Project Deliverable G
Large Font Pedometer

Submitted by

Team 10 - The Next Step

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1 Introduction

DEEN Support Services is a charity service that needs a large font pedometer for individuals with visual disabilities. Our team was chosen to implement the idea through the GNG 2101 course at the University of Ottawa. We already had three initial meetings with DEEN, and many brainstormed design ideas to pitch our prototype and collect feedback.

In this deliverable, we aim to recognize and describe a type of business model that can and will be suitable for commercializing our team's product in the future. We will begin by discussing and identifying the type of business model we want to represent for our final product and, in the future, our company. In addition, a business model canvas will envelop the core ideas of the model and represent it through one table under questions of who, how, what, etc. Once both business models are complete, the assumptions made from them will be compared on their feasibility. After, we will focus on the economics report of this deliverable. We will start this part of the project by listing variables, fixed, direct, and indirect costs associated with our business based on the manufacturing and sale of our product. Next, we will develop a 3-year income statement, which includes sales revenue and costs of units sold for each year, gross profit, operating expenses, and operating income. After, based on an NPV analysis, we will determine the break-even point by drawing two cash flow diagrams. Lastly, we will describe and justify all assumptions that we have made in developing our economics report. These assumptions will be based solely on the business models alone and not the teams' current prototypes.

2 Business Model

Suppose we could imagine a world where an organization captures an individual's actual value and needs. Ideally, A good business for our type of business and product would focus on the user experience and accessibility of our product with sales as its core source of income. We'd also advertise our product which requires our organization to understand the users' goals and what inspires them. This would mean that we would not have too many ads because we would want to focus the user's attention on the primary purpose of our project design. We don't want to overcrowd and discourage users with ads, which will frustrate them and prevent them from using our product and defeat the purpose of easy usability. Also, we would want to focus our attention on ensuring that the product is continuously being maintained and possibly updated. This would mean that the focus wouldn't go towards advertising as much as other aspects.

We must understand that a business model requires production cost and other components, not just income. Other features include the problem and solution, competitive advantages, and value proposition. Preferably, we will focus on the issue and resolution, along with the value proposition. For the problem and solution aspect, we will target the user's pain points and how we intend to meet them for the value proposition aspect. We will make features to our business model that will attract our customers. These two aspects are highly crucial when creating a business model to capture the needs and actual value.

2.1 Business Model Canvas

<table>
<tr><th>How</th><th>What</th><th>Who</th></tr>
<tr>
<td colspan="2">
Suppliers and Partners Needed
-Adafruit

Key Activities
-Production and Advertising of Pedometers

Key Resources Needed
-Production Area
-Access to advertising
</td>
<td>
Value Proposition

- Individuals that are looking to get into better shape
-individuals with possible eyesight issues
</td>
<td colspan="2">
Relationships
- Customer service
- Contact us tool (email, phone, live meetings)

Channels
- Website
- Television
- Radio
- Social Media ads

Customer Segments
-Young students
-People willing to get in shape
-People who want a large visual screen
-Individuals that have problems seeing far
</td>
</tr>
<tr><th colspan="5">How much?</th></tr>
<tr>
<td colspan="3">Costs
-Technological Set up & running costs</td>
<td colspan="2">Revenue
-Sales of pedometers</td>
</tr>
<tr>
<td colspan="3">Social/environmental costs
-High usage of batteries may have long term effects</td>
<td colspan="2">Social/environmental benefits
-Motivation and Excitement to get into better shape</td>
</tr>
</table>

Figure 1. Business model canvas

2.2 Core Assumptions and Feasibility

1. Competition- Although we believe our product is the best in the market, various other products likely may match our design. Due to this, we must make our business model stand out compared to the rest of the competition to make the users more likely to use our business model, which may lead them to purchase the product. In the same way, we know that people are more likely to stay in a setting where they are comfortable and feel at home. By checking our competitor's business models, our group can select which ones draw more of our attention and think of why they do. After, we can base our business model on the concept that drew our attention initially. However, we will aim to beat those concepts. This concept that we will do is like benchmarking and setting up target specifications which we learned in class. For instance, if one of our competitors draws our attention with good colors, we will take that idea and make our business model a specific theme with bright and welcoming colors.

2. Marketing- We acknowledge that marketing will be an issue due to not everyone wanting our product. Reasons as to why this is possible are due to the purpose of our product. For instance, the goal of our project is to make a pedometer that is easy to understand and read for people with poor eyes that are trying to get in shape. We acknowledge that not

everyone has poor eyesight, and not everyone is trying to get into shape. Due to this, we should expect not too many users to check our business model unless they fit the requirements of our goal. On the contrary, we can still self-promote our product through ads or hosting events. Our goal is to target user's pain points, show how we intend to meet them, and develop a feature to attract them. By promoting, it is possible that we can reach our goals even if marketing might be an issue.

3. Resources- To make our product stand out, we recognize that we need vital resources to boost our publicity. As listed in the Business Model Canvas, we don't have many resources or connections willing to assist in our business model possibly. We know that it is crucial to have partners; however, we don't necessarily believe organizations will overjoy our project idea. Although it is a creative idea, as mentioned before, we realize that not everyone meets the requirements for our project. Furthermore, the users need access to available resources such as computers, phones, or radios to hear about our project. Without these individuals having access to these resources, they won't know about our project. In summary, we admit that resources for both our group and potential users might be a likely problem.

3 Economics report

3.1 List of costs

Below, you will find a table with the costs associated to our project.

Table 1. List of costs

Costs (Items that are prices are shaded in blue)	Fixed, Variable, Semi-Variable	Direct, Indirect
Electronic display	Variable	Direct
Electronic microcontroller	Variable	Direct
Buttons	Variable	Direct
Wires	Variable	Direct
Switch	Variable	Direct
3D Printed Case	Variable	Direct
Wrist Strap	Variable	Direct
Labour/Manufacturing	Fixed	Indirect
Advertising	Semi-Variable	Indirect
Office Supplies	Variable	Indirect
Utilities	Variable	Indirect
Rent	Fixed	Indirect

3.2 Income Statement

To create the income statement of our company, we initially calculated the cost of making one pedometer to then calculate the Cost of Goods Sold in our Income Statement. Below is the breakdown of the price to make one pedometer.

Table 2. Total price per unit

Waterproof Push Button	10.0
Lithium Ion Polymer Battery	6.0
Adafruit Micro-Lipo Charger	7.0
Battery Extension Cable	2.0
Circuit Playground TFT Gizmo	20.0
Circuit Playground Bluefruit	25.0
SPDT Slide Switch	1.0
USB A to micro B Cable	4.0
Total Price Per Unit	74.6

After determining the Cost of Goods Sold, we could generate our income statement. Along with the assumptions described further in the text, we generated the income statement shown below. We can see that due to the high cost of making the pedometer and the low sales, our first year ended in a deficit. However, after obtaining a discount on the parts to build a pedometer and obtaining an increase in sales, we obtained a positive income for the second and third year which indicates potential for our company.

Table 3. Income statement

Income Statement	**2022**	**2023**	**2024**
Sales	75,000.0	150,000.0	500,000.0
Total Net Revenue	**75,000.0**	**150,000.0**	**500,000.0**
Cost of Goods Sold	37,300.0	59,700.0	298,500.0
Gross Profit	**37,700.0**	**90,300.0**	**201,500.0**
Expenses			
Advertising & Promotion	500.0	1,000.0	3,500.0
Office Supplies	150.0	150.0	500.0
Rent	10,000.0	10,000.0	45,000.0
Salaries, Benefits & Wages	30,000.0	50,000.0	100,000.0
Utilities	1,500.0	1,500.0	2,000.0
Total Expenses	42,150.0	62,650.0	151,000.0
Earnings Before Interest & Taxes	**(4,450.0)**	**27,650.0**	**50,500.0**
Income Taxes (15%)	(667.5)	4,147.5	7,575.0
Net Earnings	**(3,782.5)**	**23,502.5**	**42,925.0**

3.3 Break-even point analysis

Below is the NPV analysis of the income and expenses, we also made a graph plotting the present income and expenses over the three years to find the break-even point.

Table 4. NPV analysis for income

Period (Years)	Income Cash Flow Amount ($)	Present Value ($)
0	$37,700.00	$37,700.00
1	$90,300.00	$87,669.90
2	$201,500.00	$179,030.14
		$304,400.04

Table 5. NPV analysis for expenses

Period (Years)	Expenses Cash Flow Amount ($)	Present Value ($)
0	$42,150.00	$42,150.00
1	$62,650.00	$60,825.24
2	$151,000.00	$134,161.54
		$237,136.79

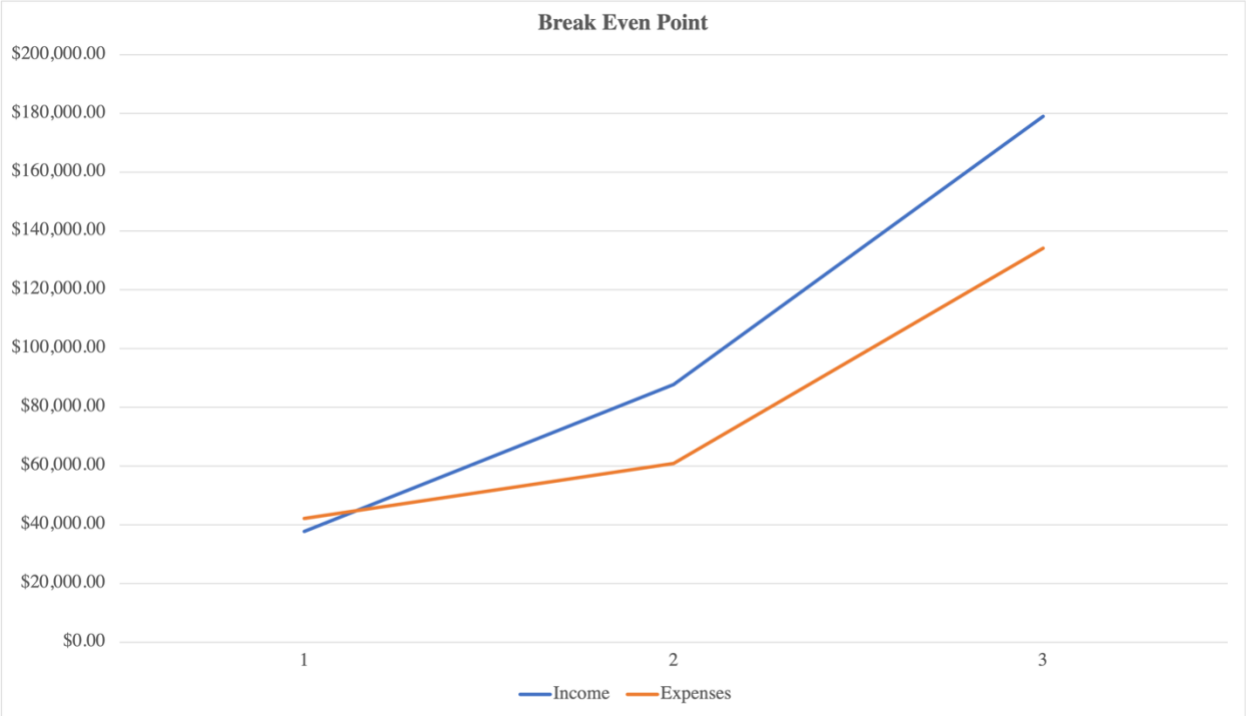

Figure 2. Break-even plot of the present values of the income and expenses over a three year period

From the figure above, we see that between years 1 and year 2, the company has reached the break-even point. This was caused by the discounted cost to create the product as well as the increase in sales of pedometers.

3.4 Assumptions

We assume that during the first year, we sold 500 pedometers, then in the second and third year, we sold 1000 and 5000 pedometers. This is due to a possible spike in advertising due to revenue and a deal with product suppliers. Another assumption we are making is that we'd get an agreement with Adafruit to get better bulk deals for electronic parts. This would lead us to sell more units in the third year, increasing overall revenue. We also assumed that we would be renting out an office and have one employed person the first year, then two employees the second year and finally three employed people the third year. The last assumption made is an annual interest rate of 3%.

And due to the recent influx of people starting to care about their physical health, pedometer sales are on the rise. And because there aren't any other pedometers on the market that are even close to our product's capabilities, we assume that (initially) we'd have 100% of the specialized pedometer market and around 5% of the overall pedometer market. This would allow for our sales goals to be met and possibly surpassed. Our product would start at $150 for the first two years due to our product's intricacies and high quality. The price will drop to $100 in the third year to open the market and make it more affordable while still high quality.

4 Updated Project Plan

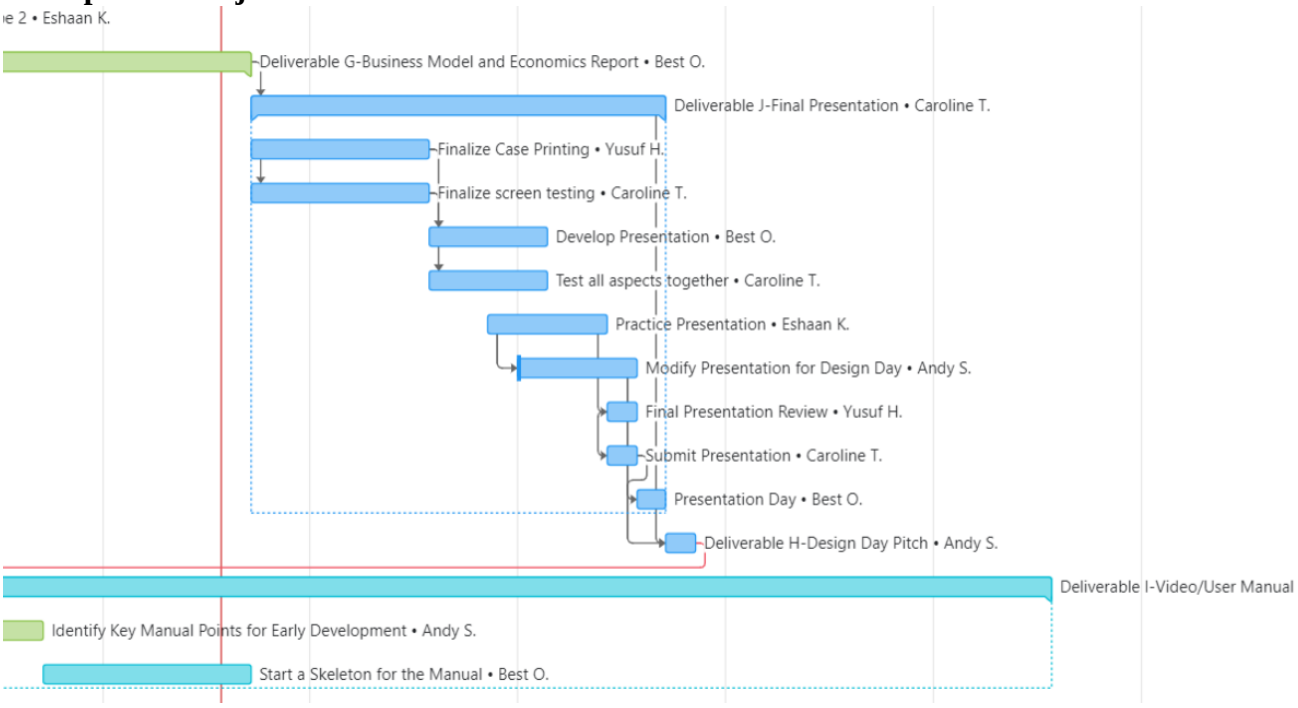

Figure 3. Updated Gantt chart

As illustrated in the Gantt chart, we have a completely updated project plan with a great number of details for the next week's presentation, and a rough schedule for the next month. It can also be seen that every task has one member responsible for it to ease the understanding of who does what. With that in mind, we also make sure to check in with each other and always ask for help when needed. An important part to note is that we take into consideration our time frame and that we are busy on days like Tuesday, Friday and Saturday and Sunday. Therefore, we made sure to always have tasks on other days such as Monday after class, Wednesday after class or over multiple days if it is necessary. Also, we always have Thursday to double check for quality of the deliverable and give us time, just in case we're late, to be ready to submit our deliverable and talk about our future tasks.

5 Conclusion

This deliverable summarized a business model that is well suited in commercializing our team's final product. We described a type of business model, developed a business model canvas, listed core assumptions based on our business model, listed variables, fixed, direct, and indirect costs associated with our business, developed a 3-year income statement, determined the break-even point using NPV analysis, and list the assumptions that we have developed based off of our economics report. Although this deliverable is not on track with our group developing our prototype, we needed to consider what would happen if our group was a team trying to run an organization based on our final project. This deliverable can be helpful for future references if anyone is interested in trying to sell a product. Our goal is to complete our third and final physical prototype in the coming weeks with all our key features included. This also includes having a software program that runs at our command based on the instructions we give to the pedometer. Overall, our group is on track to complete our final prototype in the given time we established.