ISSN (Online) 2456-1290

International Journal of Engineering Research in Mechanical and Civil Engineering (IJERMCE)
Vol 3, Issue 2,February 2018

Indian Market Analysis and Sales Strategy for Potential Electric Racing Vehicle Segment

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Abstract: **-- The automobile industry today is very lucrative. The purchasing capacity of Indian buyers is increasing and we are witnessing trends of growth in Indian racing market with Formula One Grade Racing tracks being set up and more people showing interest in the sport than before. Global fossil fuel depletion is a growing concern with greenhouse gases on the rise; this will have immediate effects on motorsport as a Hobby and Competitive Racing Industry. With Electric Vehicles forecasted to be 54% of new car sales by 2040, a shift is observed where people are beginning to prefer electric automobiles and in due time this shift can be traced down to automobile racing segment too with the likes of Formula E reaching a wider audience.**
The objective here is to discuss the Feasibility of an Electric Vehicle Racing market in India with respect to upcoming Formula Student Electric Racing Teams in India, namely Team Ojas, based in Vellore Institute of Technology (VIT), Vellore. The target market is classified into three segments based on their approach to Electric Vehicles. All Tier 1 and Tier 2 cities are studied to understand the market potential. The electricity generation costs and CO2 emission index are taken into consideration. This paper also discusses the marketing strategies that can be adapted to sell electric racing cars in Indian market with customer-centric and business-centric approaches. The business model under study involves a simultaneous implementation of B2B as well B2C model in detail. Furthermore, the Premium race car segment is analyzed where the performance of the Electric Vehicle is compared to other Formula III Combustion Vehicles currently in use.

I. INTRODUCTION

Back in 1886, when the first motorcar was built, it had only one purpose – Conveyance. Soon, in early 1900's, man started the mass production of motorcars. This resulted in the dawn of the automobile revolution and the automobile saw various changes in its shape and size. This was a result of the changed perception about automobiles; they gradually became more than just a means of transportation, as industries started competing on the grounds of luxury, efficiency and speed. The outcome of this changed perception was the genesis of the term "Motorsport" by the 1930s. Cars like the Toyota Supra (1992), Dodge Viper (1992), Mazda RX 7 (1992), were produced and they became instant best-sellers not just because of their speed, but also because of how fun they were to drive. With time, technologies like Active Cruise Control, Active Braking, and Adaptive Steering made their way into vehicles. While these technologies did make cars faster and safer than ever before, they did also make cars less fun to drive.

The present scenario conveys an impression that 'The cars are now more in control than the drivers'. The average CO2 emissions per vehicle is 125 g/km. This is a substantial source of toxic gases. There is also little doubt that fossil fuels will soon become history, and that we will need alternative sources of fuel. This, however, should not come at the cost of the sheer pleasure of driving a vehicle. Being part of one of the few Formula Student Electric Teams in India, Team OJAS decided to draft a roadmap to making Electric Vehicles a reality in India. Keeping in mind the Indian Market scenario along with the rise in interest in Weekend Racing as a sport, the perfect vehicle which ensures the thrill of the sport was developed, while making sure that it reduces the carbon footprint.

II. MATERIALS AND METHODS

A. Production Plan

Automated Layout Design Program (ALDEP) Algorithm was used to determine the relative importance of major manufacturing processes to come to a design a sequence for production. Coupled with the experience of building a prototype and also studying more about the processes, we came up with the following layout which takes down the production time of one vehicle to 8 days. The following table (Table:1) illustrates the lead time and production process plan for the electric race car. Specific processes and the number of days required to perform the process is clearly mentioned with addition to testing periods and sub assembly time.

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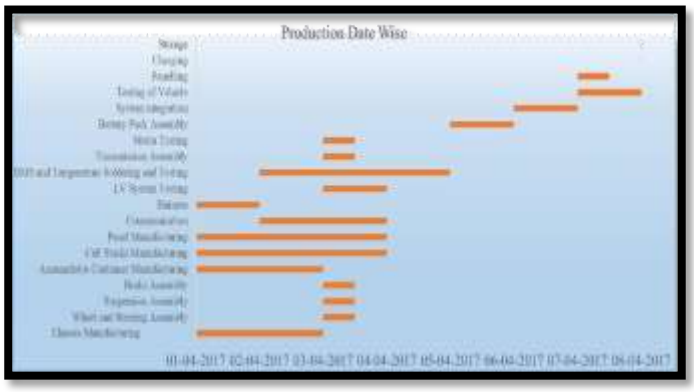
Table 1: Production lead time



B. Market segmentation and analysis

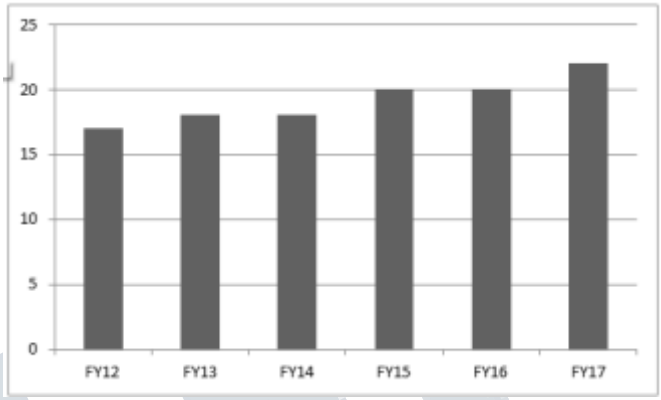
The target is to build electrical cars which will replace the fossil fuel dependent racing vehicles and market it to the high-income strata and entry level amateur racing drivers. This can be achieved by analyzing the trends in customer behavior, purchasing power and also by analyzing the market.

We have seen a steady increase in purchasing power of the people and steady rise in the per capita income along with an increase in net income of the country. Gross Domestic Product(GDP) per capita in India averaged 671.68 USD from 1960 until 2016, reaching an all-time high of 1861.50 USD in 2016.

There has also been a growing sense of environmental responsibility in the society. People have started taking account of their carbon footprint and plastic consumption. Another important shift in market is the stricter regulations and government rules on vehicular emissions and pollution levels. The Environment (Protection) Act of 1986 authorizes the central government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or restrict the setting and /or operation of any industrial facility on environmental grounds. 1986 - The Environment (Protection) Rules lay down procedures for setting standards of emission or discharge of environmental pollutants.

Another important trend in market which backs our study is the good steady growth in the market of premium cars in the country. In 2015, luxury vehicle sales in the Indian market stood at around 35,300 units. This is expected to grow to 87,300 units by 2020. There has been 25 million automobiles produced in financial year 2017 alone.Total production volume grew at a CAGR of 5.56 per cent between financial year 2012-2017. Table 2 illustrates the sales of automobiles by the Society of Indian Automobile Manufacturers(SIAM) between 2012 and 2017

Table 2: Number of automobiles sold in India (in millions)



The sale of premium cars (above 25lakhs) expected to hit 1 lakh units per year by 2020 [1] India's switch to electric vehicles will be rapid. 7.3 million electric vehicles by are expected to on roads by 2030 with an increase to 31 million by 2040 [2]

C. Potential markets

Target areas are chosen based on several factors. Tier 1 and Tier 2 cities are preferred. The Human Development Index classifies the cities in India on the following parameters- demographics, infrastructure, finance and economy and catalyst. Tire 1 and Tire 2 cities serve as the perfect target because of these reasons.

It is obviously essential for an electric car to charge their batteries and hence we choose cities with lower electricity cost.

Current CO2 emissions in the cities- cities already facing problems from pollution and smog etc. would possess faster growing customer bases and will also help curb the problems of air pollution sooner. Table 3 details the amount of air pollution faced by major Tire 1 and Tire 2 cities

Another important factor to be considered is the availability of community charging stations. By using free software apps which use Google Maps to provide real time locations of community charging stations where all the required charging needs of customers are satisfied a list of all the 222 such charging stations are made. The focus would be greater in the cities with higher number of charging stations.[3]

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Table 3: CO2 emission in major Indian cities

State	Cities	Tier	Actual CO2 emission (Gg)
Maharashtra	Mumbai	1	3,320.66
Maharashtra	Pune	2	2,307.94
Telangana	Hyderabad	1	7,788.02
Haryana	Gurugram	2	2,124.43
Delhi	Delhi	1	10,867.51
West Bengal	Kolkata	1	1,886.60
Karnataka	Bangalore	1	8,608.00
Tamil Nadu	Chennai	1	4,180.28
Tamil Nadu	Coimbatore	2	3,091.67
Chandigarh	Chandigarh	2	1,983.87
Gujarat	Ahmedabad	2	2,273.72
Gujarat	Surat	2	2,330.8

D. Target Customer segments

The plan is on targeting the potential customer groups who will be able to afford the down payment of 25 lacs and also will be able to keep up with the costs of maintenance and race track driving. These potential customers are affluent businessmen. People in the age group of 21-27 are also targeted. Customers who fall in this age group are the adrenaline rush seeking drivers who would consider race car driving as a hobby. Further the people in this target age group are generally bachelors with a considerable amount of disposable income.

The car is also targeted to the avid car collectors who enjoy buying and collecting a variety of cars as a passion as these collectors have both the love for a variety of cars and also sound technical knowledge.

E. Marketing Strategies and Implementation.

The primary strategy is to offer a competent, ecofriendly and sleek race car. It is understood that the automobiles are more than just a means of transportation to the target customers. The car is pitched such that it is a great product that is minimalistic in design and innovative. It uses modern technology to provide a clean experience overall because we don't use any fluids or oils.

Alternative plan is to give the brand an image that it is consumer oriented. The company would want to connect to their customers, understand their problems and strive to cater to the needs of the customer and build the brand. Customer's priorities are put ahead of anything else. Data will be collected from the customers through feedback forms and social media as marketing research is very important to satisfy the customer's needs. Quality customer service that does not neglect the concerns of the customers will be provided to have the best customer experience.

Another important approach to customer would be the motto that "We don't believe in just selling the products but selling the whole experience that comes with it". Once the car has been sold we would offer the customers with certain yearly services to ensure they have a smooth journey.

To make sure that the customer as an eye on his car we provide our buyers with an app that gives them an insight to the car. The app ensures that they can interact with each other and also with the manufacturer.

Endorsements from celebrities passionate about the environment and driving will help us get our product to a larger demographic. The product awareness will increase drastically if they share their experience and views with the public.

A strong social media presence will be made where the products are advertised regularly as it is a fast and an easy way for customers to reach the company with their queries or complaints that can be resolve as soon as possible. It is important to note that the traditional media cannot be neglected. There will be regular advertisements through newspapers and relevant magazines and other periodicals.
The product will be taken to various tech fests to demonstrate the abilities of our car. This will give us an insight into the mind of the younger generations at the same time increasing our exposure.

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III. RESULTS AND CONCLUSION

The global trends in shift away from fossil fuels are evident in the 20th century. From renewable every sources to decreasing in dependency of fossil fuels with commercial electric and hybrid cars, this global shift is gaining momentum and is drastic. In due time, this shift will trace its way to racing segment. Several strategies for marketing electric racing cars are studied and the potential customers are segmented and analyzed.

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