**Deliverable H.1**

Economics Report

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**Introduction**

 With any business, it is important to pre-plan where the capital money will go and how much profit the company has a chance of making. This can be done using an income statement and net present value analysis. These are beneficial as it can help businesses understand their finances and whether or not to their product will be successful or not. There are many costs that are involved in starting a company. With that being said, it is important to understand the difference between price and cost. Price is defined as the selling amount which the customer purchases the product for and cost is defined as the amount which is brought by the product to the market.

**Costs**

|  |
| --- |
| Costs |
| Variable | Fixed | Direct | Indirect |
| * Materials used to make product
* Packaging
* Labour costs
* Shipping costs
 | * Building rental
* Machinery and tools costs
 | * Labour costs
* Direct materials (BOM)
* Commissions
 | * Utilities
* Quality control costs
* Production supervision salaries
 |

|  |  |  |  |
| --- | --- | --- | --- |
| **ITEM** | **COST PER UNIT ($)** | **QUANTITY** | **TOTAL COST ($)** |
| Switch | 6.45 | 3 | 19.35 |
| Copper Wire | 0.99 | 1 | 0.99 |
| H-Bridge | 7.00 | 1 | 7.00 |
| Voltage Regulator | 14.99 | 1 | 14.99 |
| Heat Shrink | 0.03 | 4 | 0.12 |
| PCB | 0.37 | 1 | 0.37 |
| Electrical tape | 3.48 | 1 | 3.48 |
| Arm stand | 23.86 | 1 | 23.86 |
| Block of wood | 5.00 | 1 | 5.00 |
| 5V servo motor | 2.32 | 1 | 2.32 |
| Soldering alloy | 0.02 | 1 | 0.02 |
| Breadboard | 2.60 | 1 | 2.60 |
| Ball bearing | 0.00 | 1 | 0.00 |
| Toothbrush enclosure | 4.32 | 1 | 4.32 |
| Circuit board encasing | 5.25 | 1 | 5.25 |
| Switch box | 3.55 | 1 | 3.55 |
| Screws | 0.07 | 5 | 0.35 |
| Clamp | 2.50 | 1 | 2.50 |
| **TOTAL** | **$96.07** |

**Income Statement for Three Years**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Year One | Year Two | Year Three |
| Sales Revenue | $ 51,750.00 | $103,500.00 | $ 155,250.00 |
| Cost of Goods Sold  | $ 43,231.50 | $ 86,463.00 | $ 129,694.50 |
| Gross Profit | $ 8,518.50 | $ 17,037.00 | $ 25,555.50 |
| Operating Expenses | $ 9,000.00 | $ 10,000.00 | $ 11,000.00 |
| Operating Income | $ -481.5 | $ 7,037.00 | $ 14,555.50 |

**NPV Analysis**

Net Present Value Analysis:

Present value of Future cash flow

a future cash flow = -----------------------------------------------------------------------------------

 (1 + Discount rate) (Squared by the number of periods of discounting)

Present value of 8518.50

a future cash flow = ----------------------

 (1 + 0.10)^1

Present value of

a future cash flow = $7744.10

Break even point:

Fixed Costs / (Price - Variable Costs) = Break even point in units

9000 / (115-96.07) = 475.44 = 476 toothbrushes

This formula indicates that after 476 toothbrushes are sold, the business will start to make a profit.

**Assumptions**

Some assumptions that were made when creating this economic report is that we would sell an average of around 450 toothbrushes for the first year at a price of $115.00. In year two, it is assumed sales will double and an approximation of 900 toothbrushes will be sold. In year three, sales will increase again and our company would have sold around 1350 toothbrushes for that year. Some other assumptions were also made on how much the business would spend on operating expenses such as marketing and depreciation. These assumptions are justifiable because it is a new start up company so we will not have that many sales in the first year, so 450 is reasonable. An increase of 450 toothbrushes per year is another valid assumption as we will have advertisements and the rotating toothbrush will become more popular.

**Conclusion**

In conclusion, like every other business, our company will struggle the first year however, as marketing strategies are used, sales will increase, turning the company’s loss into profit. Through this report, we can better plan exactly where the company’s money is going to and how we can increase profit. Through creating this income statement and analysis we have determined that after 476 toothbrushes are sold our company will begin to have make a profit.