Project Deliverable C - Part 2: **Project Plan, BOM and Feasibility Study**
GNG 2101 – Intro. to Product Dev. and Mgmt. for Engineers
Faculty of Engineering – University of Ottawa

GNG2101, Section # Z **Date:** May 30th, 2019
Team # Z2

Objective:

Conduct a feasibility study, provide a bill of materials and parts (BOM) and develop and track a project plan.

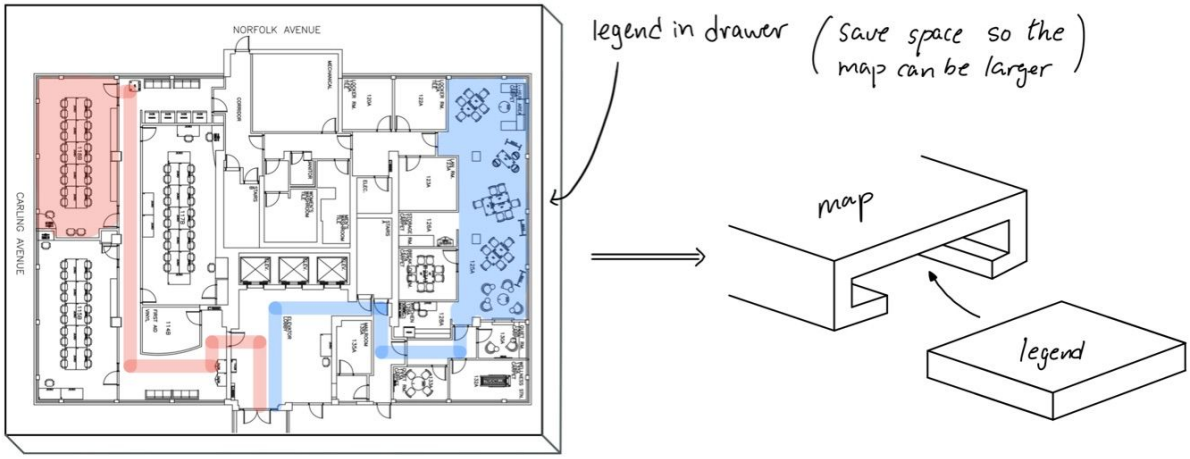
Initiation:

Problem Statement:

Navigating through unfamiliar terrain can be challenging for visually impaired individuals. Our team is taking on the task of creating a tactile map to help visually impaired employees who have trouble navigating the first floor of 785 Carling Avenue.

Chosen Solution

Sketch:



Description: A compact design where the legend is stored within the map, allowing the map to be bigger and therefore contain more information.

Solution benefits/drawbacks and implementation concerns:

- Benefits: Lots of mapping space (50 x 60 cm), room for detail, compact, portable and durable.

- Drawback/implementation concern: There is a possibility of too much increase in map thickness if the legend slot is not implemented properly.

Feasibility Study:

Technical: One of our team members is very agile in using the Solidworks software that we will use to design our map. The rest of our team has had basic training in Solidworks during the GNG1103 course last semester. However, using Solidworks is a skill most of our team still needs to work on and develop. Our team also has experience using other CAD softwares such as AutoCAD. This may help us adapt to using Solidworks much easier and with the support of our agile team member, we will be able to produce good results. All of our team members are trained in 3D printing and know how to operate the 3D printers available to us at STEM. All the software necessary to design and print our map is free and accessible.

Economic: A 1kg roll of 3D printer filament can range anywhere between $20 and $100+ dollars depending on the type of material, the quality, and the manufacturer. Our map will not weigh more than 5 kg so we could build a 5 kg map with a $20/kg filament. However, if we are able to stick to the 2-3 kg range, we would be able to get better quality filament for a higher price per kilogram. Generally speaking, funding our project is feasible.

Legal: There are no legal issues related to releasing our solution to the public.

Operational: Our group is able to perform well on tasks in a timely manner. Organization should not be an issue and will be highly prioritized in order to remain effective.

Scheduling: The deadlines are listed below in the planning table and will be respected.

Project Deliverables

Deliverable	**Due Date**
C: Conceptual Design + Project Plan	30 May
D: Detailed Design & Prototype	2 June
E: Project Progress Presentation	9 June
F: Business Model	16 June

G: Prototype II & Customer Feedback	23 June
H: Economic Report + 1 min Video Pitch	30 June
I: Materials of Design Day + Final Prototype	14 July
J: Intellectual Property	21 July
K: Final Presentation	22 July
L: Final Report	25 July

Planning:

Task List, Task Ownership and Task Deadline:

#	*Task Name*	*Task Owner*	*Required Resources*	*Completion Deadline*
1	C – Conceptual Design + Project Plan	Group	Reference to previous deliverables and lecture notes	31 May
2	D – Detailed Design and Prototype 1	Group	Reference to previous deliverables and lecture notes	2 June
3	E – Project Presentation	Group	Reference to previous deliverables and lecture notes	9 June
4	F – Business Model	Group	Reference to previous deliverables and lecture notes	16 June

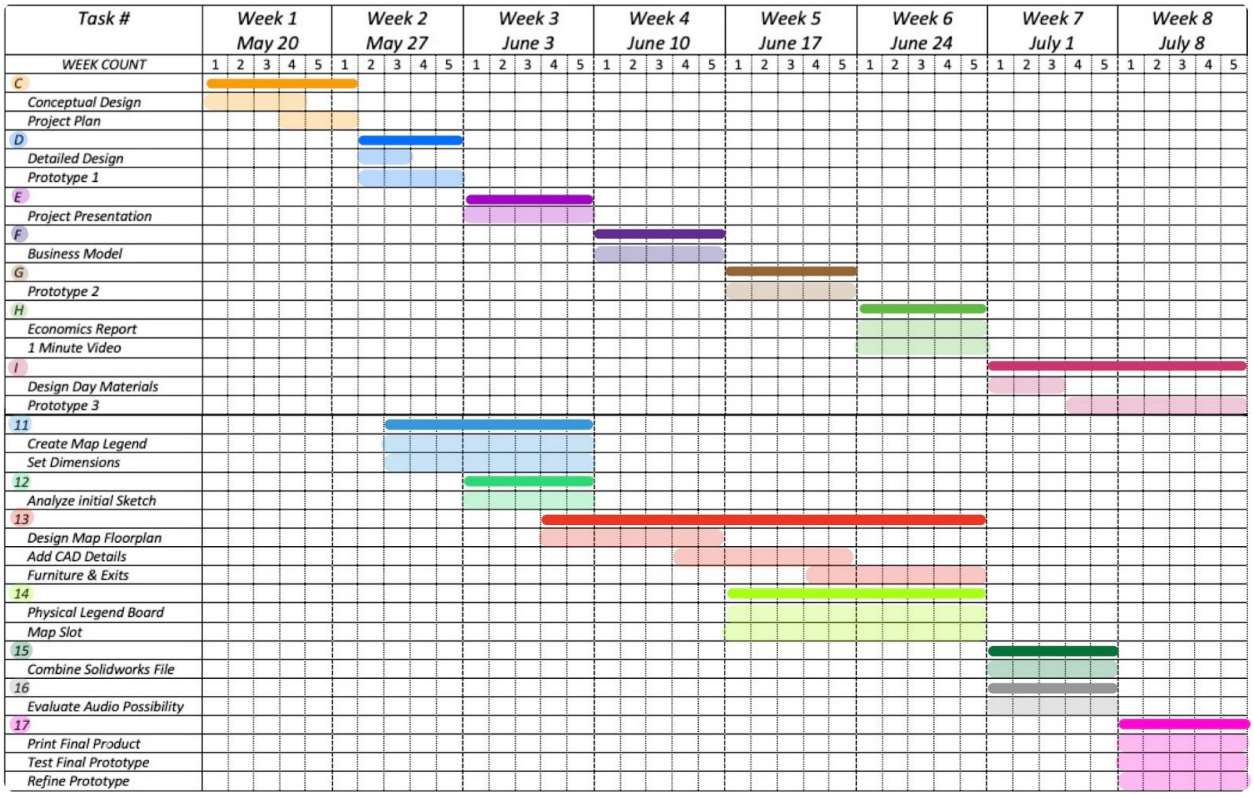
5	G – Prototype 2 & Customer Feedback	Group	Reference to previous deliverables and lecture notes	23 June
6	H – Economics Report & 1 Minute Video	Group	Reference to previous deliverables and lecture notes	30 June
7	I – Design Day Materials + Prototype 3	Group	Reference to previous deliverables and lecture notes	14 July
8	J – Intellectual Property	Group	Reference to previous deliverables and lecture notes	21 July
9	K – Final Presentation	Group	Reference to previous deliverables and lecture notes	22 July
10	L – Final Report	Group	Reference to previous deliverables and lecture notes	25 July
11	Create our map legend (symbols, textures and bilingual indications).	TBD	Pencil, eraser and paper or computer software	End of week 3
11	Decide on dimensions and make a first draft of what our map will look like (sketch).	TBD	Pencil, eraser, ruler, geometry set and drafting paper or	End of week 3

			CAD software.	
12	Analyze and review our initial sketch. Make any necessary changes and produce a final sketch that we will use as a reference for our CAD design.	TBD		End of week 3
13	*Design of the map surface. Design the basics of our map on Solidworks using the floorplan (walls, windows, pathways and doors/doorways).	TBD	Solidworks	End of week 4
13	*Design of the map surface. Add more detail to our CAD design (staircases, elevators, room numbers/names and washrooms).	TBD	Solidworks	End of week 5
13	*Design of the map surface. Add furniture and emergency exits to our CAD design.	TBD	Solidworks	End of week 6
14	*Design of interior component. Design the physical legend board using CAD design.	TBD	Solidworks	End of week 6
14	*Design of interior component. Design the map slot.	TBD	Solidworks	End of week 6
15	Put together all the components of our map in one Solidworks file and put parts (map and legend) together.	TBD	Solidworks	End of week 7
16	Brainstorm and evaluate the possibility of integrating audio and integrate it if feasible.	TBD	Pen, paper and a research engine. Other tools as necessary.	End of week 7

17	Physically build (3D print) our final prototype.	TBD	3D printer and plastic filament.	End of week 8
17	Test our final prototype.	TBD	TBD - Will depend on the type of test we will be conducting.	End of week 8
17	Refine our prototype (make any necessary changes).	TBD	Solidworks or other tools as required	End of week 8

TBD: *Tasks will be assigned on a weekly basis at the beginning of each week.

Gantt Chart



Prototype Bill of Materials and Parts (BOM)

Part # & Name	Description (and prototype #)	Qty.	Units Costs (CAD)	Extended Costs
1. Lego blocks And Cardboard	Small plastic parts that can be mounted onto each other in order to create different shapes and structures (**prototype 1**)	50-250 (Depends on size of the blocks) 1 Cardboard Box	$0 (provided by a team member)	$0
2. 3D printer	Prints 3D objects (**prototype 2 and 3**)	1	$0 (no cost is associated with using the 3D printers)	$0
3. Roll of 3D printer filament	Plastic filaments that are used for 3D printing (**prototype 2**)	0.5 kg	$20/kg	$10
4. Roll of 3D printer filament	Plastic filaments that are used for 3D printing (**prototype 3**)	3kg	$20/kg	$60