

BUSINESS PLAN REPORT

FROVEN TECHNOLOGIES

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<i>Thank you</i>

Executive Summary

Include everything that you would cover in a five-minute interview.

We have known for a fact that the Earth without Ozone is like a house without a roof.

"Froven" is a novel solution to the protect the ozone layer and to provide an eco-friendly alternative for refrigeration and energy management. This product is hybrid in its design implementation as it integrates both- a freezer and an oven on a compact system. The modular design ensures its scalability to any application . This would be a self sustaining product as it would be integrated with the Solar Power Module to battle the energy crisis. It's compactness reduces the overall cost of implementation and maintenance, as it is implemented using Peltier Modules.

Our team was inspired to create this solution to improve the livelihood of the farmers in India by designing and developing easily-accessible, compact(modular) and cost efficient cold storage systems across India. Hence, we proposed to build a 'hybrid-self sustaining-low power utility'

Explain the fundamentals of the proposed business: What will your product be? Who will your customers be? Who are the owners? What do you think the future holds for your business and your industry?

Proposition: Our team was inspired to create this solution to improve the livelihood of the farmers in India by ***designing and developing easily-accessible, compact(modular) and cost effective and efficient cold storage systems*** across India. Hence, we proposed to build a '**hybrid-self-sustaining-low power utility' HVAC system. It's compactness reduces the overall cost of implementation and maintenance.**

The proposed project is divided into five modules:-

Module 1: The froven module utilizing **peltier modules**

Module 2: The arduino microcontroller is used to design its automation with temperature sensors.

Module 3: A fully functional conventional oven.

Module 4: The energy module developed to tackle the energy crisis.

Module 5: The App.

Our Customers:

- The Cold Storage and Processing Industries
- Food Manufacturing and Processing Industries(Frozen Foods)
- Healthcare Industries (Vaccines, Organ Banks)
- The Cold Logistics
- Homes and Workspaces
- Versatile due to its modular design and scalable to any application where cooling or heating is required.

The Owners:

As our project has been incubated by DERBI, Bangalore, we are the sole proprietors and owners of our own self funded startup.

What do you think the future holds for your business and your industry?

We are confident and hopeful that Froven Technologies would create a new perspective to the existing refrigerating and heating solutions. As, it is an efficient, eco-friendly, energy saving, compact, modular and low cost affordable device it would soon be replacing and remodelling the current existing devices in the market to a large scale as it is expandable to suit any cooling or heating applications be cold storage, food processing, healthcare, cold storage logistics, etc.

General Company Description

What business will you be in? What will you do?

Our business is not just about creating better cooling-heating solutions and remodelling the existing devices but also about putting a smile on the customer's face by not just satisfying them but by also protecting the environment they live in thereby protecting them and the generations to come.

Mission Statement: "To re-invent cooling and heating solutions by developing affordable, energy efficient, eco-friendly devices and ensuring customer satisfaction and protection of nature."

Company Goals and Objectives: Goals are destinations—where you want your business to be. Objectives are progress markers along the way to goal achievement. For example, a goal might be to have a healthy, successful company that is a leader in customer service and that has a loyal customer following. Objectives might be annual sales targets and some specific measures of customer satisfaction.

Company goals:

- To become one of the most successful entrepreneurs and innovators in the field of technology.
- To create true customer values by not just keeping them satisfied but also protecting the environment they live in so that they can hope for a better tomorrow and for the generations to come.

Business Philosophy: What is important to you in business?

Our business is to reinvent to develop energy efficient, affordable and eco-friendly devices that serve to ensure the customer's needs on time, ensuring their satisfaction by promising them a lifetime commitment and trust, which in turn expands and nurtures our business to grow, generate revenues and prosper.

To whom will you market your products? (State it briefly here—you will do a more thorough explanation in the *Marketing Plan* section).

- The Cold Storage and Processing Industries
- Food Manufacturing and Processing Industries(Frozen Foods)
- Healthcare Industries (Vaccines, Organ Banks)
- The Cold Logistics
- Homes and Workspaces

- Versatile due to its modular design and scalable to any application where cooling or heating is required.

The above mentioned industries play dual roles of customers and partners in our business.

Describe your industry. Is it a growth industry? What changes do you foresee in the industry, short term and long term? How will your company be poised to take advantage of them?

Our business belongs to the HVAC or the Heating, Ventilation and Cooling industries which has world wide applications be it home automation, industry control applications, healthcare industries, etc. which can undoubtedly be stated as that it was and will always be a growth industry in every dimension and perspective.

Short term changes:

Due to the adverse effects of global warming that has reached intolerable levels due to the human activities, the phase of the HVAC industry has shifted to developing eco friendly solutions which are renewable energy operated and are energy efficient solutions that not only serve the customers needs but protect the environment they live in.

Long term changes:

The HVAC industry is headed in a green direction. With energy conscious consumers, all heating and cooling products will be purchased based on efficiency ratings. As efficiency levels of equipment increases, homeowners' out of pocket utility expenses decrease, as well as their carbon footprint. Newly-introduced products will reduce, if not completely, eliminate the need for fossil fuels as a main source of heating. Solar, geothermal, and other alternative energy sources will soon be considered alternative. The cost of these energy efficient technologies will lower and become more common for everyday use, for every type of home and industry.

In addition to the industry becoming more energy conscious, consumers will also demand more technologically-advanced gadgets. People would want information at their fingertips and Wi-Fi thermostats (as part of a smart home), will soon be the norm. People will be able to use these devices to help reduce their energy consumption and be more aware of how they are using their home's energy."

The short term and long term changes give us a proof to believe that our product has a promising future as the mindset of the industry as well as its customers has headed towards a green direction, hence we can reach out to

the people and promote our product in wide applications in a much lesser time and invest that time to research and development of our product to enhance growth of our business.

Describe your most important company strengths and core competencies. What factors will make the company succeed? What do you think your major competitive strengths will be? What background experience, skills, and strengths do you personally bring to this new venture?

Our company's strength mainly lies in the fact that it is an innovation inspired startup consisting of a team of engineers from our reputed college whose faculty are well trained and are always enthusiastic on supporting our startup which is located in the incubation centre Derbi located within the college premises making our job much easier.

The strength of our team is in the fact that we have a collaboration with students who dream about being successful technological entrepreneurs from Electronics and Communication, Computer Science, Mechanical Streams and the Technology and Entrepreneurship stream who have developed the core competencies of our startup which includes innovation, adaptability and management, and marketing strategy enhancement through the integration of business and technology. Our company's motto is well captured and in the process of attainment by our enthusiastic team.

Internal factors for success:

Our well developed collaboration has improved our thinking process to understand what the customer and in turn the world would need when we develop a product. Our college student body has provided us the steady advantage of conducting surveys to understand their and their family needs, our innovation labs like Bosch, IBM, Nvidia ,etc. have been providing us a wide exposure towards the needs and requirements of the current generation and how business and technology play an important role in shaping the future. Overall, helped us to build a more connected and viable solution for a wide scaled application, therefore has broadened our horizon. Therefore, we have been preparing ourselves to overcome any obstacle that comes our way and efficiently develop a learning experience from it.

External factors (why India needs us and also the world at large):

Apart from the view of environmental protection and conservation,

The objective of this proposal is to address **problems in India** related to cold storage units such as:

1. **Lack of efficient and organized Cold Storage Centers** - India faces a loss of INR 330 billion annually in the agricultural sector due to the lack of cold storage facilities although there are ~5,381 number of total cold chain storages in India with 95% of total storage capacity under private sector.

2. **Lack of diverse Cold Storage facilities** for different agricultural produce.

(Maximum cold storage centers in India is for storing potatoes only)

3. **Lack of Stable Power Supply and Backup facilities for Cold Storage** with Ineffective Heat Management Systems

4. **Uneven distribution** of Cold Storage centers in India due to **restricted land use**.

5. **Lack of refrigerated logistics for transporting** the agricultural produce from Farms to Cold Storage centers and from there to Markets due to various factors such as

- a. High Cost
- b. Lack of Organized, Secure and Modular Systems
- c. Interference of Middlemen, resulting in huge losses to farmers of our country.

6. **Limited encouragement due to high capital investments.**

7. **Automated temperature management systems are outdated and inefficient.**

8. **Operational and Maintenance cost is High**

9. **Inadequate labor knowledge and training** to handle and maintain Cold Storage Systems.

Our background strengths mainly involve our experience and knowledge that we have developed in our college by not just the theory classes but also by the mini projects we have been doing since the first year of our college, unlike in many colleges where it happens only in the fourth year. We have understood the importance of time management, value of money and by the sessions conducted by reputed businessmen how important it is that an innovative product that is developed in a college should become a part of this world and not just a part of the resume.

Our team collaboration from various streams gives us inputs from every angle and manner that could possibly go into developing a product. As, it is built entirely by human labour it provides the flexibility to alter the product to suit any application in the market that is related to HVAC. So, I believe we have every chance of becoming a successful startup.

Legal form of ownership: Sole proprietor, Partnership, Corporation, Limited liability corporation (LLC)? Why have you selected this form?

Form of ownership will be Partnership.

Key Resources that we would acquire from partners.

- Our relationship with our partner can be defined as mutual developmental business where our partners would provide us with their current established market and customers to promote our product as well as have a share of our profit.

Key Activities performed by our partners

- Helping us with the promotion and marketing of our product with their current established customer and market segment.
- Re-modelling their current technologies with respect to ours, by purchasing and promoting our product.

Products and Services

Describe in depth your products or services (technical specifications, drawings, photos, sales brochures, and other bulky items belong in *Appendices*).

Our team was inspired to create this solution to improve the livelihood of the farmers in India by ***designing and developing easily-accessible, compact(modular) and cost effective and efficient cold storage systems*** across India. Hence, we proposed to build a '**hybrid-self-sustaining-low power utility**' system. **It's compactness reduces the overall cost of implementation and maintenance.**

The proposed project is divided into five modules:-

Module 1: The frozen module utilizes **peltier modules** which efficiently transfers heat from one section to another using minimal power when compared to the conventional methods in use.

Module 2: The arduino microcontroller is used to design its automation with temperature sensors. The temperature control is achieved through the efficient coding developed. The code is developed to monitor the frozen compartment temperature with prevention of any kind of circuit damage. The temperature controlling is automatically done without any hassle. The switching action of cooling or heating is done with the help of relays (digital switches).

Sample Measurements: The cold side reads -19°C on the mercury, and the hot side documents close to 140°C under experimental conditions. The above mentioned temperatures are attained within 20 seconds when the device is powered 'ON'. Hence, greater efficiency with low power requirements.

Module 3: The heat produced as a by-product is used in the conventional oven section. Hence, creating a fully functional conventional oven using the heat that would have been wasted otherwise.

Module 4: This energy module will be developed to tackle the energy crisis and to also generate clean, reliable energy. The Solar Power System will provide the energy to power the device (self sustaining). The Biogas Module will be integrated to produce natural gas from the agricultural waste in cold storage plants.

Module 5: The app would enable monitoring ,controlling and evaluating the product's efficiency which is required at large scale applications(Cold Storage Systems).

What factors will give you competitive advantages or disadvantages? Examples include level of quality or unique or proprietary features.

The Uniqueness of the proposition:-

The device works on the principles of thermodynamics by the use of peltier modules which efficiently transfers heat from one section to another using minimal current when compared to the conventional methods in use. It achieves the following goal without the use of any aerosols, chlorofluorocarbons or hydro fluorocarbons of any kind(making it environment friendly).

Due to its Modular Design it is easily scalable to meet the requirements, and its compactness is achieved due to modularity thereby, reducing its installation cost and initial capital also making suitable when integrating it with transportation logistics(portability).

As it is a peltier effect based project, temperature controlling is easily achieved at relatively low power consumption, making it feasible for storing different agricultural produce. As Solar Power Module would be Integrated the Cold Storage System would be Self Sustaining.(As Peltier Blocks would power the system during night).The Bio Gas Reactor could also be integrated to produce natural gas for domestic purposes.

Our app, which is a part of the project would mainly involve with security of the system.

The projected price of a “Froven” would stand at an estimated INR 15,000 per device which is 77 times cheaper than conventional refrigerators.

What are the pricing, fee, or leasing structures of your products or services?

Our product is priced at a selling price of 20,000 for the first year, this price is bound to vary over the years as well as the application orientation(to suit the functionality requirement)

Marketing Plan

In your marketing plan, be as specific as possible; give statistics, numbers, and sources. The marketing plan will be the basis, later on, of the all-important sales projection.

We have conducted both primary and secondary kinds of market research.

Primary involved the student body survey within the college with the help of google forms, which mainly involved questions pertaining to research and development.

Secondary market research mainly involved collecting facts and figures pertaining to the HVAC industry and why its revolutionisation is the need of the hour, from well renowned published papers and journals on IEEE, Springer ,etc.

We present the statistics as follows:

1. Lack of efficient and organized Cold Storage Centers - India faces a loss of INR 330 billion annually in the agricultural sector due to the lack of cold storage facilities although there are ~5,381 number of total cold chain storages in India with 95% of total storage capacity under private sector.

2. Lack of diverse Cold Storage facilities for different agricultural produce.

-11% of world's total vegetables production is accounted by India alone but India's share in global vegetable trade is only 1.7%

-127 Million Tonnes of milk was produced in 2011-12, but cold storage capacity is only available for 70,000-80,000 Tonnes of milk

-20%-30% of fish production is annually wasted in India

(Maximum cold storage centers in India is for storing potatoes only) .

3. Lack of Stable Power Supply and Backup facilities for Cold Storage with Ineffective Heat Management Systems

4. Uneven distribution of Cold Storage centers in India due to **restricted land use.**

5. **Lack of refrigerated logistics for transporting** the agricultural produce from Farms to Cold Storage centers and from there to Markets due to various factors such as

- a. High Cost
- b. Lack of Organized, Secure and Modular Systems
- c. Interference of Middlemen, resulting in huge losses to farmers of our country.

6. **Limited encouragement due to high capital investments.**

7. **Automated temperature management systems are outdated and inefficient.**

8. **Operational and Maintenance cost is High**

9. **Inadequate labor knowledge and training** to handle and maintain Cold Storage Systems.

Economics

Facts about your industry:

What is the total size of your market?

Our business is unique in the perspective that our partners play the important role of customers too.

Where our identified partners and customers are:

- The Cold Storage and Processing Industries
- Food Manufacturing and Processing Industries(Frozen Foods)
- Healthcare Industries (Vaccines, Organ Banks)
- The Cold Logistics
- Homes and Workspaces

Versatile due to its modular design and scalable to any application where cooling or heating is required

Thereby creating a scope for a wide market across India, and overseas in the future.

What percent share of the market will you have? (This is important only if you think you will be a major factor in the market.)

As our partnerships would grow rapidly over the next 10 years we predict that our percentage share would rise upto 30%.

Current demand in target market.

As India accounts for 17.5% of the global population, and the real estate market has been growing, the construction of new high rise buildings, malls, etc. has created an ever increasing demand for the products from the HVAC industry.

The growth and expansion of smart cities all over India has set a new direction for the development of HVAC industries which involves production of affordable, energy efficient, eco- friendly and compact products to serve the customers and protect the environment, thereby sustaining a massive demand for our product.

Cold Chain Growth Potential

India is an Agrarian Economy:

- Largest Milk Producer in World: 132 Million MT
- Second Largest Fruit and Vegetable Producer: 82 + 165 Million MT
- Third Largest Fish Producer: 9.6 Million MT
- Among Top Three Producers of Spices and Poultry
- Only 10% Perishable Produce is Processed – Huge Potential

Trends in target market—growth trends, trends in consumer preferences, and trends in product development.

India HVAC market is expected to cross \$7 Billion by 2022. Growing infrastructure-based developments, technological advancements and increasing tourism are expected to positively influence India HVAC market over the next five years. Moreover, extreme climatic conditions, rising disposable income, growing construction activities in both commercial and residential sectors coupled with various government initiatives aimed at improving energy efficiency are some of the other major factors expected to boost India HVAC market during the forecast period.

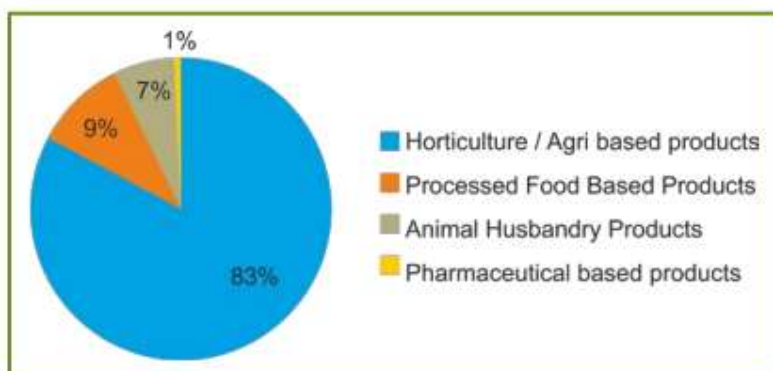
In addition to the above,

- India is Committed to Montreal Protocol
- Refrigerant Trends- CFC's phased out 17 Months before target date (2010)

- Increasing Awareness of Environment Quality

The figure below demonstrates the trends and requirements of India's cold storage industries:

Segment wise Distribution



Cold Chain Infrastructure

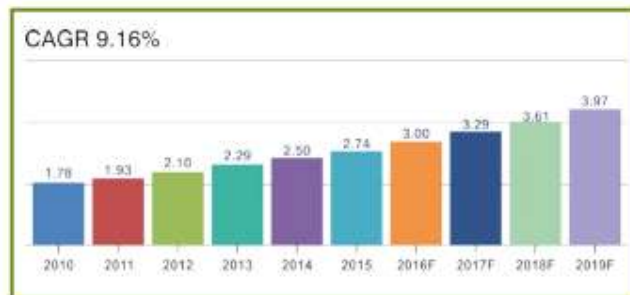
Type of Infrastructure	India's Requirement	Existing Facilities	Additional Facilities required by India
Pack-House	70.080110s.	249 nos.	69,831110S
Cold Storage (Bulk) #	341,64,411 MT		
Cold Storage (Hub)#	9,36,251 MT	318,23,700 MT	32,76,962 MY
Reefer Vehicles	61,826 Nos.	9000 Nos.	52,826 Nos.
Ripening Chamber	9,131 Nos.	812 Nos.	8,319 Nos.

Growth potential and opportunity for a business of your size.

Global HVAC Market Size by Value, 2010–2019F (USD Billion)



Indian HVAC Market Size by Value 2010–2019F (USD Billion)



India outperforming the World!

The Compound Annual Growth Rate over the years demonstrates the need of a product like Froven and it establishes a promising future, which would thereby create a large scale applications all across India.

Thereby, research and development ensures scalability of our product to meet any HVAC industry oriented applications.

What barriers to entry do you face in entering this market with your new company?

Our barriers include:

- ✓ High capital costs
- ✓ High production costs
- ✓ Shipping costs
- ✓ Tariff barriers and quotas

How we overcome them:

- High capital and production costs would be overcome as our startup is involved with partnerships:

As, it provides

- *Optimization and economy*
 - *Reduction of risk and uncertainty*
 - *Acquisition of particular resources and activities*
-
- Unique technology and patent handling services are guided by our startup.
 - The shipping costs, tariff barriers and quotas is challenge that would be addressed once our company gets directly involved with it.

How could the following affect your company?

Change in technology

- As the technology has been heading towards the green and environment friendly side, it boosts our product's noble cause.
- Innovative technologies have been receiving global appreciation, I believe this product will bring our company to that level.

Change in government regulations

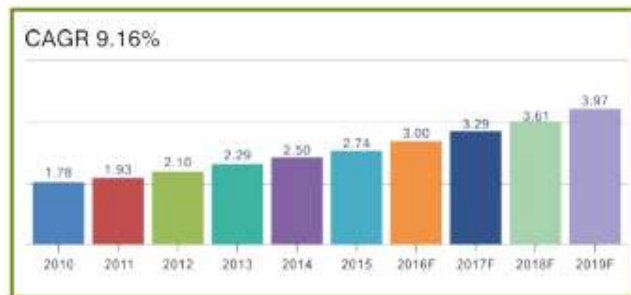
- Various government initiatives aimed at improving energy efficiency are some of the other major factors expected to boost India HVAC market during the forecast period.(eg. India has signed up for the Montreal Protocol)
- The GST could increase taxes on our production, but it cannot affect the credibility of our company.

Change in the economy

- The GDP of the Indian Economy is on the rising scale and therefore, it can provide us endless opportunities to create demand, promote and sell our product.

Change in your industry

Indian HVAC Market Size by Value 2010–2019F (USD Billion)



India outperforming the World!

The Compound Annual Growth Rate over the years demonstrates the need of a product like Froven and it establishes a promising future, which would thereby create a large scale applications all across India.

Thereby, research and development ensures scalability of our product to meet any HVAC industry oriented applications.

Product

In the *Products and Services* section, you described your products and services as you see them. Now describe them from your customers' point of view.

- Our partners and customers will understand that our product is a **'hybrid-self-sustaining-low power utility' HVAC system. It's compactness reduces the overall cost of implementation and maintenance.**
- Our customers would also be proud of themselves by the purchase and use of our product as it an eco-friendly product and protects our ozone layer compared to the conventional HVAC products.

Features and Benefits

List all of your major products or services.

"Froven" is a novel solution to the protect the ozone layer and to provide an eco-friendly alternative for refrigeration and energy management. This product is hybrid in its design implementation as it integrates both- a freezer and an oven on a compact system. The modular design ensures its

scalability to any application . This would be a self sustaining product as it would be integrated with the Solar Power Module to battle the energy crisis. It's compactness reduces the overall cost of implementation and maintenance, as it is implemented using Peltier Modules. An additional biogas reactor module would be integrated to expand its application to building Large Scale Cold Storage Systems to produce natural gas for domestic purposes. A user friendly App will be designed to monitor ,control and evaluate the product's efficiency which is required at large scale applications(Cold Storage Systems).

For each product or service:

Describe the most important features. What is special about it?

The Uniqueness of the proposition:-

The device works on the principles of thermodynamics by the use of peltier modules which efficiently transfers heat from one section to another using minimal current when compared to the conventional methods in use. It achieves the following goal without the use of any aerosols, chlorofluorocarbons or hydro fluorocarbons of any kind(making it environment friendly).

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Our app, which is a part of the project would mainly involve with security of the system.

The projected price of a “Froven” would stand at an estimated INR 15,000 per device which is 77 times cheaper than conventional refrigerators.

Describe the benefits. That is, what will the product do for the customer?

- Our partners and customers will understand that our product is a **'hybrid-self-sustaining-low power utility' HVAC system. It's**

compactness reduces the overall cost of implementation and maintenance.

- Our customers would also be proud of themselves by the purchase and use of our product as it an eco-friendly product and protects our ozone layer compared to the conventional HVAC products.

What after-sale services will you give? Some examples are delivery, warranty, service contracts, support, follow-up, and refund policy.

As it is the primary motto of Froven Technology to provide end to end customer services and satisfaction, in order to gain the lifetime trust of the customer, we would provide:

- Safe delivery of our purchased products.
- Warranty (only after full scale trials have been done after research and development).
- Service contracts to our partners.
- Support and feedback for our existing customers.

Customers

Identify your targeted customers, their characteristics, and their geographic locations, otherwise known as their demographics.

Our target customers and partners mainly involve:

Where, the following can be defined as our valued **business partners and customers:**

- The Cold Storage and Processing Industries
- Food Manufacturing and Processing Industries(Frozen Foods)
- Healthcare Industries (Vaccines, Organ Banks)
- The Cold Logistics

Where, the following can be defined as our **direct customer group:**

- Homes and Workspaces
- Versatile due to its modular design and scalable to any application where cooling or heating is required.

All of the above present in India.

Competition

What products and companies will compete with you?

List your major competitors:

- 1.)Snowman Logistics(Leading cold storage chain in India).
- 2.)Godrej HVAC appliances.

Will they compete with you across the board, or just for certain products, certain customers, or in certain locations?

They would collectively compete for customers and locations.

How will your products or services compare with the competition?

Our partners and customers will understand that our product is a **'hybrid-self-sustaining-low power utility' HVAC system. It's compactness reduces the overall cost of implementation and maintenance.**

Use the Competitive Analysis table below to compare your company with your two most important competitors. In the first column are key competitive factors. Since these vary from one industry to another, you may want to customize the list of factors.

In the final column, estimate the importance of each competitive factor to the customer. 1 = critical; 5 = not very important.

Table 1: Competitive Analysis

FACTOR	Me	Strength	Weakness	Snowman Logistics	Godrej	Importance to Customer
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FACTOR	Me	Strength	Weakness	Snowman Logistics	Godrej	Importance to Customer
Products	FrovenTech	✓		2	2	1
Price	FrovenTech	✓		4	3	1
Quality	FrovenTech		✓	3	2	1
Selection	FrovenTech	✓		2	2	2
Service	FrovenTech	✓		3	2	1
Reliability	FrovenTech	✓		2	2	1
Stability	FrovenTech		✓	3	3	1
Expertise	FrovenTech		✓	2	2	2
Company Reputation	FrovenTech		✓	1	1	3
Location	FrovenTech	✓		1	1	3
Appearance	FrovenTech		✓	2	2	2
Sales Method	FrovenTech	✓		2	2	1
Credit Policies	FrovenTech	✓		4	3	1
Advertising	FrovenTech	✓		2	2	2
Image	FrovenTech		✓	2	1	3

Now, write a short paragraph stating your competitive advantages and disadvantages.

As we need to focus on working on our weaknesses,

We lack experience, public recognition and stability as we are present in the prototyping and research and development phase of the product.

But we believe the technology will help us to reach their level with our well planned marketing strategies.

Niche

Now that you have systematically analyzed your industry, your product, your customers, and the competition, you should have a clear picture of where your company fits into the world.

In one short paragraph, define your niche, your unique corner of the market.

Our niche is an innovative company that has recognized its strengths and weaknesses and would work harder to expand its outlook towards creating better solutions for the people of our country.

Strategy

Now outline a marketing strategy that is consistent with your niche.

Our product needs a Business to Consumer (B2C) marketing strategy. As we have a clear picture about our target population, the marketing methods that we could try are:

1. Cause marketing: In this method, we would link our product to social causes such as ozone layer depletion, power consumption and cost efficiency. This method is most likely to cause the product to promote by its own.
2. Diversity marketing: As India is a vast country, integrating different methods taking into consideration the target populations' culture, beliefs, attitudes and views could also play a vital role in marketing.
3. Internet Marketing and Paid Advertisements will also be tried
4. Partnership Marketing Strategy

Key Resources that we would acquire from partners.

- Our relationship with our partner can be defined as mutual developmental business where our partners would provide us with their current established market and customers to promote our product as well as have a share of our profit.

Key Activities performed by our partners

- Helping us with the promotion and marketing of our product with their current established customer and market segment.
- Re-modelling their current technologies with respect to ours, by purchasing and promoting our product.

5. E-Card Strategy.

- We have decided to promote the image through the distribution of e-cards which provide:
 - ✓ Offers and Bonus points to our customers(promotion strategy)
 - ✓ e-cards are digitally stored on the phone and hence saving paper and preventing use of plastic
 - ✓ Customers can forget the hassle of keeping them in their pockets, and it is always retained on their phones.

Promotion

How will you get the word out to customers?

By use of the above mentioned marketing strategies integrated with:

- Our own website promotion
- Purchased online ads
- Social Media
- Newspaper ad
- Events
- Flyers.

Advertising: What media, why, and how often? Why this mix and not some other?

- Our own website promotion-provides us Uniqueness and Integrity(All time)
- Purchased online ads-Reaches people faster(All time)
- Social Media-Cheapest and Fastest way(All time)
- Newspaper ad-Creates awareness(Once in 6 months)
- Events- Mass recognition at a time(Once in a year)
- Flyers-alternative option(Considered when necessary)

Have you identified low-cost methods to get the most out of your promotional budget?

- Our own website promotion-provides us Uniqueness and Integrity(All time)
- Purchased online ads-Reaches people faster(All time)
- Social Media-The free and the fastest way to reach out to people.(All time)

Will you use methods other than paid advertising, such as trade shows, catalogs, dealer incentives, word of mouth (how will you stimulate it?), and network of friends or professionals?

- As our startup is located within the college premises itself it helps us to promote our product widely through our student body.

What image do you want to project? How do you want customers to see you?

Image- "Froven", a novel solution to the protect the ozone layer and to provide an eco-friendly alternative for refrigeration and energy management.

Our partners and customers will understand that our product is a **'hybrid-self-sustaining-low power utility' HVAC system. It's compactness reduces the overall cost of implementation and maintenance.**

In addition to advertising, what plans do you have for graphic image support? This includes things like logo design, cards and letterhead, brochures, signage, and interior design (if customers come to your place of business).

- We have decided to promote the image through the distribution of e-cards which provide:
 - ✓ Offers and Bonus points to our customers(promotion strategy)
 - ✓ e-cards are digitally stored on the phone and hence saving paper and preventing use of plastic
 - ✓ Customers can forget the hassle of keeping them in their pockets, and it is always retained on their phones.

Should you have a system to identify repeat customers and then systematically contact them?

Yes, this is important to maintain the trust of our customers which always gives us collective feedback on our products and services to them. It is important to promote our new products to them as well.

Promotional Budget

How much will you spend on the items listed above?

Year 1:INR 4000

Year 2:INR 18000

Year 3: INR 30000

Before startup? (These numbers will go into your startup budget.)

INR 10000.

Ongoing? (These numbers will go into your operating plan budget.)

INR 30000.

Pricing

Does your pricing strategy fit with what was revealed in your competitive analysis?

No, it needs more in depth research on finance.

Compare your prices with those of the competition. Are they higher, lower, the same? Why?

Lower. Reason being we are a self funded startup who have not signed up partnerships with any HVAC partners legally as of now.

How important is price as a competitive factor? Do your intended customers really make their purchase decisions mostly on price?

Price is important when it comes in comparison with our competitors to make our customers understand that they are privileged to obtain better and smarter solutions at a lower price, when they trust our company.

What will be your customer service and credit policies?

- ✓ Ensuring they choose the right suited product to meet their functionality requirements, to ensure that they purchase for what they really need.
- ✓ Ensuring on time safe delivery of products
- ✓ Warranty (only after full scale trials have been done after research and development).
- ✓ Service contracts to our partners.
- ✓ Support and feedback for our existing customers

Credit Policies:

- ✓ One time payments.
- ✓ EMI.
- ✓ Digital Payments and Net banking.
- ✓ Cash on Delivery.

Proposed Location

Is your location important to your customers? If yes, how?

Location plays a vital role to our customers as it should be convenient to approach, purchase and understand more about our products and services. But, we can also state that technology has brought about a more connected network for creating better solutions and it should be made the best use of.

If customers come to your place of business:

Is it convenient? Parking? Interior spaces? Not out of the way?

Yes, it provides all amenities.

Is it consistent with your image?

We can say that it is 80% close to it.

Is it what customers want and expect?

Not everyone needs it, but it is our duty to be more of an everytype.

Where is the competition located? Is it better for you to be near them (like car dealers or fast-food restaurants) or distant (like convenience-food stores)?

As we have been incubated currently we are distant from our competitors. But this problem needs a thought process that needs more time.

Distribution Channels

How do you sell your products or services?

Retail

Direct (mail order, Web, catalog)

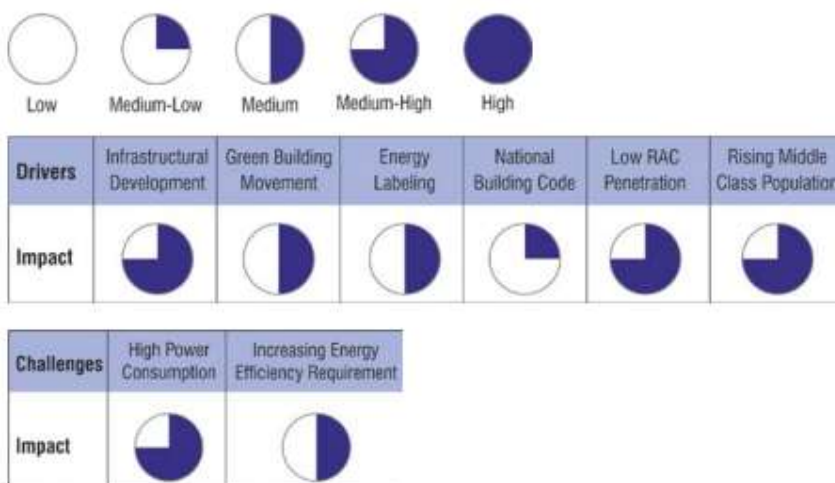
Wholesale

Your own sales force

Independent representatives

Sales Forecast

Growth Drivers & Challenges



It is predicted by our company that the above mentioned drives will boost the sales of our company, keeping in mind at the same time, it would be difficult to compete with the well established HVAC industries.

Operational Plan

Location plays a vital role to our customers as it should be convenient to approach, purchase and understand more about our products and services. But, we can also state that technology has brought about a more connected network for creating better solutions and it should be made the best use of

Production

How and where are your products or services produced?

Explain your methods of:

Production techniques and costs

Our team collaboration from various streams gives us inputs from every angle and manner that could possibly go into developing a product. As, it is built entirely by human labour it provides the flexibility to alter the product to suit any application in the market that is related to HVAC. So, I believe we have every chance of becoming a successful startup.

Quality control

Needs more industrial exposure to control this.

Right now we have decided on using drones that are artificially intelligent and capable of image processing.

Customer service

- ✓ Ensuring they choose the right suited product to meet their functionality requirements, to ensure that they purchase for what they really need.
- ✓ Ensuring on time safe delivery of products
- ✓ Warranty (only after full scale trials have been done after research and development).
- ✓ Service contracts to our partners.
- ✓ Support and feedback for our existing customers

Inventory control

Needs more industrial exposure to control this.

Right now we have decided on using drones that are artificially intelligent and capable of image processing.

Product development

- ✓ Continued research and development.
- ✓ Continued customer feedback.
- ✓ Exposure to new product technologies

overall, enhances our knowledge on product development.

Location

What qualities do you need in a location? Describe the type of location you'll have.

Physical requirements:

Amount of space

Well spaced.

Type of building

Good ventilation and attractive structure.

Power and other utilities

Good provision of basic amenities

Access:

Is it important that your location be convenient to transportation or to suppliers?

Yes it is.

Do you need easy walk-in access?

Is important but not necessary.

What are your requirements for parking and proximity to freeway, airports, railroads, and shipping centers?

- ✓ Parking

✓ shipping centres and railroads should be close by.

Cost: Estimate your occupation expenses, including rent, but also including maintenance, utilities, insurance, and initial remodeling costs to make the space suit your needs. These numbers will become part of your financial plan.

Right now we have been incubated and pay a monthly rent of INR 2500. We need time to think about it.

What will be your business hours?

Morning 8am to 8pm from Mondays to Saturdays.

Location plays a vital role to our customers as it should be convenient to approach, purchase and understand more about our products and services. But, we can also state that technology has brought about a more connected network for creating better solutions and it should be made the best use of

Legal Environment

a) Literature survey/patent search

When the literature survey was done, it was observed that publications composed of application of Peltier modules in the areas of air conditioning. It was also observed that few patents were filled and granted as well in the area of air conditioner manufacturing.

Patent Filling would be done as soon as the complete product is ready. (Expected in September 2018).

Personnel

Number of employees:

Variable over 3 years.

Year 1:10

Year 2:30

Year 3:50

Type of labor (skilled, unskilled, and professional)

Right now we have planned for skilled, but once expansion starts, employees will be hired from all categories.

Where and how will you find the right employees?

By posting our requirements on Job Websites and newspapers in our preferred locality.

Quality of existing staff and Pay structure

The company would hire qualified candidates and train them accordingly, and pay would initially be fixed unit wise and not on a monthly basis. Monthly salary pay scale needs more establishment.

Training methods and requirements

Necessary for our newly recruited candidates for about a month to understand the working of our startup.

Who does which tasks?

Right now we have:

A Company Head: Directs the job.

Marketing and Financial Manager: Markets and Documents sales and finance.

Design Engineers: Involved with design and production.

For certain functions, will you use contract workers in addition to employees?

If the necessity arrives then yes we would.

Inventory

What kind of inventory will you keep:

For raw materials and finished goods.

Suppliers

Identify key suppliers:

Our Key Suppliers

- We as a student startup (who have been incubated) are mainly self supplied,
- we, have been involved with electronic component dealers as our key suppliers.

Should you have more than one supplier for critical items (as a backup)?

It is absolutely necessary to keep the production going.

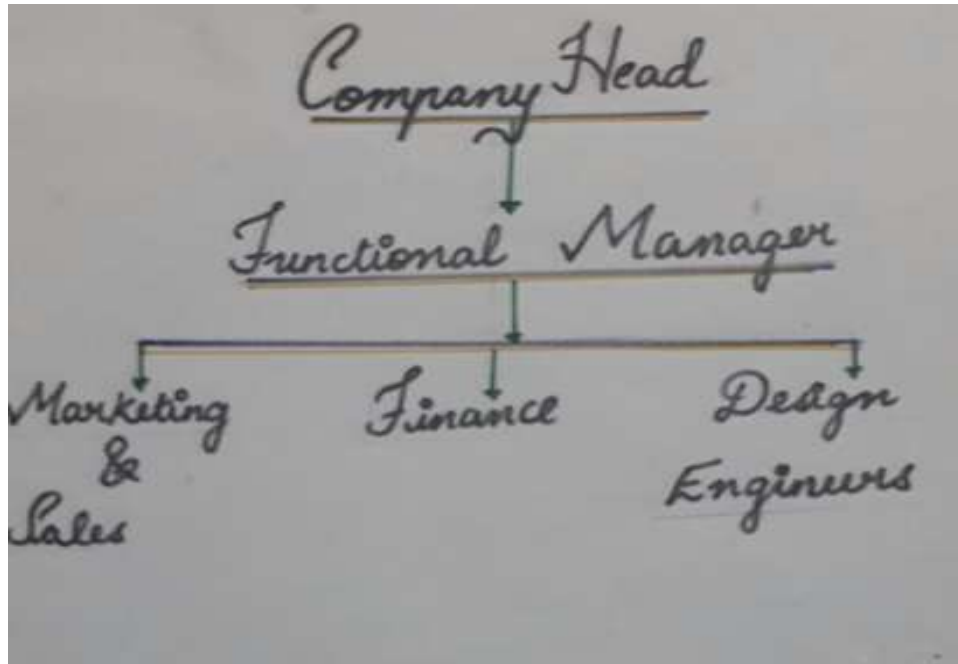
Do you expect shortages or short-term delivery problems?

Yes we do sometimes.

Credit Policies:

- ✓ One time payments.
- ✓ EMI.
- ✓ Digital Payments and Net banking.
- ✓ Cash on Delivery.

Management and organisation



Right now we have:

A Company Head: Directs the job.

Marketing and Financial Manager: Markets and Documents sales and finance.

Design Engineers: Involved with design and production.

Financial Plan

Name of the company: Froven Technologies

Revenue			
Period	Year 1	Year 2	Year 3
Price per unit - INR	20,000	23,000	28,000
Number of units	30	150	500
Total Revenue- INR	6,00,000	34,50,000	1,40,00,000

Costs			
Period	Year 1	Year 2	Year 3
Raw material	4,80,000	27,00,000	1,00,00,000
Labour costs	60,000	5,12,500	19,50,000
Salary - others	2,400	5,280	8,880
Rent	30,000	32,400	36,000
Electricity	0	0	0
Water	0	0	0
Local Conveyance	2,000	6,000	15,000
Travel	5,000	15,000	25,000
Advertising	3,000	15,000	20,000
Printing & Stationery	800	2,500	8,000
Postage & Courier	500	2,250	5,000
Legal	30,000	25,000	15,000
Internet	0	5,000	8,000
Repairs	0	0	0
Depreciation	0	0	0
Total Costs - INR	6,13,700	33,20,930	1,20,90,880
Stock of raw materials to be kept - INR	32000	80000	160000
Less: Opening Stock of raw materials - INR	0	32000	80000
Profit/Loss - INR	18,300	1,77,070	19,89,120

Name of the company - Evonon Technologies

Revenue

Period	year 1	year 2	year 3
Price per unit	20,000	23000	28000
Number of units	30	150	500
Total Revenue	6,00,000	34,50,000	1,40,000

Costs - Detail Version

Raw material	year 1 [30 x 16000] (unit price cost x number of units) = 4,80,000	year 2 [18000 x 150] 27,00,000	year 3 [20000 x 500] = 1,00,00,000
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Labour cost

$$[\frac{\text{No of labourers}}{L} \times \frac{\text{unit price}}{U} \times P]$$

$$10 \times 200 \times 30$$

$$[L \times U \times P]$$

$$\Rightarrow \boxed{60,000}$$

$$[L \times U \times P]$$

$$20 \times 200 \times 100$$

$$10 \times 225 \times 50$$

$$400K + 112.5K$$

$$\Rightarrow \boxed{5,12,500}$$

$$[L \times U \times P]$$

$$20 \times 200 \times 200$$

$$20 \times 225 \times 200$$

$$10 \times 250 \times 100$$

$$800K + 900K$$

$$+ 250K \Rightarrow$$

$$\boxed{19,50,000}$$

Labour costs was calculated based on the following strategies:-

- 1) Increase labour charges for 3 years
- 2) Hire more labourers for 3 years
- 3) Increase labour charges by 5% for labourers who have been previously working with us for 3 years.
- 4) Fixed labour charges for per unit production
- 5) The units number are fixed per labourer.

As it is a startup company:

Our labourers mainly are engineering students just like us, hence the labour charge has been fixed to a basic of ₹200 per unit design and production

Salary (others) → was calculated based on basic positions in the company, i.e.,

- Marketing and sales manager
- who would play dual roles to cut down on the salary costs.

Year 1	Year 2	Year 3
$2 \times 12 \times 100$	5280	88
$(N \times M \times \text{salary})$	$[4 \times 12 \times 100]$	$[6 \times 12 \times 100]$
$\Rightarrow 2400$		

N - number of managers
MS - monthly salary
M → 12 months

→ Strategy similar to labour costs.

Year 2	Year 3
$2 \times 12 \times 120$	$2 \times 12 \times 150$
$2 \times 12 \times 100$	$2 \times 12 \times 120$
	$2 \times 12 \times 100$

APPENDIX

Brochure Details

Introduction:

"Froven" is a novel solution to protect the ozone layer and to provide an eco-friendly alternative for refrigeration and energy management. This product is hybrid in its design implementation as it integrates both- a freezer and an oven on a compact system. The modular design ensures its scalability to any application. This would be a self-sustaining product as it would be integrated with the Solar Power Module to battle the energy crisis. Its compactness reduces the overall cost of implementation and maintenance, as it is implemented using Peltier Modules. An additional biogas reactor module would be integrated to expand its application to building Large Scale Cold Storage Systems to produce natural gas for domestic purposes. A user-friendly App will be designed to monitor, control and evaluate the product's efficiency which is required at large scale applications (Cold Storage Systems).

Customer Values

Customer service

- ✓ Ensuring they choose the right suited product to meet their functionality requirements, to ensure that they purchase for what they really need.
- ✓ Ensuring on time safe delivery of products
- ✓ Warranty (only after full scale trials have been done after research and development).
- ✓ Service contracts to our partners.
- ✓ Support and feedback for our existing customers

Gallery Images:-



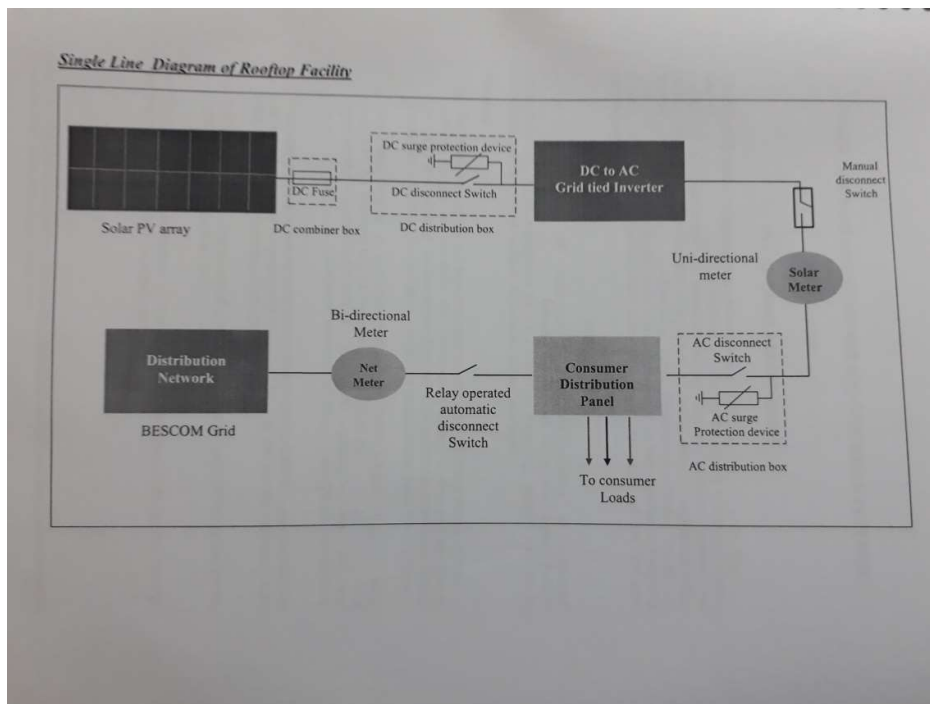
The Peltier Module



The Freezer Compartment



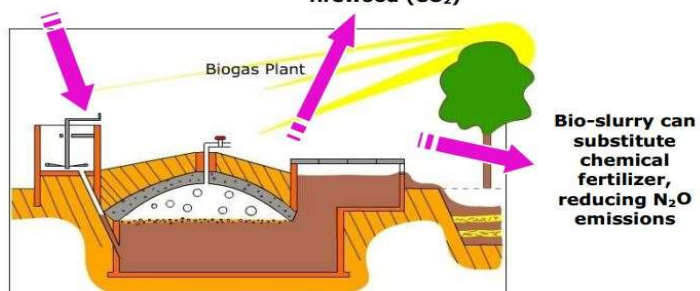
The Heater Compartment



The Solar Power Design

Biogas plants transform traditional manure management; reducing CH₄ emissions

Biogas substitutes conventional domestic energy sources, reducing reliance on fossil fuel and firewood (CO₂)



The Biogas Module Design.



The App

The app provides user friendly management features such as:-

- **Quality Maintenance and Control of Food Products**
- **Temperature Monitoring and Controlling**
- **Block-chain integration would be done to implement docket renting systems in Cold Storage Industries.**

THANK YOU.