Project Deliverable E: **Project Schedule and Cost**

GNG 1103 – Engineering Design

Faculty of Engineering

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Introduction felix

Continuing from Deliverable D in which multiple innovative designs were developed, the construction of the design prototype can begin. The following will be the first of three developmental reports describing the major steps needed to build and test our prototypes until a final design is created. For the first report, four developmental aspects will be considered. They include an organization schedule of the mandatory tasks needed to complete the final design, an updated Gantt Chart for upcoming milestones, a list of possible contingency plans for the major design risks and a list of all the materials needed for the construction of the final design.

The schedule will provide specific information including the duration, due date and the group members in charge of each task. By generating a brief overview of all the tasks that need to be completed, group organization can be benefitted.

The Gantt chart will provide updates on completed tasks and milestones as well as all the newly assigned tasks since week 6 of the design phase.

For the contingency plans of the prototype, the main risks that were determined include project budget (limitations in obtaining appropriate components), testing difficulties and inexperience in certain necessary skills. A useful bit of information that we received from our client meeting, is that our device should not be automatically injecting people with naloxone. This took away some of the possible complexity of our device, while making future testing a lot easier and safer.

Finally, a list of materials that need to be purchased in order to build the prototype will be provided. In the list, the price of each material will be provided along with a link to where the material can be purchased online. Due to a tight schedule and budget, all materials will be purchased online and the total price of all materials will not exceed 100 dollars.

1. A list of all the tasks which need to be completed, an estimated duration for each task, as well as who is responsible for each task

Task Number	Task	Finished By	Team Member(s) in Charge	Estimated Duration
1	Designing Prototype + dimensioning	February 22, 2020	Shady + Felix	3 Hours
2	Deciding materials/parts used for prototype	February 25, 2020	Shayan + Tharaka	2 Hours
3	Ordering Prototype parts needed	February 28, 2020	Sam	1 Hour
4	Finding leftover parts not included in budget	February 28, 2020	Shady	3 Hours
5	Assembling + testing individual part (oximeter)	March 3, 2020	Shayan + Tharaka	6 Hours
6	Assembling + testing individual part (GPS locator + calling 911)	March 3, 2020	Shayan + Sam + Shady	10 Hours
7	Assembling + testing individual part (microprocessor/coding overall communication between parts)	March 3, 2020	Tharaka + Felix	6 Hours
8	Assembling + testing individual part (naloxone storage)	March 3, 2020	Sam + Shady	3 Hours
9	Assembling + testing part communication (overall functionality between components)	March 6, 2020	Tharaka + Felix	10 Hours
10	Assembling Prototype	March 10, 2020	Shayan	3 Hours
11	Testing prototype	March 10, 2020	Shady + Sam	6 Hours
12	Fixing bugs after tests	March 13, 2020	Tharaka + Felix	3 Hours

13	Adding extra features to prototype	March 17, 2020	Sam	2 Hours
14	Testing prototype again after additional features added + fixing bugs	March 20, 2020	Shayan + Shady	2 Hours
15	Deliverable F	March 1, 2020	Tharaka	6 Hours
16	Deliverable G	March 8, 2020	Shayan	6 Hours
17	Deliverable H	March 22, 2020	Shady	6 Hours
18	Deliverable I	March 26, 2020	Felix	6 Hours
19	Deliverable J	March 20, 2020	Sam	6 Hours
20	Deliverable K	March 30, 2020	Shady	6 Hours

2. A Gantt diagram (preferably made using MS Project), which includes all significant project milestones and all dependencies. Shady + trello week 6 (ill submit since I have the trello)

Attached to the doc, Submitted as a different file

3. A list of the significant project risks and your associated contingency plans to mitigate the critical risks that are *reasonably* likely

An issue our team has recognized from the beginning was our lack of coding skills. We did try to diversify our group when they were formed but despite doing that we still do not have an expert coder. Three of the members of the groups have taken coding courses in the past. Our plan is to assign coding to one individual but still have the other two recognize the issue and help him/her out.

Another project risk is the inability to test our final project. We can't have someone take drugs and we are also not allowed to restrict breathing, go underwater etc. Instead we will have one of the members either check if it detects oxygen/breath levels going up and down while exercising and sleeping

respectively.

The price limit for the manufacturing of the project is $100. In order to make a sophisticated project which contains all the components we desire 100 dollars may be a challenging limit. In order to make sure we stay within the limit and also make the best project possible we have assigned a member (Sam) to research more affordable parts and make the project within the budget.

The oximeter is an essential part of our device. It measures the oxygen level of the patient and that is what sends out a distress signal so it is maybe the most critical part of the device. It would be very risky to have an inaccurate oximeter reading. However we also need to find an oximeter which is affordable. To make sure we have a reliable oximeter we will test it multiple times with different people and against reliable devices.

4. An estimate of the cost for all components and materials which you will need for the different prototyping deliverables described above sam

Part	**Link**	**Material**	**Cost**
Oximeter Components	Link	-EVAL BRD Heart Oximeter Monitor	-$23.97
Armband	Link	-Velcro -EVA lycra fabric	-$8.99
Arduino Nano	Link	-Micro chip	(pack of 3) $17.65
Bluetooth Chip	Link	-Micro chip	(pack of 5)$19.99
GPS	Link	-Plastic -Lithium battery -Micro chip	-$3.99
Speaker	Link	-Plastic -Wires	-$13.99
Total Cost:			**$88.58**

Conclusion felix

For the project, each team will be allocated $100. To spend this money you must have a bill of materials and components, which must be approved by your TA. You will purchase materials and components yourselves and you will bring your TA the original receipts for a reimbursement. It is easier if only one person on your team makes all the purchases, but you must provide receipts.

With the prototyping process planned out, the initial stages of prototyping can begin, in which a conceptual prototype can be created in the next deliverable.