RoboSnow

Team 11
Business Plan

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Executive Summary

RoboSnow is a specialty robotics company, with its main product being remote controlled snow-clearing robots for residential applications. The company hopes to expand their fleet of products to include multiple different sizes of robots and a variety of snow clearing methods, including plows, blowers, and salt application. RoboSnow also sells and assists in installing cameras on the exterior of the house or garage for better viewing of the driveway during operation of the robot.

This product is marketed first towards people who have difficulty clearing their driveways during the winters, such as elderly or disabled people. This product is also marketed towards people who are on the higher end of the wealth spectrum who dislike being outside in the cold and snow, or who enjoy innovative and technologically advanced products. This portion of the market is anticipated to be similar to the market for other robotic products such as the iRobot Roomba.

Several key strategies will be employed to ensure that this product is a success; initially in the United States, but ultimately on a global scale. The cost to produce this product must be retained at a low level to keep the selling price low so that the product may remain competitive in the market and readily available for those who actually need it, but don’t necessarily have the funds to purchase an extremely expensive product. Next we need to focus on the needs of the customer and cater to the specific circumstances which each case presents.

The managerial experience of the key players will be more focused on business plan and able to manage a group of people and having technical experience to know what is going on. They need to be able to guide the team to have a good product and to be able to change directions if they need to.

The budget of the project is defined by all parts and materials required for the robot. Full construction of a unit will require the purchase main parts which consists of 2 motors, a battery, a frame, a snow plow, a raspberry Pi, a microcontroller, and a controller. Minor parts will consist of all wiring. Software for the internal computers will not factor into the budget. Estimated materials cost for a single unit $500. Production goal is approximately 750 units for the first year.
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I. Vision and Mission Statement
   A. Entrepreneur's vision for the company
      RoboSnow seeks to improve the quality of life of its customers by alleviating the physical strain and discomfort associated with shoveling snow from your driveway. RoboSnow is also committed to the advancement of technology and the application of this technology for positive solutions.
   B. Values and principles on which the business stands
      One of the core values of RoboSnow is caring for their customers. This manifests first in the mission of the company. It also manifests in the quality of the product. RoboSnow aims to provide the customer with a robust product that requires as little maintenance as possible. And finally, when maintenance or support is required, the company desires to show care for their customers through helpful customer service and support.
      RoboSnow also seeks to be honest and transparent with their customers. Different robots have different capabilities, and the company is committed to making sure that the customer is aware of the limitations and purposes of the robots.
      Finally, RoboSnow seeks to be good stewards of the world we live in. This will be achieved by using environmentally friendly salt sprays and other materials, as well as responsible use of materials. RoboSnow also has a battery recycling program. While the batteries in the robots are rechargeable, the full capacity deteriorates over time and batteries will eventually need to be replaced. By sending RoboSnow your old batteries, you can buy new ones at discounted prices.

II. Industry Profile and Overview
   A. Industry background and overview
      The snow removal market has existed for a long time, the most prominent products consisting of large scale snow removal in the forms of trucks with plows, and manual snow removal tools like shovels. The team’s product is nearest to the emerging market of small Snow Blowers, which are normally hand-powered. There exists a small market of both RC snow removal robots and autonomous snow removal robots already, but many are custom-made with parts, as commercial-grade options are often in the expensive range of over $5,000. In the whole snow removal product market, the number of producers and the number of buyers decrease as the price point increases.
   B. Major customer groups
      The first major customer will be the elderly. The product shall be marketed to both older people who cannot be expected to remove snow themselves, and to their caretakers. If not the elders themselves, the caretaker can control the robot in order to achieve the desired task. In this way, the product can be marketed to this large market through two target consumers. The
second major customer group is wealthy people. This product falls under the category of luxury items which do chores, defined as a “Domestic Robot.” In this way, the product can be marketed as being able to remove the need to shovel. For this group, the product’s greatest strength is its RC capabilities, allowing for the user to remove snow from a target area from the comfort of their own home.

C. Regulatory restrictions

Any restrictions which apply to the use of the product in an average residential area are those which apply to all machinery and/or tools used within one’s property. There are no special restrictions which apply to autonomous or remote-controlled snow removal devices. Regulations which apply may include noise level restrictions, which the product should not exceed as it should not be louder than the average lawnmower.

D. Significant trends

The market of domestic robots has grown most in the area of house cleaning where the Roomba automated vacuum cleaner has seen the most access. The market of autonomous and remote-controlled snow removal devices has grown within the past decade, but has a few product factors which delay market growth. It should be noted that there exist no cheap products in the field; a majority of manufacturers sell their product for upwards of $3000. The market’s low saturation and relatively smaller size is likely due to the inability for manufacturers to make a cheap but high-quality product at a low cost.

E. Growth rate

Due to the risky behavior of the market, as explained in the following section, not many businesses enter the market which prevents competition from fueling innovation and price reduction. The business also lives on singular sales of a product which the consumer hopes will last them for a long time, meaning that a majority of consumers who own the product are not looking to pay for anything else. This means both that the existing businesses control a good part of the market, and that the market has not grown much with sales in recent history, as most purchases have already been made and no subsequent purchases are needed.

F. Barriers to entry and exit

Due to the difficulty of producing a cheap product, the market succeeds on a smaller number of successful sales on a high-price product. Due to this behavior, any business starting within this area is challenged with creating a product which competes on price while also differentiating its product to a degree. This creates a high-risk opportunity for an entering business as they will likely, either own the market to a large degree, or not succeed in swaying potential buyers from an existing producer.
G. Key success factors in the industry

The key to creating a successful business within this market is to create a higher quality product at a lower cost. Success within this region will solve both of the issues with the industry. First, a higher quality product will likely prompt both current owners of a competing product to reconsider their desires and possibly purchase a better product sooner, or even buy a better product when theirs has reached its lifespan. Secondly, a lower cost product will be essential in attracting all future customers of the market to the product. Likely, a price difference of at least $1000 will be able to outweigh any marginal benefit, should the product be unable to compete successfully on quality.

H. Outlook for the future

The outlook in this industry looks positive, as the business feels confident in achieving its key success factors. Competing on price will be the highest priority goal, as creating a low cost product will open and expand the market to many consumers who cannot afford more expensive options despite their high quality. With this in mind, competing on quality might be difficult, but the situation is still positive as creating a high-quality product without autonomous components can still compete with autonomous and expensive products. Should the business succeed in its goals for the product, the market will likely have its cheapest and possibly best product option, leading to the success of the company and the further growth of the market.

III. Business Strategy

A. Desired image and position in market

At RoboSnow, we desire to be competitive in the marketplace by designing a product that fulfills the needs of our customer with the unique possibilities of differentiation in our design. To gain and retain a strong position in the market, RoboSnow will offer the customer the diverse alternatives in design that fit to their specific needs. RoboSnow aims to provide reliable, continuous service to the customer while being environmentally friendly through the use of electric motors.

B. Company goals and objectives

1. Operational

RoboSnow has the objective to design a product that is unique and dependable that will remain low costing. There are currently no other remote controlled snow plows on the market. We strive to stay ahead of the competition through the use of unique and user specified technology within our product.

2. Financial

RoboSnow shall be Limited Liability Corporation (LLC). To sustain the financial endeavor that is RoboSnow, all profits from the first model will be recycled directly into research and
development for the next model as well as paying off any loans that were necessary upon start-up.

C. SWOT analysis

1. Internal Strengths

RoboSnow has several key internal strengths that will make it a success in the market. The product has a lot of flexibility in the design and operational abilities that add to its appeal. It can be entertaining to use and could be used without even leaving the comfort and warmth of your home. There are not any mass produced products similar to it on the market currently so it is completely unique. RoboSnow appeals to the needs of the user by saving time, effort and the physical strain of shoveling a driveway.

2. Internal Weaknesses

The market for snow removal robots is not a very large one currently and this is one of RoboSnow’s major weaknesses. Furthermore, the inability of our product to perform on a commercial grade level will limit our market opportunities. Several other weaknesses arise out of the fact that being remote controlled, there is a safety concern involved. This is will be combatted on several fronts through the use of kill-switches and other cautionary measures. Being a seasonal product, sales will definitely go down during the off season and visibility, should cameras be attached, will be marred by potential whiteouts.

3. External Opportunities

RoboSnow has multiple external opportunities available to utilize in the near future of the business. Movement could be made into commercial grade market through either making a larger scale product or upgrading to a “fleet” of robots that clears a parking lot or separate parking lots simultaneously. This would be heavily dependent on the utilization of autonomous technology in the product. Another opportunity arises in the implementation of different attachments such as a snow blower. This could even be extended to other uses such as a leaf blower or street cleaner.

4. External Threats

The biggest threat to our product is when the consumer would rather just pay a snow removal service rather than buy and operate the product. These services are available from landscaping companies or even neighbors lending a helping hand. Another threat is the opportunity for consumers to invest in a heated driveway rather than our product.

D. Competitive strategy

1. Cost leadership

RoboSnow plans on excelling in the robotic snow removal market by designing a product that will give the user the most amount of utility for the price. While we may not have the lowest price on the market, we plan to make up for this in the products differentiation and uniqueness compared to competitors.
2. Differentiation

Product differentiation is one of RoboSnow’s key advantages in the competitive market. We plan to offer the customer a product that be exactly what they need for their home while also being completely versatile to different environments. RoboSnow will be a unique opportunity for customers to clear their driveway without the physical strains that other methods involve.

3. Response

RoboSnow will also retain a competitive lead over other companies through its strategies in product response time. When a competitor comes out with new product, we will examine the changes that they made and reply with new models or software updates in a timely manner.

IV. Company Products and Services

A. Description

1. Product or service features

RoboSnow is entering the snow removal industry with a unique, remote controlled snow plow robot for use in residential homes. The robot is powered by batteries and electric motors and features a snow plow mounted on the front of the frame and a custom built tread system to increase traction. The robot receives signal from a wireless controller using Bluetooth and Wi-Fi. The robot also includes a camera mounted on the top of the frame and is sold with another camera to be mounted on the exterior of the house, which also transmit wirelessly to a computer so that the operator can see the whole area they are plowing.

The RoboSnow is equipped with a number of safety features, including emergency stop buttons both on the robot and through the remote control, flashing hazard lights, and lights for increased visibility.

Our product is unique and has no direct competitors. Other products are available for snow removal, but none that can be remotely controlled from indoors. Despite the increased cost of our product over manually operated means of clearing snow, we are confident that the quality and helpfulness of our product will allow it to compete with other products such as snow blowers.

2. Customer benefits

RoboSnow offers a direct customer service line for all maintenance issues. We aim for 100% customer satisfaction, including beyond the initial purchase. The company also has a battery recycling program where new batteries can be purchased at a reduced price if the old batteries are shipped back to RoboSnow.
3. Warranties and guarantees

We plan on offering a one year limited warranty on our product. This is to assure the satisfaction of the customer and their experience RoboSnow.

B. Future product or service offerings

The company plans to expand their product offering to include a variety of different robots. In the near future, different sizes of robots will be developed, ranging from a small robot to clean up the leftover parts to a large industrial sized robot to be used in parking lots or other large spaces. The company also plans to invest resources into research and development for automated robots as well as fleets of robots that can operate as a group under a hive mind system.

In addition to different sizes of robots, RoboSnow will develop robots with different types of snow removal mechanisms. The main three are plows, blowers, and salt spreaders. Different models will be designed that use any number of these options in combination.

After the success and establishment of the snow removal product line, the company will create robots for other grounds applications, including leaf cleanup, spreading of bark or topsoil, or lawn care. These products will help ensure steady sales throughout the whole year, not just around the winter months.

In addition to selling robots, RoboSnow also sells and assists in installation of cameras on garages, patios, or other areas in order to offer a view of the driveway or area to be plowed.

V. Marketing Strategy

A. Target market

1. Problem to be solved or benefit to be offered

Many people in snowy conditions need to have their driveway shoveled but are unable to because of an illness or disability. Hiring someone to shovel your driveway is an option but usually they do not get to your driveway by the time you need to get in your car and leave.

2. Demographic profile

The RoboSnow will be primarily sold to where there is snowfall and sold next to snow blowers and shovels. It will be primarily marketed to the elderly and disabled individuals but also to people who want a cool robot.

3. Other significant customer characteristics

The RoboSnow will be expensive and many people will not be able to afford it so it will be mainly targeted to middle to upper class.
B. Customers' motivation to buy

A customer will want this product for multiple reasons. It will help the people who cannot or is difficult in shoveling their driveway. It is just a cool product that people will want to own and play with while still having a useful function.

C. Market size and trends

The market will be initially the U.S. with the hopes of expanding to other countries. Since not everywhere in the U.S. gets much snow, the market will consist of the northern half of America.

The snow removal service is ever growing with a promising future to the people who do not want to shovel their driveway. Snow has to be removed so that people can go to work and get things done. It's a market that cannot really shrink and will be at least stable market.

D. Advertising and promotion

1. Message

The message to sell the product would be to create an easier and more fun way to clear your driveway. This will create the need factor and the want factor. It will be a necessary purchase for some and more of a want purchase for others that don't necessarily need it but it will be a cool thing that they want.

2. Media

The main media that we will advertise this product on are TV commercial advertisements and trying to create a social network that will advertise itself on the web. We will create a cool video about the product that we will put on YouTube and promote it so that people will see it initially.

3. Budget

We will not have a huge budget on advertising because the average person will probably not use it but it is more of a specialty product that the people who need it will search for something like it. This is where most of our budget will go. We plan on spending about $150,000 a year to have a good website that will be easily accessed and easily found by searching for shoveling driveway. We have hopes that once people start to hear about our product then the quality of our product will start to sell itself.

4. Plans for generating publicity

As said before, we plan on creating videos about our product and pay some online media sites to advertise it and to talk about. This will get the product into the market and to have people talking about it.
E. Pricing

1. Desired image in market
   We want our image in the market to be a small business that will cater to the needs of our customers. We want to be known at having a very good quality product that does not break the bank. We will achieve this with good customer service and using quality parts for our robot.

2. Comparison against competitors’ prices
   There really isn’t much competition for a robot that removes snow. There are some small custom shops that build them for around $8,000 and that just seems like too much to us. They are just building one at a time but we will be building many at a time which will reduce cost.

3. Discount policy
   We will not discount it very much but we will sell the first few at a discounted price to get it to the market and have people start sharing their experiences with it.

F. Distribution strategy

Since our market will be the people who will not be able to shovel their driveway by themselves, this will make it hard to sell it in stores. People won’t go to store planning on buying a big robot to clear their driveway. We will put a few display models in various Home Depots and Menards. This get the family and friends, of those who need it, looking at it and thinking that it would be good for the person who needs it. The main way of selling them will be online and shipping it pre-built to the customer’s door so they don’t have to go anywhere.

VI. Competitive Analysis

A. Existing competitors

There exists no strong competition in the exact same market as the product, but there exist a number of competitors in the greater market of Snow Removal Products and Services.

1. Who they are
   Workers can be hired to remove snow from a target area. ATV’s can be outfitted with snow plows in order to create a smaller version of snow plow truck which can be driven. Driveways can be built to be heated, melting all snow which comes in contact and eliminating the need to plow any snow. Finally, there are the conventional products of both the manual snow shovel and snow plow.

2. Strengths
   Hired workers, as well as all other manual options, have the advantage of a human being able to inspect the job done with no compromise. This is not the greatest concern, as the target markets already seek to eliminate the need to do the manual labor or go outside (excluding hiring workers, which also does not involve the consumer doing manual labor). Heated driveways have both cleanliness of their work and high quality while autonomous robots have the same high quality.
3. Weaknesses

The option of hiring workers can seem the most attractive after weighing the factors present in all of the options, however, it can be expensive if the service is required every day, or even twice a day at times. Creating a cost analysis will reveal that many of the other options can compete on cost depending on how often the service is needed. Secondly, both the heated driveway and autonomous robot options are well in the luxury item market. Heated driveways have the disadvantage of not being easily installed (They must often be constructed with the house), so this option is not likely available to most consumers. A number of autonomous robots simply do not have RC functionality, so maintenance would be required on any software issues necessitating both downtime and possible repair costs.

B. Potential competitors

Upon a successful entry into this market, the team predicts that there may be companies which enter the market with similar products.

1. Who they are

Any company entering the market is looking to compete with the current market leaders, likely on cost or differentiation. Competing on cost will simply involve creating a similar product without borrowing patented techniques, lowering the cost, and keeping as many of the best qualities of the product as possible. On the other hand, competitors may decide that some features of the current products are superfluous, allowing them to ignore development of these features and lower the price a substantial amount. Secondly, competitors may choose to compete on differentiation. This could involve simply designing a new look for the product, creating a new feature which makes use of the product easier or more enjoyable, or even using a snow plow instead of a snow blower.

2. Impact on the business if they enter

Due to the nature of the market, having 2 or more competitors making similar products can have a number of effects. The business may become somewhat evenly split, with companies each offering different features which may range from aesthetic and comfort features to size of the product for greater snow removal. This would create a relatively healthy market, but it is unknown if such a small market could be split in a meaningful way. Secondly, and possibly more likely, the market will essentially be ceded to 1 or 2 companies who will then own the market for themselves. They will likely create products with small differentiation so that any consumer looking for their original product (or a similar one) can still get it without having to switch to another brand.
VII. Management Team

A. Key managers and employees

1. Backgrounds

The key members of the team at RoboSnow will be composed of managers with backgrounds in both mechanical and electrical engineering. This allows the management team to have a key understanding of the ideas behind the production process and the product itself. Furthermore each of these members will have dual positions in the company. The four key managers will be Jason Bushhouse, Michael Plummer, Philip Van Strien, and Zach Veenstra. In addition to the four founders of RoboSnow, we will be hiring in two more salaried employees and three production associates the first year, adding an associate at a rate of once per year.

2. Titles, experience, skills, and know-how they bring to the company

The four founders of RoboSnow will use their engineering backgrounds to effectively run the company while still doing a lot of the design work themselves. Jason Bushhouse, the CEO will also be the Lead Electrical Engineer. While he is currently the only member in this department, there is much room to expand as the company grows. Zach Veenstra will be the CFO as well as the Lead Product Design Engineer. He will use his skills and knowledge to improve on the current model, and design the future models to come with the help of Jason and Michael. Michael Plummer will be the Lead Software Engineer as well as the Head of Human Resources and Customer Service departments. He will be writing all of the code for the robots as well as managing the first of our two salaried employees, A. A. Ron Rodgers. Mr. Rodgers, commonly confused with the football player, will be our main customer service representative as he will also be our off-site technician. He will be going out into the field to make any repairs or adjustments needed for our customers and will receive customer feedback this way. The second salaried employee will be Jim Bob Cooter who will be our main Sales and Marketing representative. His education and sports career at the University of Tennessee gives him a keen sense of personability and a drive to make sales. Finally Philip Van Strien will be the Lead Manufacturing Engineer as well the Head of Plant Operations. He will be the manager of the production associates.

B. Board of directors or advisers

The board of directors will consist of the four main founders of RoboSnow. This cabinet will grow as required by market expansion.
VIII. Operations

A. Legal form of ownership chosen and rationale

We will split ownership of the company between the four of us equally. This makes the most sense since we will need three of the four members to agree to make changes to the company. This will protect from one or two people taking over the company and make changes that not everyone approves of.

B. Company structure

![Company Structure Diagram]

*Figure 1. Company structure.*

C. Decision making authority

All the Lead Engineers have the same authority when it comes to the product but they report to the CEO for over business matters. The floor workers, Sales and marketing, and customer service report to their direct boss.

D. Significant compensation and benefits packages

All employees will get a health plan as well as a 401k. Also all employees will have the standard insurance in case anything happens.

E. Description of production or process (if applicable)

1. Raw materials

We will be buying all the metal for the frame in bulk and we can cut it and weld it together to make the frame. In the beginning we will be buying a printed circuit board that we designed but in the future we hope in making our own printed circuit boards to reduce cost.
2. Costs
We believe that it will cost about $500 in materials to make a single robot. We hope to drive this price down when we start to make more so we can drop the price a little.

3. Key supply chain components
We will have to get our printed circuit boards from a place the prints custom circuit boards to our specification. We will also have to buy wheels and or treads from another company. Lastly, we will need to buy the electric motors to run the robot and variety of small components from other companies.

F. Facilities

1. Location: where and rationale
We will have our main office in Grand Rapids, Michigan and we think this is a good place to set up a business since it is close so that we will not have to move too far. It also has many businesses near buy that we can buy parts from. Also since our sales depend on snow, Michigan is a good place to test and to sell to customers so that our shipping costs can be minimized.

2. Layout: type and rationale
We will be renting a 10,000 square foot warehouse in the outskirts of Grand Rapids. This should provide us with ample amount of space for our first couple years of business. Our basic floor plan is shown in Figure XX.

![Figure 2. Basic floor plan.](image-url)
3. Possible setup constraints

We will not have many setup constraints since we can set up in pretty much any warehouse. It will just cost an initial price to install all the equipment we need.

G. Capacity issues and/or constraints

In the first few years, we will fit within a 10,000 square foot warehouse. Therefore capacity is not main concern in the beginning years but after growth becomes significant we will look into the possibility of opening more offices or renting a larger warehouse.

IX. Financial Forecasts

A. Key assumptions

One of the main assumptions we made in our financial analysis is that all of the units will be sold after production. Each unit will cost us $500 in materials and we shall sell them for $2500 per unit. The first year we plan to produce 750 units and add 250 units to production with each consecutive year. This growth in sales will be possible through our sales and marketing representative.

Tables 1, 2, 3, and 4 show the breakdown of the variable cost of goods, fixed cost of goods, variable operating costs, and fixed operating costs, respectively. The total numbers from these tables were used in the income statement on the following page.

<table>
<thead>
<tr>
<th>Table 1. Variable cost of goods sold, in dollars.</th>
</tr>
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<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Materials</td>
</tr>
<tr>
<td>Labor</td>
</tr>
<tr>
<td>Machine Overhead</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Fixed costs of goods sold, in dollars.</th>
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<tr>
<td></td>
</tr>
<tr>
<td>Rent of facilities</td>
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<tr>
<td>Manufacturing management salaries</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3. Variable operating cost, in dollars.</th>
</tr>
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<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Shipping costs</td>
</tr>
</tbody>
</table>
B. Financial statements

1. Income statement

In Table 5, the projected income statement for the first three years of the business is laid out. The bottom row displays the net income after tax. As expected, the number will grow as the product becomes more known and production increases. These income numbers display the potential for great profit from this business.

Table 4. Fixed operating cost, in dollars.

<table>
<thead>
<tr>
<th></th>
<th>Each Year</th>
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<tr>
<td>General and administrative salaries</td>
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<tr>
<td>Advertising</td>
<td>150,000</td>
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<tr>
<td>Selling costs</td>
<td>10,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>860,000</strong></td>
</tr>
</tbody>
</table>

Table 5. Income statement.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>RoboSnow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pro-Forma Statement of Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales revenue</td>
<td>1,875,000</td>
<td>2,500,000</td>
<td>3,125,000</td>
</tr>
<tr>
<td>Variable Cost of Goods Sold</td>
<td>527,500</td>
<td>703,000</td>
<td>878,500</td>
</tr>
<tr>
<td>Fixed Cost of Goods Sold</td>
<td>100,000</td>
<td>100,000</td>
<td>175,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>2,144</td>
<td>5,103</td>
<td>6,502</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>1,245,357</td>
<td>1,691,898</td>
<td>2,064,999</td>
</tr>
<tr>
<td>Variable Operating Costs</td>
<td>93,750</td>
<td>125,000</td>
<td>156,250</td>
</tr>
<tr>
<td>Fixed Operating Costs</td>
<td>860,000</td>
<td>860,000</td>
<td>860,000</td>
</tr>
<tr>
<td>Operating Income</td>
<td>291,607</td>
<td>706,898</td>
<td>1,048,749</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>37,500</td>
<td>62,500</td>
<td>37,500</td>
</tr>
<tr>
<td>Income Before Tax</td>
<td>254,107</td>
<td>644,398</td>
<td>1,011,249</td>
</tr>
<tr>
<td>Income tax (40%)</td>
<td>101,643</td>
<td>257,759</td>
<td>404,499</td>
</tr>
<tr>
<td>Net Income After Tax</td>
<td>152,464</td>
<td>386,639</td>
<td>606,749</td>
</tr>
</tbody>
</table>
2. Cash flow statement

Table 6 shows the projected cash flow statement for the first three years of the business. In the beginning, the majority of the cash results from the initial loan, but after three years, the ending cash balance minus the remainder of the loan is over one million dollars. RoboSnow expects we will be able to finish paying off the loan by the end of year 4.

<table>
<thead>
<tr>
<th>Table 6. Cash flow statement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RoboSnow</td>
</tr>
<tr>
<td>Pro-Forma Statement of Cash Flows</td>
</tr>
<tr>
<td>Year 1</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Beginning Cash Balance</td>
</tr>
<tr>
<td>Net Income After Tax</td>
</tr>
<tr>
<td>Depreciation expense</td>
</tr>
<tr>
<td>Invested Capital (Equity)</td>
</tr>
<tr>
<td>Increase (decrease) in borrowed funds</td>
</tr>
<tr>
<td>Equipment Purchases</td>
</tr>
<tr>
<td>Ending Cash Balance</td>
</tr>
</tbody>
</table>

C. Break-even analysis

The break-even analysis for the first three years of the business is shown in Table 7. Given the projected numbers already mentioned in the income statement and the cash flow statement, we were able to calculate the sales volume in dollars and number of products necessary to make a profit. As shown in the table, we must sell close to $1.5 million each year for the first three years, which equates to around 500 units per year. Even if we only sell two thirds of the product that we manufacture in the first year, we will still be able to break even.
Table 7. Break even analysis.

Table 7. Break Even Analysis

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>1,875,000</td>
<td>2,500,000</td>
<td>3,125,000</td>
</tr>
<tr>
<td>Less: Variable Costs:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable Cost of Goods Sold</td>
<td>527,500</td>
<td>703,000</td>
<td>878,500</td>
</tr>
<tr>
<td>Variable Operating Costs</td>
<td>93,750</td>
<td>125,000</td>
<td>156,250</td>
</tr>
<tr>
<td>Total Variable Costs</td>
<td>621,250</td>
<td>828,000</td>
<td>1,034,750</td>
</tr>
<tr>
<td>Contribution Margin</td>
<td>1,253,750</td>
<td>1,672,000</td>
<td>2,090,250</td>
</tr>
<tr>
<td>Less: Fixed Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Cost of Goods Sold</td>
<td>100,000</td>
<td>100,000</td>
<td>175,000</td>
</tr>
<tr>
<td>Fixed Operating Costs</td>
<td>860,000</td>
<td>860,000</td>
<td>860,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>2,144</td>
<td>5,103</td>
<td>6,502</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>37,500</td>
<td>62,500</td>
<td>37,500</td>
</tr>
<tr>
<td>Total Fixed Costs</td>
<td>999,644</td>
<td>1,027,603</td>
<td>1,079,002</td>
</tr>
<tr>
<td>Income Before Tax</td>
<td>254,107</td>
<td>644,398</td>
<td>1,011,249</td>
</tr>
</tbody>
</table>

D. Ratio analysis

Table 8 shows the financial ratios RoboSnow used to analyze the projected performance of their business. Profit margin on sales is expected to increase as the business gains more customers and is able to produce more product. The debt to assets ratio will start out extremely high because of the loan required for startup but will decrease quickly due to a quick payoff plan. The total assets turnover ratio is expected to stay relatively stable at a healthy level of just over 2.0.

Table 8. Financial ratios.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit margin on sales</td>
<td>8%</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>Debt to assets ratio</td>
<td>84%</td>
<td>49%</td>
<td>18%</td>
</tr>
<tr>
<td>Total assets turnover</td>
<td>2.1</td>
<td>2.4</td>
<td>2.3</td>
</tr>
</tbody>
</table>
X. Loan or Investment Proposal

A. Amount requested

RoboSnow is requesting a loan of $750,000 from the bank. For the purposes of calculations, an interest rate of 10% was assumed. The company opted to choose startup debt over startup equity to avoid losing any control of the company to investors or shareholders.

B. Purpose and uses of funds

The funds would be used to pay for the first few months of rent, salaries, and advertising costs until sales and profits start to pick up. The loan is also necessary to purchase the equipment required for the company, which includes manufacturing equipment like saws and welders, and office equipment such as furniture and computers.

C. Repayment or "cash out" schedule (exit strategy)

Based on estimated sales and profits, RoboSnow plans to repay the loan in its entirety by Year 4. Since there are no direct competitors, we expect to be able to sell as many products as we produce. If the company has financial struggles and is unable to pay back the loan, the first option would be to attempt to sell the business to an interested party or be absorbed by the company. If this option is not available, the company would liquidate all their assets to pay back the loan.

D. Timetable for implementing plan and launching the business

RoboSnow plans to implement their plan starting in the summer of 2016. The goal is to have 250 finished products ready to be sold by around December of 2016 for the start of the winter season.