STARTUP

PITCHING CHALLENGE

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Brief Overview

The electric vehicle (EV) battery market is a rapidly growing industry as demand for electric vehicles increases. The market is driven by factors such as government support for EVs, technological advancements, and growing concern over carbon emissions. Major companies in the market include Panasonic, Tesla, LG Chem, CATL, and BYD, among others. Lithium-ion batteries are the most commonly used type of batteries in EVs due to their high energy density and long battery life. The market is expected to continue its growth in the coming years as the demand for EVs increases and battery technology improves.battery technology faces challenges such as limited driving range, long charging time, and high cost. These limitations hinder widespread adoption of electric vehicles. To overcome these challenges and make EVs more practical and accessible, there is a need for improved battery technology that provides higher energy density, faster charging times, and lower costs.

Problem

Lithium-ion (Li-ion) batteries are currently the dominant technology for electric vehicle (EV) batteries, but they face several challenges that limit their widespread adoption. Some of these challenges include:

1. Limited driving range: Li-ion batteries have limited energy density, which restricts the driving range of EVs. This is a major concern for consumers, as they want to be able to drive their EVs for long distances without having to stop and recharge.

2. Long charging time: The charging time for Li-ion batteries is relatively long, which can be a deterrent for consumers. This limits the practicality of EVs for everyday use.

3. High cost: Li-ion batteries are expensive, which makes EVs more expensive overall and limits their affordability for many consumers.

4. Limited lifespan: Li-ion batteries have a limited lifespan and degrade over time, which reduces their efficiency and increases the total cost of ownership for EVs.

Research is ongoing in this area, with the aim of developing new technologies that will make EVs more practical and accessible for everyone.

Sodium Ion Batteries

Sodium-ion batteries are a promising alternative to lithium-ion (Li-ion) batteries, as they offer several advantages over Li-ion technology:

- Abundant raw materials
- Lower cost
- Longer lifespan
- High thermal stability

India has significant reserves of sodium and a strong manufacturing base, which provides the potential for local production of sodium-ion batteries. This would reduce the dependence on imported technology and create local jobs and economic opportunities.

Globally, there are several key players working on sodium-ion battery technology, including Ionic Materials, Sodium Calcium, and Japanese companies such as Toshiba and NGK Insulators. The competition in the sodium-ion battery market is intense, as companies aim to produce batteries with higher energy density, longer range, faster charging times, and lower costs. The market is still in the early stages of development, but has significant potential for growth as demand for EVs and other applications increases.

Graphene Batteries

Graphene is a one-atom-thick layer of carbon atoms arranged in a hexagonal lattice. It was first isolated in 2004 and since then, it has been the subject of intense research due to its unique properties, such as high strength, high electrical conductivity, and high thermal conductivity.

Despite its potential, the commercialization of graphene has been slow due to the high cost of production and difficulties in mass production.

Graphene batteries are a new type of battery technology that utilize graphene as a component in the electrodes, rather than traditional materials such as graphite. They offer several advantages over lithium-ion (Li-ion) batteries:

1. Faster charging
2. Longer lifespan
3. Higher energy density than Li-ion batteries, as they are less prone to thermal runaway and are less likely to catch fire.

Nevertheless, graphene batteries have significant potential to disrupt the energy storage market and enable the widespread adoption of EVs and other applications.

Types of Graphene Batteries

Graphene-based lithium-ion batteries

These are traditional lithium-ion batteries that use graphene as a component in the electrodes. They offer improved performance and safety compared to traditional Li-ion batteries.

Graphene supercapacitors

Energy storage devices that store energy by storing charge on the surface of the graphene, rather than within the material. They offer high power density, fast charging and discharging times, and a long lifespan.

Graphene-based sodium-ion batteries

These are sodium-ion batteries that use graphene as a component in the electrodes. They offer improved performance and safety compared to traditional sodium-ion batteries.

For electric vehicle (EV) use, graphene-based lithium-ion batteries are the most suitable, as they offer improved performance and safety compared to traditional Li-ion batteries. The fast charging times and high energy density of graphene-based Li-ion batteries make them well suited

Our Choice

The choice of technology for electric vehicle (EV) batteries is a complex one, as both graphene and sodium-ion batteries offer different advantages and disadvantages.

Graphene-based lithium-ion batteries offer high energy density, fast charging times, and improved safety compared to traditional lithium-ion batteries. They also offer high power density, which is important for fast charging and quick acceleration in EVs. However, the production process for graphene is currently more expensive than that for traditional lithium-ion batteries and further research and development is needed to improve performance and reduce costs.

Sodium-ion batteries offer a number of advantages, including the abundance of sodium, which is much more readily available than lithium, and lower production costs compared to graphene-based batteries. Sodium-ion batteries also offer improved safety compared to traditional lithium-ion batteries. However, they currently have lower energy density compared to lithium-ion batteries, which means they may not be suitable for long-range EVs or for fast charging.

In conclusion, the choice of technology for EV batteries will depend on a number of factors, including cost, energy density, safety, and production processes, and it is likely that different technologies will be used for different applications. Graphene-based lithium-ion batteries may be more suitable for high-performance EVs, while sodium-ion batteries may be more suitable for low-cost, low-performance EVs. Further research and development is needed to determine the best technology for each specific application.

Why is this product best

The product is best because it utilizes the unique properties of sodium ion and graphene to create a high-performing, low-cost, and environmentally sustainable EV battery. Sodium ion is abundant and inexpensive, making it a more cost-effective alternative to lithium ion. Graphene, a 2-dimensional material with high electrical conductivity, helps to improve the performance and safety of the battery.

How will it be produced

The technology used to produce this product will likely involve the synthesis of graphene and the assembly of sodium ion batteries using graphene-based materials. The production process will be optimized to ensure high efficiency, scalability, and cost-effectiveness. The specific technology used to produce this product is the best one because it leverages the unique properties of sodium ion and graphene to deliver superior performance and lower costs.

Timeline for large scale commercialization

It will depend on several factors, including the development of the production technology, the acquisition of necessary licenses and certifications, and the completion of testing and validation. A typical timeline for commercialization might take 2-3 years from the start of development to large-scale production

Go To Marketing Stratergy

STEP 1

Indetifying reasons for Manufacutres to buy our Product?

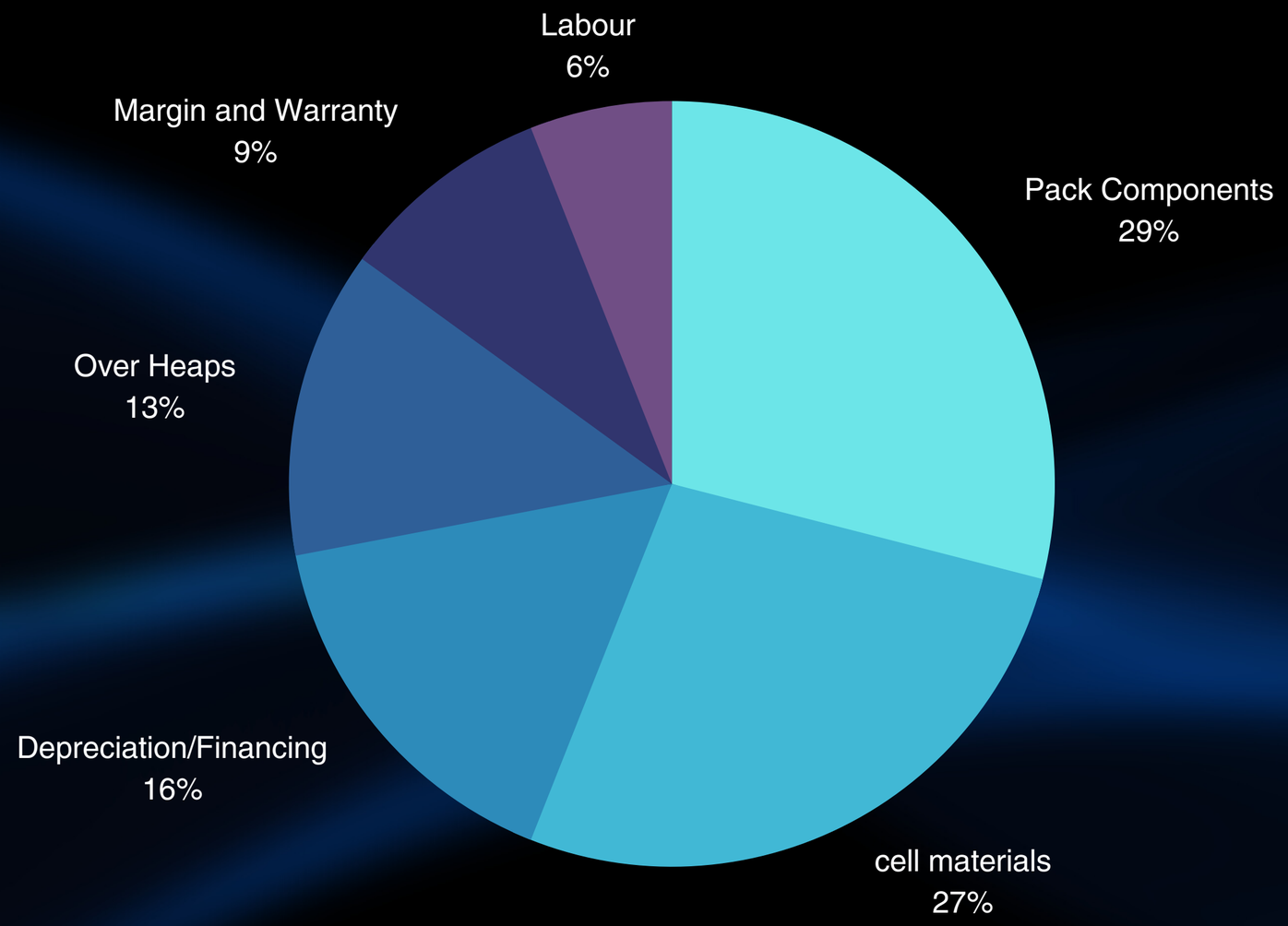
EV manufacturers will buy into the product because it provides a high-performing, low-cost, and environmentally sustainable alternative to traditional lithium-ion batteries. The unique properties of sodium ion and graphene allow for superior performance and longer battery life, which can increase the range of EVs and reduce the need for frequent battery replacements. The lower cost of sodium ion batteries also makes them a more attractive option for manufacturers, who are always looking for ways to reduce costs and increase profitability.

How will we reach out and get them onboard:

The company can reach out to EV manufacturers through a combination of direct sales, marketing campaigns, and industry events. Direct sales can be used to build relationships with key decision-makers and to demonstrate the benefits of the product. Marketing campaigns can be used to reach a wider audience and to generate interest in the product. Industry events can be used to network and to connect with potential customers.

PRICING STRATERGY

COST OF PRODUCTION



Growth Strategy

- Partnership and Collaboration: Partner with leading EV manufacturers to integrate your technology into their vehicles. This will help to increase visibility and credibility of your technology, while also allowing you to gain access to the large-scale production capabilities of your partners.

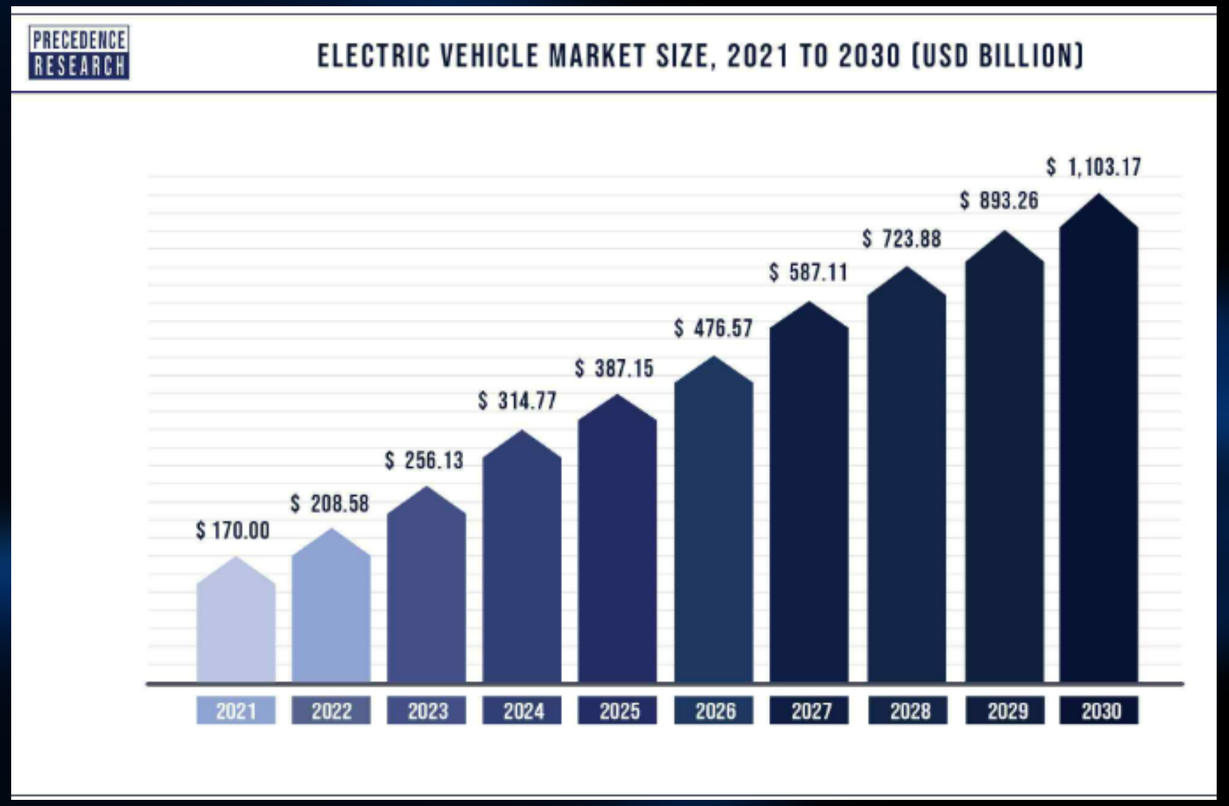
- Marketing and Brand Building: Create a strong marketing and brand building strategy to increase awareness and demand for your technology. Focus on the unique benefits of your technology, such as its cost-effectiveness, safety and reliability.

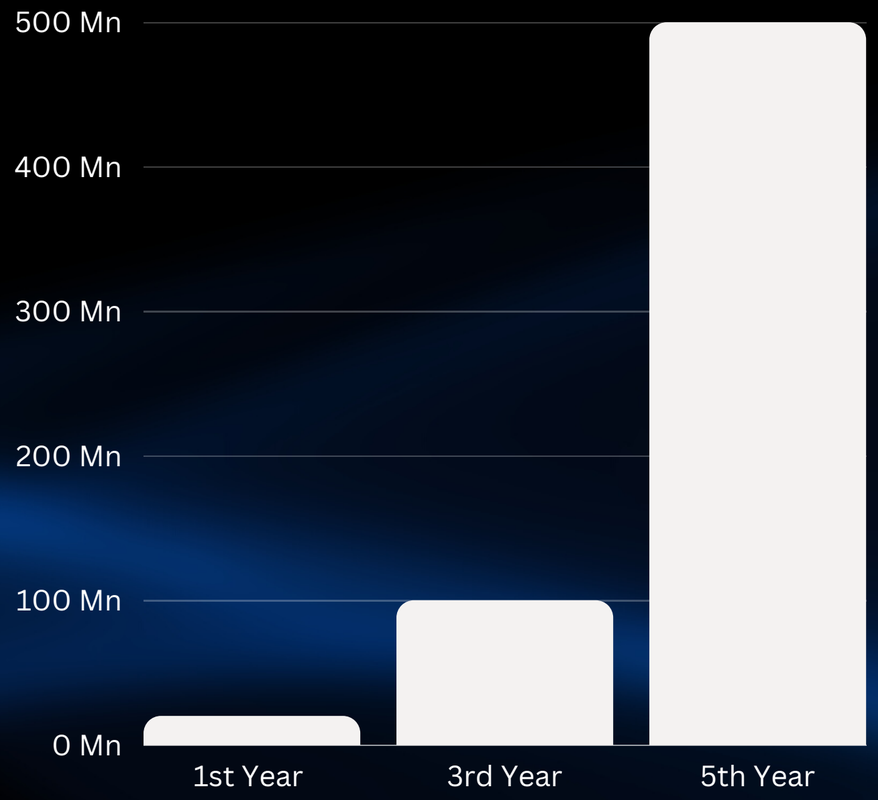
- Research and Development: Continuously invest in research and development to improve the performance, safety and cost-effectiveness of your technology. This will help to stay ahead of the competition and attract new customers.

- Expansion into New Markets: Explore new markets such as energy storage, portable devices and consumer electronics. This will help to diversify your revenue streams and reduce your dependence on the automotive industry.

Financial Model

The global electric vehicle market was estimated at USD 208.58 billion in 2022 and is expected to reach over USD 1103.17 billion by 2030, poised to grow at a compound annual growth rate (CAGR) of 23.1% during the forecast period 2022 to 2030.





Revenue Projection

Financial Metrics

CapEx

- OEM's Rs 25,000 - 30,000 cr per year for enhancing their capacity for model launches and upgrades.

IRR

$$NPV = \sum_{n=0}^{N} \frac{C_n}{(1+r)^n}$$

NPV is Net Present Value
Cn is Cash inflow

EBITDA

It is a metric which considers Earnings before Interest,Taxes,Depreciation and Amortization.

FUNDING

Fundraise Breakdown: We plan to raise funds through a variety of sources, such as angel investors, venture capital firms, crowdfunding campaigns, and government grants. The exact amount and type of funding will depend on the specific needs of the startup and its business plan.

Deployment of Funds: We aim to prioritize the deployment of funds in the following areas:

1. Research and Development
2. Manufacturing
3. Marketing and Sales
4. Working Capital

The startup should develop a detailed financial plan that outlines its funding needs and a roadmap for using the funds to achieve its goals. This plan should be updated regularly to reflect the changing needs of the business.

RISKS

- **Technology Risks:** The technology for sodium ion graphene batteries is still in its early stages of development, and there is a risk that the startup may encounter technical challenges during the development and commercialization process.
- **Competition Risks:** The battery market is highly competitive, and the startup may face intense competition from established players, particularly lithium-ion battery manufacturers.
- **Market Adoption Risks:** The market for sodium ion graphene batteries is still uncertain, and there is a risk that the market may not adopt the technology at the rate the startup expects.
- **Raw Material Risks:** The production of sodium ion graphene batteries requires a stable and consistent supply of raw materials, and there is a risk that the supply chain may be disrupted, leading to production disruptions and increased costs.
- **Regulatory Risks:** The battery industry is heavily regulated, and the startup may face challenges in obtaining the necessary permits and approvals from regulatory authorities.
- **Funding Risks:** The startup may struggle to secure the necessary funding to support its growth, particularly if investors are not confident in the technology or market adoption.

THANKYOU

FOR YOUR ATTENTION