Project Deliverable H : Economics Report and Pitch

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Team : A - 06

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Introduction:

The following document will include a list of variable, fixed, direct and indirect costs associated with our business. It will include a 3-year-statement, with sales revenue, the costs of goods sold each year, gross profit, operating expenses and operating income. We will determine the break-even point, and describe and justify all assumptions made during the development of this report. To better understand our product manufacturing process here is a breakdown of how it is intended to work :

We will buy all the electronic parts of our product from a supplier, and we might get cheaper rates once we start buying in bulk. Our software will have a high initial development cost, but upgrades will not be costly. 3D printing costs might change depending on if there are changes in the design of our product. For instance, if the product changes to a smaller design, less material and time will be required to build it.

Types of Cost:

Variable Cost: Varies with the production output level

Fixed Cost: Independent of production output

Direct Cost: Variable/Fixed material/labour/expense cost for a specific project

Indirect Cost:Variable/Fixed material/labour/expense cost independent of any specific project

For Manufacturing less than 25 devices (Prototype):

#	Item/Service	Type of Cost	Units/device	Total Cost (CAD)	Total Price
	Material				
1	Raspberry pi	Variable/Direct	1	46.22	-
2	Camera	Variable/Direct	1	12.99	-
3	Adapter	Variable/Direct	1	13.99	-
4	SD Card	Variable/Direct	1	5.95	-
5	Speaker	Variable/Direct	1	3.45	-
6	Microphone	Variable/Direct	1	4.90	-
7	Solderable Breadboard	Variable/Direct	1	16.98	-
8	Support stand	Variable/Direct	1	5	-
9	Device Casing	Variable/Direct	1	10	-
10	Packaging	Fixed/Direct	1	3	-
11	Delivery/transportation	Variable/Direct	1	5	-
	Labour				
1	Assembly	Fixed/Direct	1 hr	14	-
2	Software Development	Variable/Direct	120 hours	1680	-

	Other Expenses				
1	Marketing and Sales	Fixed/Direct	0	0	-
	TOTAL COST (CAD)			136.41	300

For Manufacturing more than 25 devices:

#	Item/Service	Type of Cost	Units/device	Total Cost (CAD)	Total Price
	Material				
1	Raspberry pi	Variable/Direct	1	44.22	-
2	Camera	Variable/Direct	1	10.99	-
3	Adapter	Variable/Direct	1	11.99	-
4	SD Card	Variable/Direct	1	5.95	-
5	Speaker	Variable/Direct	1	3.45	-
6	Microphone	Variable/Direct	1	4.90	-
7	Solderable Breadboard	Variable/Direct	1	14.98	-
8	Support stand	Variable/Direct	1	5	-
9	Device Casing	Variable/Direct	1	10	-

10	Packaging	Fixed/Direct	1	3	-
11	Delivery/transportation	Variable/Direct	1	3	-
	Labour				
1	Assembly	Fixed/Direct	1 hr	14	-
2	Software Development (Initial Investment)	Variable/Direct	120 hours	1680	-
	Other Expenses				
1	Marketing and Sales	Fixed/Direct	0	0	-
	TOTAL COST (CAD)			126.41	300

It is imperative to know that the price per device can plummet depending on the number of parts being manufactured. More devices means more material and buying material in bulk will reduce the overall price. Under software labour costs, 120 hours of work can be divided over the number of devices sold in the span of three years, to increase and keep a balance in profit distribution. The support stand, device casing, delivery and packaging costs are estimated for better approximation. Prices for bulk manufacturing have been approximated to show how mass production can significantly decrease the price of a product compared to a single device.

3-Year Income Statement:

Sales Price/Unit: $300

Cost/Unit: $113 CAD (materials)

Assembly time: 1hr/device

Other expenses: $5

Total Cost/Unit: $126.41

Operating Expenses: Labour, cost of materials, delivery, and packaging

Initial overhead: $1680 for software development (hourly wage)

	Year 1- 60 units	Year 2- 100 units	Year 3- 150 units
Sale Revenue ($)	18,000	30,000	45,000
Costs of good sold each year ($)	7, 584.60	12,641	18,961.50
Gross Profit ($)	10,415.40	17,359	26,038.50
Operating Expenses ($)	10,112.80	15,169.20	21, 489.70
Operating Income ($)	302.60	2198.80	4548.80

NPV and Break-even point:

Break-Even Point in ***Units*** = (Fixed Cost)/(Sales Price Per Unit - Variable Cost Per Unit)

Break even point for year 1: 1020/(300 - 114.48) = 5.498

So for the first year, we need to sell 6 units to reach the break even point.

Assumptions:

- There is no depreciation because the device is hand made, hence no machines are required to assemble it. Which means we as a company will not have to worry about any depreciation cost.
- There are no indirect costs associated with our product since it is a single project. We will use 3D printing and software development.

- Our income statement is based on the fact that no issues will occur with the product, as well as workers are content with the workplace. We assumed no updates need to be done, which will lower the overall cost.
- We have no liabilities and we function as a partnership company, hence no shareholders other then the founding team itself.

Conclusion:

In this deliverable, fixed, variable, and direct costs were established to our product. A three year income statement was then created and it was calculated that our company would be making money within the first few months of production. To be exact, only 6 devices must be sold for our company to make money in the first year. Our income statement does not take into account the assumptions we have made above. If these factors are encountered, we may not be making money as early as planned. Also, our break even point will be affected so that it takes more units to make profit.