TLI 111 Artifact Report
The Fancy Shower
Group J

"Have a <u>PUNCH</u> of your life!"

Brought to you by:
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Jack Bartolone
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Steven Chan

Policy

1. Push/Pull policy - We will be using the pull policy for every four days. This is able to change if the majority of us agree. We will only change this policy if it is ineffective.
2. Inventory Policy
    i. **Material** - We will ship 25% more products than what the customers demand for incase more customers what our products that we expected. The amount we ship will fluctuates depending on the forecast. We must also make sure that the shipping cost and the production cost will give us at least a 100% profit.
    ii. **Quantities that are planned to be shipped to the three regions-**We will prioritise shipping to the area with more demand for said products.
    iii. **Pricing setting** - We will sell the product higher than the price for us to make/ship/etc. We will always set our prices higher than the cost to buy the product. We are able to increase or decrease the price if the demand is high/low. We also must compete the price with the competitors so that customers would choose to buy our product. We will graph data depending on price per products bought compared to net profit to determine the best price per product would should pay. This will be achieved through trial and error.
3. Team role
    i. Logistic Manager-Jack
    ii. Pricing Manager-Josh and Aarion
    iii. Stock Manager-Benya
    iv. Sales Manager-Steve
4. Purchasing Goods from the Farming Cooperative to refill your central warehouse

    We plan on purchasing goods from the Farming Cooperative to refill our warehouse by buying more products in bulk so that it would be cheaper for us to purchase them. In this case, we then would be able to sell them for the regular price; thus, making more profit. We would find the cheapest place that sells our resources so that profit would be made.
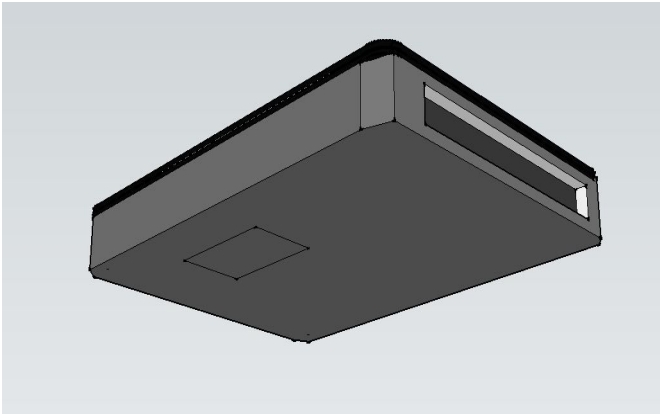
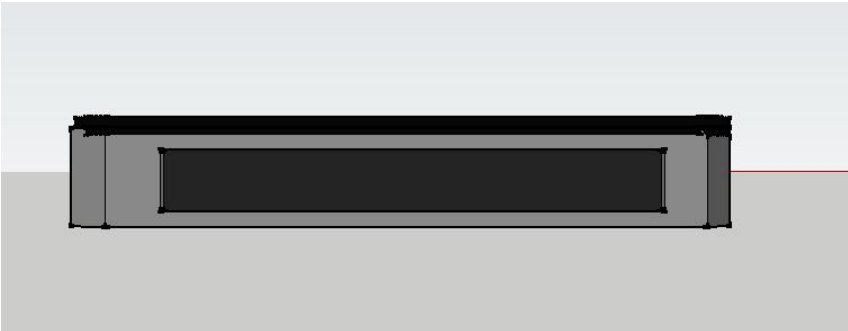# Product Sketch/Bill of Materials

User Interface:

3D Front View
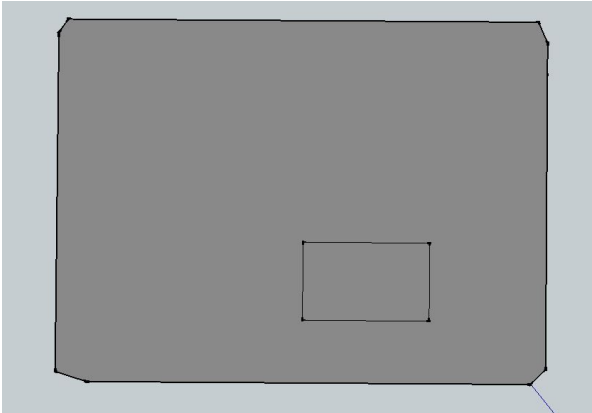
Back View

3D Back View

Front View

Side View

Shower Head:
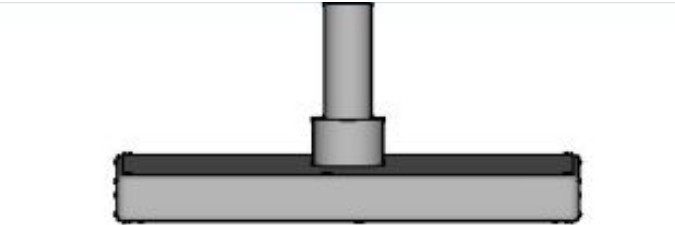
Side View
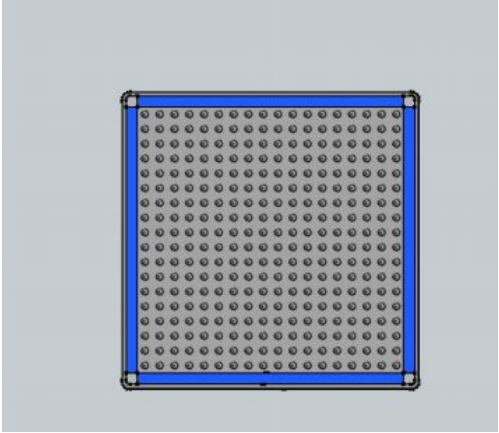
Bottom View

Bill of Material for product:

Item	Part Number	Material	Price	Quantity	Total
1	111	Arduino Board	$50	1	$50
2	112	Shower Head	$30	1	$30
3	113	LED Lights (15)	$30	1	$30
4	114	Bluetooth Speaker	$15	1	$15
5	115	Touchscreen Glass 11.6"	$25	1	$25
				Grand Total =	$150

Location Selection for Manufacturing Plant

Selected location:

The location the group found as an office space in Peoria, Illinois which is only about a two hour drive from Chicago, Illinois and about a three and half hour drive to Indianapolis. The space is about $185,000 upfront and has 9,980 total square feet. This location makes it easier for us to transport our goods as well as receive supplies from nearby Chicago and other major cities in the relative area.

Land costs and availability:

Land consists of the warehouse only. The features of the warehouse are 11 feet clear ceiling, a dock-high door, and a drive-in door. The warehouse was originally built in the 1950's but have had been renovated since then. The warehouse is a great starter warehouse for the company until we are able make a bigger profit and expand our company.

Facility size for operation:

The facility is 9,980 square feet because the company needs this much space due to several reasons. First, the company needs roughly half of the warehouse for production and assembly of the showerhead and the controlling device. The remaining space would be used for an office space, a conference room, a kitchen, and a small living/relaxing room.

Access and transportation of raw materials to the plant:

Our materials will be brought online and in bulk. Doing this safe time and money for us as a company since buying online safe transportation money and buying in bulk means that we get more materials for cheaper prices. However, if the warehouse where we would buy our raw material is close to our warehouse in Peoria, we would go straight to the warehouse so that we would not have to pay for the extra shipping. Doing this would save us money if the raw material is not far from Peoria.

Distribution factors:

The system of our sale is through online purchases only. The user would log on to an online website (J-JABS.com) and make the purchase there. Doing the process online save us money since all we would have to pay for it is the website fee instead of paying more money to open up a physical store. We will transport the goods from our manufacturing plant to the customer by using UPS. Though UPS is more expensive, there are a lot of shipping options (overnight, 2 days, etc.). It also has a weight limit of 150 lbs. which is important in our business because we are shipping heavy items to the customer. Since our item will be more on the expensive side, UPS provides free tracking and insurance for up to $100 with additional coverage available. This would benefit us since it ensure that the user receives our item in one piece and that the item does not get lost in the shipping process.

Access and transportation of raw materials:

The raw goods transported are not fragile so it does not require any special care. Standard styrofoam and cardboard packaging are all that is needed to transport the item and some silica gels are required to absorb moisture to prevent electronics short circuiting or rusting. Transportation of raw goods are managed by the manufacturing company itself. The main raw materials we would need are the shower head and some components of the controlling device. Other than those parts, all we have to do is some programming to make sure that the shower head does what we want it to do.

Proximity to the buying market (customers):

J-JABS is a wholesale retailer company that ships our product to stores and hardware stores in bulk that resell the product to the public. We also have a website that customers can buy the product from if they want. Our stakeholders consist of hotels/resorts, spas, gyms, entertainers, and other shower companies.
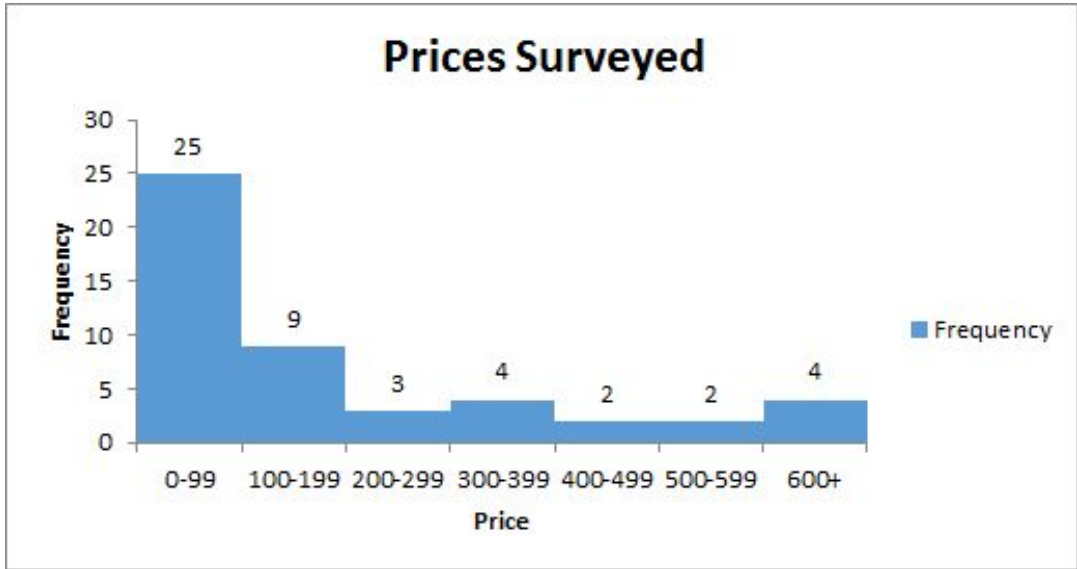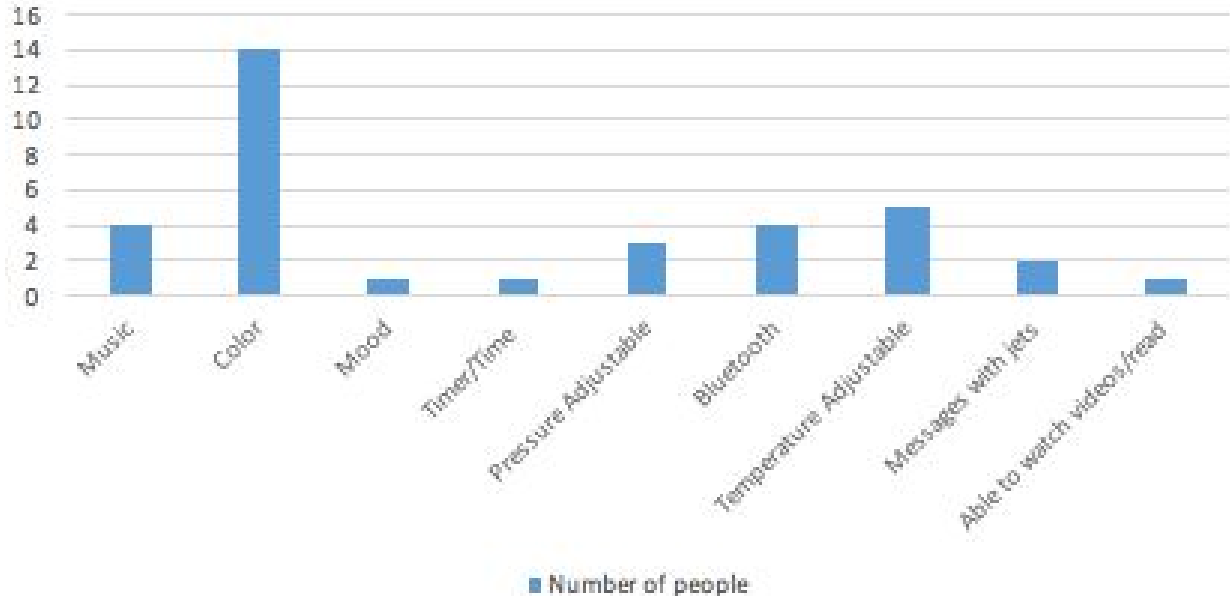
Target Customer Base

The target customer for the J-JABS shower head is mainly with the economic level of high class. We want to target high class customers because our showerhead are on the more expensive side of the market. This means that ethnicity for our product does not matter since we want to mainly aim for high class customers. However, the age target would be either teenagers from a wealthy family that can afford the showerhead and adults with a stable job and income of $50,000+ dollars. We want to target teenagers because having a light up shower head and a shower head that could play music would be something teenagers would enjoy. In terms of the adults, they could possibly be married because they would have a higher income that can afford the showerhead. They possibly also could have children and/or grandchildren so that they would buy the showerhead to entertain them.

We also want to target non-brand name organizations around the world--mainly 5 star gyms, spas, and hotels. Doing this gives them an advantage to buy the showerhead in bulk for cheaper and potentially attract more people into their company. We are targeting organizations that are at exotic locations that attracts many tourists so that they are able to gain profit from the J-JABS shower head. By having customer satisfaction with these companies, this can open doors to other companies and franchises that want to buy our product. Doing this would greatly benefit us to gain more customers and profit.

Market Analysis

Features

Features bar chart — Number of people

Feature	Number of people
Music	4
Color	14
Mood	1
Timer/Time	1
Pressure Adjustable	3
Bluetooth	4
Temperature Adjustable	5
Messages with Jets	2
Able to watch videos/read	1

■ Number of people

Prices Surveyed

Prices Surveyed histogram — Frequency vs Price

Price	Frequency
0-99	25
100-199	9
200-299	3
300-399	4
400-499	2
500-599	2
600+	4

■ Frequency

WOULD YOU BUY THIS PRODUCT?

Yes ■ No

28%

72%

Features
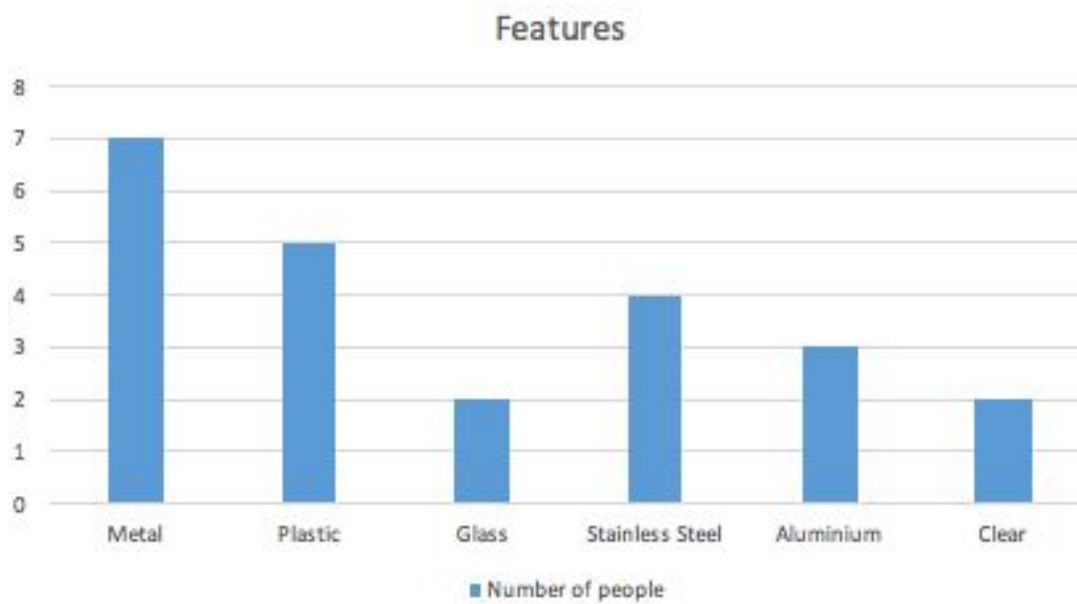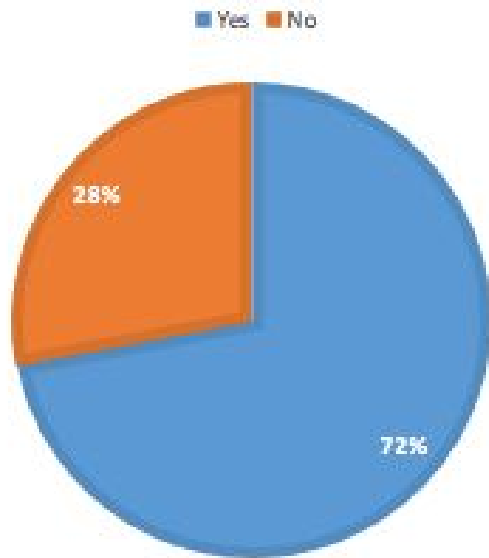
*Survey done on 50 college students on November-December 2015

Manufacturing Decisions

The team has decided to manufacture utilizing the batch shop processing method. Our team chose this after careful consideration. Batch production allows for us to reduce initial capital outlay by allowing us to produce several products over the course of different workstations. Batch production is better for our needs than continuous manufacturing because it allows us for to easily cease production and we do not expect the need to finished products constantly. It is better than assembly line because we are not using interchangeable parts and our processes requires work that will have varying completion times between each process. Batch shop would be better for our production compared to a job shop because we do not require custom parts specific to each order. We intend on using a pull system of inventory in order to meet customer demands because we do not intend on storing much product at our production shop. With this pull system we intend to use a just-in-time system so as to have minimal inventory on hand. This will help to insure our customer get their orders on time and are satisfied with their purchase.

Artifact 7: Cost Analysis

The cost analysis requirements:

Material	Price	Supplier	Total
Arduino Board Uno Rev3	$24.95	Arduino Store USA	$24.95
Shower Head	$154.00	Moen Fina chrome one-function 7" diameter spray head rainshower showerhead	$154.00
LED Lights	$3.60	1000bulbs.com 12 in. - RGB Color Changing - LED - High Output - Tape Light - Dimmable - 12 Volt	$3.60
Bluetooth Speaker	$29.99	Brookstone Bop H2O™ Bluetooth® Speaker	$29.99
Amazon Fire, 7" Display, Wi-Fi, 8 GB	$49.99	Amazon.com, Inc.	$49.99

The total cost of all of the product is $262.53

Forecasted Project Revenue:

There are an average of 200 showers in an average hotel. We forecast to sell to one hotel per month. There are an average of 10 showers in an average spa. We forecast to sell to two spas per month. There are an average of 30 showers in an average gym. We forecast to sell to one gym per month. Total, we would sell at an average of 250 shower heads per month. We have to sell the shower head for more than $262.53 each to gain profit. Without counting other manufacturing cost, we would sell the shower head for $499.99 each so that we would gain a

profit of $237.46 per shower head. If we sell 250 shower heads per month, then we would make a profit of $59,365 without counting the other manufacturing costs.

Forecast the costs associated with manufacturing the forecasted demand.

Title	Cost per unit	Unit	Total
Software Specialist	$16.50/hour-$2805/month	1	$2,805
Logistic Manager	$15.00/hour-$2550/month	1	$2,550
Advertising	$13/hour-$2210/month	1	$2,210
Customer Service	$13/hour-$2210/month	1	$2,210
Shippers	$10/hour-$1700/month	1	$1,700
Production Associate	$10/hour-$1700/month	4	$6,800
Rent	$3,084 (to pay for the warehouse in 5 years)	1	$3,084
Wifi	$15	1	$15
Electricity/Heat	$50	1	$50
Heat/Air Conditioning	$75	1	$75
Material (to make the product)	$262.53	250	$65,632.5
		Total	$87,132.5

Project Revenue and Cost for a 6-Month Period:

Title	Cost per unit	Unit	Total (for 6 months)
Software Specialist	$16.50/hour- $2805/month	1	$16,830
Logistic Manager	$15.00/hour- $2550/month	1	$15,300
Advertising	$13/hour- $2210/month	1	$13,260
Customer Service	$13/hour- $2210/month	1	$13,260
Shippers	$10/hour- $1700/month	1	$10,200
Production Associate	$10/hour- $1700/month	4	$40,800
Rent	$3,084 (to pay for the warehouse in 5 years)	1	$18,504
WiFi	$15	1	$90
Electricity/Heat	$50	1	$300
Heat/Air Conditioning	$75	1	$450
Material (to make the product)	$262.53	250	$393,795
		Total	$522,795

Revenue (in total of every expenses):

Total, we would sell at an average of 250 shower heads per month. With our forecast of cost to manufacture, we have to sell the shower head for more than $348.53 ($87,132.5/250 shower heads) each to gain profit. We decided to sell the shower head for $499.99 each so that we would gain a profit of $151.46 per shower head. If we sell 250 shower heads per month, then we would make a profit of $37,865. For a 6 month revenue, we would make profit of $227,190.

Sample Documents:

Statement Date: [Date]
Date Due: [Date]

STATEMENT OF ACCOUNT

[Customer Name]
[Address]
[City, State ZIP Code]

DATE	DESCRIPTION	CHARGES	CREDITS	ACCOUNT BALANCE
	Balance brought forward	$56.00		**$56.00**
5/12/2014	The Phone Company	$500.00		**$556.00**
5/13/2014	Woodgrove Bank		$250.00	**$306.00**
5/14/2014	City Power & Light	$125.00		**$431.00**

J-Jabs
Have a punch of your life

23 example street
City, ST ZIP Code]
Phone] [Fax]
e-mail]

P.O. NO. [100]
DATE 42325
CUSTOMER ID [ABC12345]

VENDOR [Name]
[Company Name]
[Street Address]
[City, ST ZIP Code]
[Phone]

SHIP TO [Name]
[Company Name]
[Street Address]
[City, ST ZIP Code]
[Phone]

SHIPPING METHOD	SHIPPING TERMS	DELIVERY DATE

QTY	ITEM #	DESCRIPTION	JOB	UNIT PRICE	LINE TOTAL

1. Please send two copies of your invoice.

SUBTOTAL

2. Enter this order in accordance with the prices, terms, delivery method, and

SALES TAX

Your Company Name

Your Company Slogan

Street Address
City, State ZIP Code
Phone (503) 555-0190   Fax (503) 555-0191

Quotation For:
Name
Company Name
Street Address
City, ST ZIP Code
Phone

Comments or Special Instructions: None

Quotation

DATE	42325
Quotation #	100
Customer ID	ABC123

Quotation valid until: 42335
Prepared by:

SALESPERSON	P.O. NUMBER	SHIP DATE	SHIP VIA	F.O.B. POINT	TERMS
					Due on receipt

QUANTITY	DESCRIPTION	UNIT PRICE	TAXABLE?	AMOUNT
34	3/4" elbow connectors	$ 44.00	T	1496
		SUBTOTAL		1496
		TAX RATE		8.60%

Personnel Chart/Job Descriptions

Software Specialists:

This person will maintain and develop our applications. They will use the software development life cycle and work to annihilate bugs. This person will also deals with our web page development and maintenance. This person is also determines specifications, standards, and programming. He/she is also responsible of obtaining licenses and required informations for vendors. Lastly, he/she is responsible for their own job knowledge by studying new updates in the software world to keep up to date.

Lead IT Professional:

This person oversees software and hardware development. They oversee the software specialists work and develop business solutions for us. This person will also develop and maintain a database for others in our company to view reports from. They also monitor system flow, data usage and work processes to make the software application as efficient as possible.

Logistical Manager:

This person will manage our production and look for ways to improve it. They must strategically plan and manage logistics, warehouse, and transport. They are responsible to coordinate and optimize a full order cycle. They also must be able to keep track of quality, quantity, stock levels, delivery times, transport costs and efficiency.

Floor Manager:

Ensures production is maintained and helps out during employee breaks. The floor manager provides a comfortable environment for our associates to produce our goods. This person is also responsible of communicating job expectations i.e.: planning, monitoring and appraising job results.

Production Associate:

This person works on the manufacturing floor to make our product. They will use tools provide by use and be trained by the floor manager. They must know how each machine operates, how to operate it properly, how to start, stop, and emergency stop a machine properly, and perform a series of prevention and general maintenance on the production equipment and tools.

Advertising Agent:

This person advertises our product and projects sales depending on cost. They project possible demand from advertisement and build advertisement projects. They are responsible to visit other businesses to inquire about advertising sales, build relationships with clients, our primary means of relation with the consumers and know all the advertising options.

Customer Service Agent:

This person will deal with customer complaints and build customer satisfaction. The person must be able to deal directly or indirectly with customers, respond to customer inquiries, provide pricing and delivery information, manage the customers' accounts, process orders, forms, applications and requests, and communicate with other departments as well.

Shipping Associate:

This person will package our goods in preparation for our third party shipper. This person will ensure our goods are secure and sealed for shipment. The person must also be able to prepare the lists of items and invoices, export orders, domestic carriers, maintains documentation related to shipping activities, provide customer service, receive equipment behalf of the organization, monitors the status of the shipment and serves in an administrative capacity.