 1	A) LEDS B) Small Frame (with glass) C) Window Film D) Small Mirror E) Wires and Battery	A) $5 B) $5 C) $15 D) $3 E) $7 Prototype Total: $35 TOTAL: $35
Prototype 2	A) Arduino B) LEDs C) Wires D) Sensors	A) $20 B) $5 C) Reused from previous prototypes D) $7.5x2 = $15 Prototype Total: $40 TOTAL: $75
Prototype 3	A) Large Frame with Glass B) Window Film C) LEDs D) Arduino E) Power Source and Wiring F) Sensors	A) $25 B) Reused from previous prototypes C) Reused from previous prototypes D) Reused from previous prototypes E) Reused from previous prototypes F) Reused from previous prototypes

		Prototype Total: $25 GRAND TOTAL: $100

Conclusion

In conclusion, our project should have enough room to stay right on budget, and additionally, the schedule for our timeline is precise. However, the time estimates on the timeline are not very accurate due to the lack of previous experience in planning a project of this sort. Nonetheless, the duration of each task provided is the maximum that task should take to be completed, just to be on the safe side. The deciding factor of the success of this project would entirely depend on the efforts put in by each of the team members to perform prior to their deadlines and to contribute to the development of the project.