Project Deliverable H: Economics Report and 1 Minute Video Pitch

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Submitted to

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For the course

INTRODUCTION TO PRODUCT DEVELOPMENT AND MANAGEMENT

FOR ENGINEERS AND COMPUTER SCIENTISTS

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H.1 Economics report:

1. Include a list of: variable, fixed, direct and indirect costs associated with your business, based on the manufacturing and sale of your product. Make sure that you distinguish between price and cost and realize that prototyping and higher-volume manufacturing costs will probably differ.

DESCRIPTION	CLASSIFICATION
Financing cost	variable, indirect cost
Tax	variable, indirect cost
Rent	fixed, indirect cost
Production material	variable, direct cost
Material	variable, direct cost
salary	fixed, indirect cost
Depreciation	variable, direct cost
Overhead	fixed, indirect cost
Electricity	semi-variable, indirect cost

2. Develop a 3-year income statement, which includes: sales revenue and costs of goods sold for each year, gross profit, operating expenses and operating income (no need to include interest and taxes).

The following lines describe a theoretical income-expense report for an initial three years. The dollar values listed are in 1000s of dollars. Ie. a reported value of $300 refers to an actual value of $300000.

Sales:		$1000
Cost of Goods Sold:	-$350	
Gross Profit on sales:		$650
Operating Expenses:		
Marketing Expenses:	-$150	
General & Admin Expenses:	-$120	
Depreciation:	-$60	

Total Operating Expenses:	-$330
Operating Income:	$320

As the report does not need to include tax, and it is assumed that there is not interest on the initial loans, the report ends on operating income. Therefore, over the course of three years, it is expected that the total operating income is a total of $320000. This is a reasonable value considering the demand of the product as well as typical costs of running such a business. Furthermore, this value leaves ample rooms to pay interest, taxes, account for a contingency and spend more on R&D.

3. Using a NPV analysis, determine the break-even point (it is highly unlikely that your operating income will be positive in the first year because of fixed costs).

The assumptions made here are that the cost of goods are the only important factor for the NPV analysis due to the unknown nature of the other overhead costs. Additionally, the entire investment was provided at the very beginning.

Initial investment	$350000
Price of one unit	$50
Break-even point	$\frac{inital\ investment}{unit\ price} = \frac{\$350000}{\$50}$ = 7000 units

Therefore, it can be said that the business will break even after 7000 complete units sold. To make this analysis simpler, no other aspect of the business was considered (such as providing service to repair broken units or providing replacement sensor pads, etc...).

4. Describe and justify all assumptions that you have made in developing your economics report.

The assumptions were made based on the mean squared average value of manufacturing costs, customer market research conducted supplementing the initial demand curves produced during the research phase on this project.

A list of assumptions are provided below:

- Minimum Annual Return Rate: 10%
- Cost of manufacturing entire clothing item: $25
- Cost of manufacturing replacement sensing pad: $3

- No risk factors that would fluctuate prices within next three years
- Demand increases over time for product if no supplied solution

- Fixed business expenses are constant per year for the next three years
- Market for the proposed solution exists
- Marketing effectiveness remains constant over the next three years for a fixed input cost

While some of these assumptions may not hold true, the consequences are minimized using this set.

H.2 1-minute video pitch.

Create a video, approximately 1 minute in length, where your team will:

1. Introduce (and potentially brand) itself.
2. Explain the problem that is being solved and highlight the importance of solving the problem now.
3. Discuss the proposed solution and its competitive advantages.

The video can be found at this link:

https://www.youtube.com/watch?v=5GJbyg-g-0c

The same video can also be found on our MakerRepo account:

https://makerepo.com/akabe104/gng-2101fall-detection-system