Why are we doing this test?

*This is an introduction. Capture the reasons for the test, giving enough background information to justify doing **any** prototyping at all. Is the **general** objective one of: learning, communication, de-risking, etc.*

For Deliverable F, we are creating the first prototype of our steampunk wearable design. Our design consists of a chestplate with an LCD screen at the centre that will light up in a gear shape every time the user's heart beats. We will have a heart rate sensor connected to an arduino that will control this action. For the first prototype we are focusing solely on the aesthetic look of the wearable, since this is the most important feature to the client.

The general objective of this first prototype is one of learning. We want to get a full understanding of how this wearable will look, and having the aesthetic layout of the wearable done first will allow us to figure out where to put the arduino circuitry for the future prototypes.

Test Objectives Description

*What are the **specific** test objectives?*

The specific objectives for this prototype are as follows:

- Figuring out how the costume will be put together
- Seeing how the prototype will look on the user
- Seeing how the conceptual design will look in reality (i.e. do the belts actually add to the aesthetic, should the placement of the gears be rearranged, etc.)

*What **exactly** is being learned or communicated with the prototype?*

What we are learning from this prototype is if our aesthetic design will actually work in reality. Right now our client thinks that our design looks good, but we may find that when we try to put all the pieces together (like the belts, the shoulder piece, the cardboard) it may not look as nice as we imagined. With this prototype we will get an idea for what looks good and what we could do to make the wearable look more steampunk.

What we hope to communicate with this prototype is what the wearable will generally look like on the user. We want to show the client our idea physically, since the aesthetic look is the most important part of the design for her. By having the aesthetic system worked out now, moving forward we will be able to focus better on other aspects of the design.

What are the possible types of result?

- The non-functional part design is complicated and is affect the function of the product.
- The concept behind the functional part design is inapplicable.
- The design does not meet the customer's demand.
- The produce process takes lots of time and cost more than prediction.
- The product is not stable, the functional part works rarely.
- The product is hard to maintain in working conditions.

How will these results be used to make decisions or select concepts?

The design of product is based on customer's demand. The concepts of the product should be simple and applicable in the real life. They should also be easy to apply then the cost of the product can be reduced and the produce process can be simplified which saves lots of time. The non - functional part should be simply but suits customer's demand. Moreover, it should also should not affect the functional parts. Since the design for product is simple and easy to apply, the product should be easy to maintain. The functional parts and non-functional parts of the product should also be easy to replace.

What are the criteria for test success or failure?

- Design flaws is the failure of prototype.
- Finding ease-of-use issues to determine the failure of design.
- Meeting the customer's demand.
- Choose among alternative concepts of design.
- Benchmarking the prototype to determine the advantages.
- Verifying the product is ready to launch is success.
- Soliciting improvement ideas.

What is going on and how is it being done?

*Describe the prototype **type** (e.g. focused or comprehensive) and the reason for the selection of this type of prototype.*

This prototype would be classified as a focused prototype. We gave it the classification as a focused prototype since it was designed and built for the sole purpose of testing and creating a conceptual design of the body of the project. The prototype does not include all sub systems that will be apart of the final product. It does not include the wiring and circuitry for the heart rate sensor nor the display.

Describe the testing process in enough detail to allow someone else to build and test the prototype instead of you.

The testing process is very simple; have a possible user try on the prototype, have the user walk around and do general actions and movements. While these actions are being done, record certain movements that are either, difficult for the user to perform, cause discomfort or negatively affects the structural integrity of the product. While doing this it's a good idea to record pictures and videos for record of these movements for analysis. From these observations, adjustments can be made. Also,taking photos and videos of all angles of the product is done to share the conceptual and general design ideas to the client for feedback.

*What information is being **measured**?*

The information that is being measured is not so much quantitative but qualitative it is the user's feedback in means of comfort and ease of use along with the user and clients opinions on the

product's aesthetics and design. That being said, we are able to quantify this data in the means of index scales.

*What is being observed and how is it being **recorded**?*

We will observe the outcome of the first prototype based on aesthetics and exterior looks, as well as how well the wearable would fit on the person. We will also look at the pros and cons of the rough design of the first prototype then record them in order to make future improvements.

What materials are required and what is the approximate estimated cost?

The required materials for the first prototype includes cardboard, tape, hot glue gun, 3D printed gear, and drawing utensils for further illustrations of the design. The first prototype will be free of cost. All materials are provided by the group members, therefore the $100 budget will not be touched.

What work (e.g. test software or construction or modeling work or research) needs to be done?

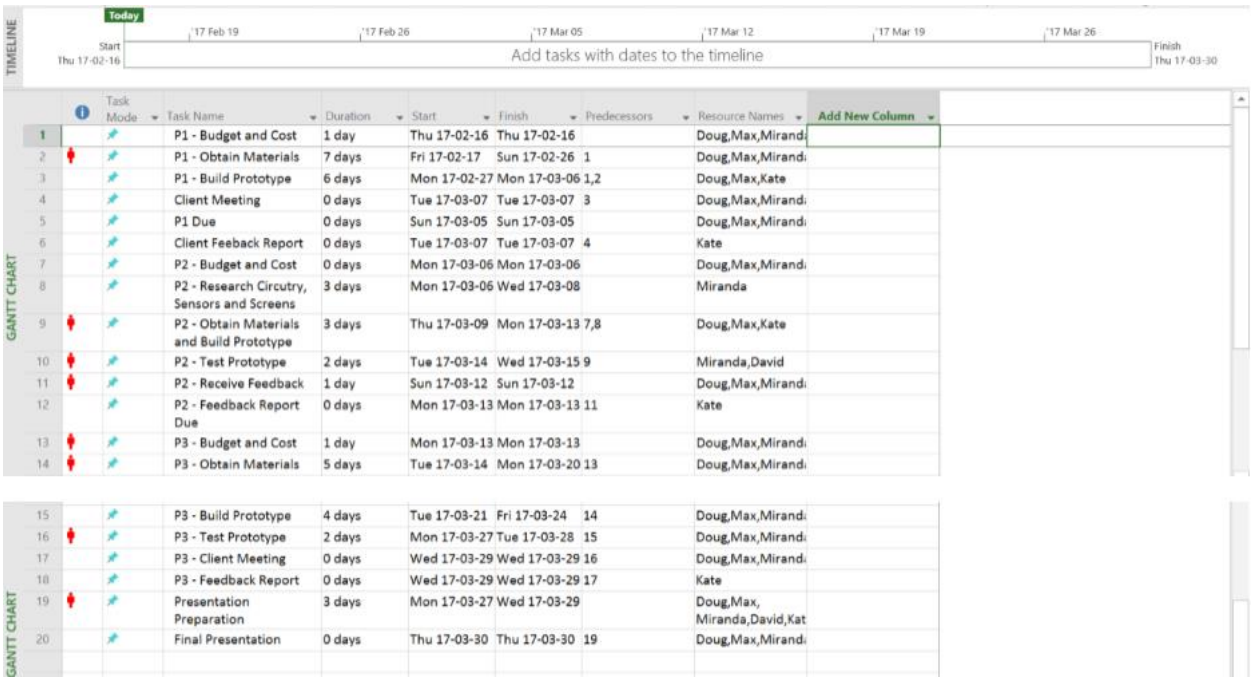
First, all of the materials need to be brought in by the group members according to the parts list. Cardboard would be used to create the shoulder plate and the outer layer of the chest plate. The body of the chest plate would be a hockey chest piece located underneath the layer of cardboard. Steampunk gears and exterior decorations would then be added for steampunk aesthetics. The chest plate would be painted after it is assembled and a hot glue gun would be used to put the cardboard pieces
together.

When is it happening?

*How long will the test take and what are the **dependencies** (i.e. what needs to happen before the testing can occur)?*

The testing process will take place over the month of March in 3 increments. The first prototype will be one focused more on aesthetic and the design layout of the wearable. The second prototype will be more specific to the manipulation and testing of the software and technology we will be incorporating. And lastly, the third prototype will be an implementation of both technology and design, similar to the final product. Before these steps occur, our team must be prepared by acquiring the proper materials, having design specifications and measurements, detailed production schedule, and criteria. As this process furthers, our team will seek feedback from our clients in order to ensure that we meet their needs.

A separate test planning Gantt chart can be created to help making sure that the testing fits with the overall project schedule or it can be defined as part of that schedule (i.e. as a sub-task).



TIMELINE

Today

'17 Feb 19 | '17 Feb 26 | '17 Mar 05 | '17 Mar 12 | '17 Mar 19 | '17 Mar 26

Start Thu 17-02-16

Add tasks with dates to the timeline

Finish Thu 17-03-30

GANTT CHART

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
1		P1 - Budget and Cost	1 day	Thu 17-02-16	Thu 17-02-16		Doug,Max,Miranda	
2		P1 - Obtain Materials	7 days	Fri 17-02-17	Sun 17-02-26	1	Doug,Max,Miranda	
3		P1 - Build Prototype	6 days	Mon 17-02-27	Mon 17-03-06	1,2	Doug,Max,Kate	
4		Client Meeting	0 days	Tue 17-03-07	Tue 17-03-07	3	Doug,Max,Miranda	
5		P1 Due	0 days	Sun 17-03-05	Sun 17-03-05		Doug,Max,Miranda	
6		Client Feeback Report	0 days	Tue 17-03-07	Tue 17-03-07	4	Kate	
7		P2 - Budget and Cost	0 days	Mon 17-03-06	Mon 17-03-06		Doug,Max,Miranda	
8		P2 - Research Circutry, Sensors and Screens	3 days	Mon 17-03-06	Wed 17-03-08		Miranda	
9		P2 - Obtain Materials and Build Prototype	3 days	Thu 17-03-09	Mon 17-03-13	7,8	Doug,Max,Kate	
10		P2 - Test Prototype	2 days	Tue 17-03-14	Wed 17-03-15	9	Miranda,David	
11		P2 - Receive Feedback	1 day	Sun 17-03-12	Sun 17-03-12		Doug,Max,Miranda	
12		P2 - Feedback Report Due	0 days	Mon 17-03-13	Mon 17-03-13	11	Kate	
13		P3 - Budget and Cost	1 day	Mon 17-03-13	Mon 17-03-13		Doug,Max,Miranda	
14		P3 - Obtain Materials	5 days	Tue 17-03-14	Mon 17-03-20	13	Doug,Max,Miranda	
15		P3 - Build Prototype	4 days	Tue 17-03-21	Fri 17-03-24	14	Doug,Max,Miranda	
16		P3 - Test Prototype	2 days	Mon 17-03-27	Tue 17-03-28	15	Doug,Max,Miranda	
17		P3 - Client Meeting	0 days	Wed 17-03-29	Wed 17-03-29	16	Doug,Max,Miranda	
18		P3 - Feedback Report	0 days	Wed 17-03-29	Wed 17-03-29	17	Kate	
19		Presentation Preparation	3 days	Mon 17-03-27	Wed 17-03-29		Doug,Max, Miranda,David,Kat	
20		Final Presentation	0 days	Thu 17-03-30	Thu 17-03-30	19	Doug,Max,Miranda	

GANTT CHART

When are the results required (i.e. what depends on the results of this test in the project plan)?

The results of the first prototype will affect both prototype 2 and 3 as it will contribute in determining how the software will fit into the design, any size and placement adjustments that need to be made for the final design, and will give us the ability to receive feedback from our client as to meet their criteria.