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A Study on Customer Satisfaction towards on Electric Vehicle Using in Tiruchirappali District

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Abstract

Electric vehicles (EVs) area promising technology for achieving a sustainable transport sector in the future, due to their very low to zero carbon emissions, low noise, high efficiency, and flexibility in grid operation and integration. This chapter includes an overview of electric vehicle technologies as well as associated energy storage systems and charging mechanisms. Different types of electric-drive Vehicle are presented. These includebatteryelectricvehicles,plug-inhybridelectricvehicles,hybrid electric vehicles and fuel cell electric vehicles. The topologies for each category and the enabling technologies are discussed. Various power train configurations, new battery technologies, and different charger converter topologies are introduced. Electrifyingtransportationnotonlyfacilitatesa clean energy transition, but also enables the diversification of transportation's sector fuel mix and addresses energy security concerns. In addition, this can be also seen as a viable solution, in order to alleviate issues associated with climate change.
Keywords: Electric vehicles, Battery Capacity, Energy Usage, Range(mileage), Development power, Customers Satisfaction.

I.INTRODUCTION

India is one of the top ten automotive markets in the world and given its burgeoning middle class population with buying potential and the steady economic growth, acceleration automotive sales is expected to continue. In the last couple of years, there has been a lot of discussion around the prices. The potential for alternative technologies in automobiles such as electric vehicles (EV)in India, as in the case of many other comparable markets, depends on improved battery technologies, driving ranges, government incentives, regulations, lower prices and better charging infrastructure. There seems to be a lot of interest on the part of Internal Combustion Engine (ICE) based manufacturers to adopt electric technology, not just supplemental to the ICE, but as a stand-alone offering. There are also specialized EV manufacturers that have come up all over the world. While many of the factors that influence the EV market are understood intellectually, we carried out a consumer survey to study perceptions and expectations of potential for alternative technologies in automobiles such as electric vehicles (EV) and hybrid EV. Assessing future demand for electric vehicles was somewhat challenging since it meant testing consumer preferences for a product with which they are largely unfamiliar. For this reason. we focused on uncovering consumers familiarity with EV technologies and products; with their opinions around price, brand, range, charging, the infrastructure, and the cost of ownership; and with the consumer‘s imagined ―fit‖ of an EV in his or her lifestyle given a range of demographic parameters.

Objectives of the study Primary Objective

To study the perceptions and expectation so potential, for alternative technologies in automobiles, such as Electric Vehicles.

Secondary Objective

- To know why electric vehicle couldn’t get enough consumer attraction.
- To study the willingness of buyers of considering Electric Vehicles as a practical commuting option and at when.
- To study the maximum price consumers can afford for buying an Electric Vehicles.

Scope of the Study

As electric vehicle manufacturing is **becoming popular every day**, its market share is also expected to rise greatly. India's GDP is expected to grow byan amazing 25% by 2022. The best part is that, apart from reducing environmental pollution, EVs can lower oil import by about $60 Billion by 2030.

Limitation of study

- Due to efficiency of electric engines as compared to combustion engines, even when the electricity used to charge electric vehicles comesfromaCO2-emittingsource,suchasacoal-org as fired powered plant, the net CO2 production from an electric car is typically one-half to one-third of that from a comparable combustion vehicle.
- retrofit enormous numbers of cars.

Research Methodology

Research Design

The descriptive research design study.

Sources of Data Primary Data

Primary Data is collected from the peoples in Salem City.

Secondary Data

Secondary Data is collected from books, websites, articles and internet.

Sample Design

Population

Peoples in Salem City.

Sample Size

Sample size of 50 respondents from seam.

Sampling Method

Convenience Sampling Method has been used forth is study.

Method of Data Collection

Data is collected through Structured Questionnaire.

Tools for Analysis

- Percentage Analysis

DataAnalysis and Discussion

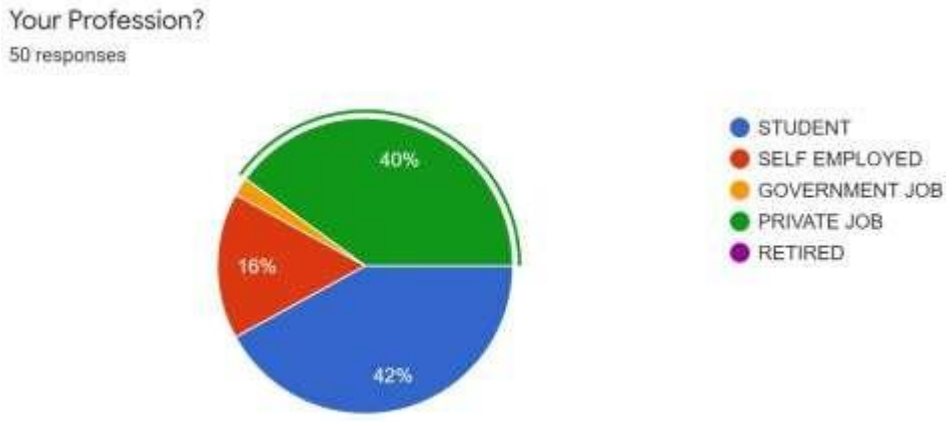
Profession of the respondents Profession of the respondents

S.NO	Profession	No of Respondents	Percent
1	Student	21	42
2	Self Employed	8	16

3	Government Job	1	2
4	Private Job	20	40
Total		**50**	**100**

Interpretation

According to the table 4.1.1, 42%of the respondents was under the student, 16% of the respondents was under the Self Employed,40%of there was under the Privatejoband2% of the respondents was under the Government job.

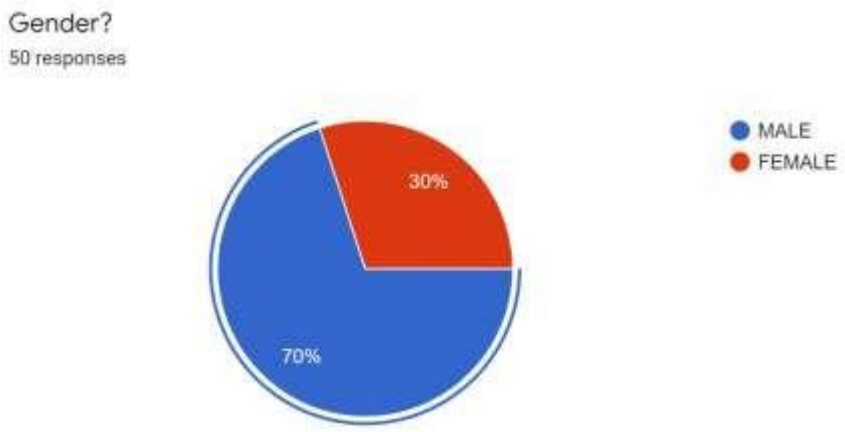


Gender of the Respondents Gender of the Respondents

S.NO	Gender	No of Respondents	Percent
1	Male	35	70
2	Female	15	30
Total		50	100

Interpretation

According to the 4.1.2, 70 percentage of the respondents were Male and 30 percentage of the respondents were Female.

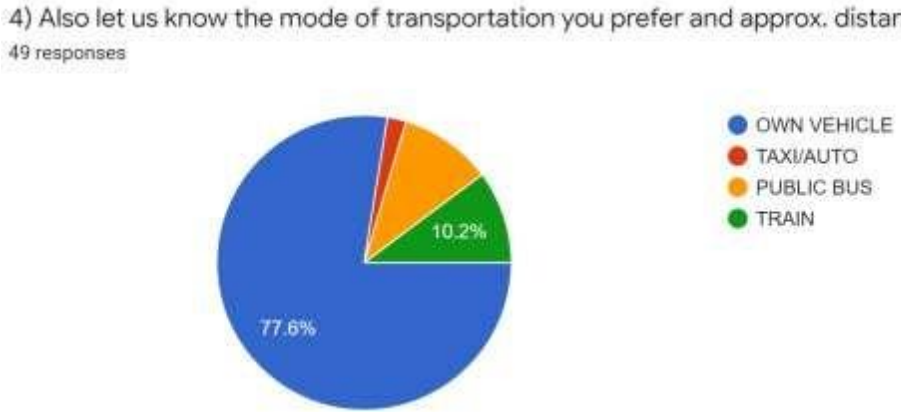


Mode of Transportation of Respondents Mode of Transportation of Respondents

S. No	Mode of Transportation	No of Respondents	Percent
1	Own vehicle	32	77.6
2	Taxi/Auto	3	4.2
3	Public bus	6	7
4	Train	8	10.2
Total		**49**	**100**

Interpretation

According to the table 4.1.6, 77.6% of the respondents using own vehicle, 4.2% of the respondents using Taxi/Auto, 7% of the respondents using public bus and 10.2% of the respondents using Train.



Review of Literature

Many governments have initiated and implemented policies to stimulate and encourage electric vehicle (EV) production and adoption (Sierzchula, Bakker, Maat, & Van Wee, 2014).

The expectation is that better knowledge of consumer preferences for EV can make these policies more effective and efficient. Many empirical studies on consumer preferences for EV have been published over the last decades, and a comprehensive literature review would help full to synthesise the findings and facilitate a more well-rounded understanding of this topic. Rezvani, Jansson, and Bodin (2015)

In 1999,AVL Company proposed a hybrid system that used a 50 cccarburetted lean-burn two-stroke engine with a 0.75 kW electric motor mounted on the engine crankshaft mainly to provide increased torque during acceleration.[1]

Su-Hau et al (2004) focused on the highly efficient energy usage of the battery energy and proposed an integrated management system for electric motor.[2]

DavidandSheng-Chung(2004)proposednewparallel-typehybrid-electric-powersystemcomprises an engine's energy distribution and a torque-integrated mechanism (specifically including an engine, a motor/alternator, a CVT device, and PCM as well as a 3-helical gear set).[3]

Wenguangetal(2005)presentedanapproachtocontrolpowertrainofserieshybride lectricvehicles. A formulation of the system equation and controller design procedure were proposed by them. They also proposed a new switching algorithm for the power converter for motor torque and motor flux control.[4]

Daniel (2007) designed, developed and implemented a series hybrid electric vehicle. Though he proposed the architecture a shybrid electric vehicle

architecture, heshowed that the vehicle run well in the electric mode and left the hybrid conversion as future expansion.[5]

Lukicetal (2007) tried to develop a driving cycle of the auto rickshaw in a typical large Indian city, in their case, Delhi. First, they considered the existing driving cycles used in India are considered as candidates. Since the data were not applicable, GPS data collected at various times of the day were applied to the analysis. They derived the new driving cycle from the gathered information via GPS data as well as surveys of auto rick shaw drivers in India, which helped togettheentirepictureforthe driving cycle.[6]
'Investigationofanelectricassistedbicycleanddeterminationofperformancecharac teristics"paper examines and realizes an alternative design for a front wheel hub direct drive, which utilizes a three- phase brushless PM motor.[7]

Findings

- Majority of the respondents 42%are students.
- Majority of the respondents70%were Male.
- Majority of the respondents 90%havevehicle.
- Majority of the respondents 95.9%havetwo wheeler.
- Majority of the respondents 95.9% using the yare vehicle in City.
- Majority of therespondents77.6 % of peoples using the yare own vehicle.
- Majority of the respondents82 %of the people hear about Electric Vehicle.
- Majority of the respondents58 %interest to owning EV.
- Majority of the respondents 45.7 %choice level of price 50,000.
- Majority of the respondents 32,7 %purchasing Electric Vehicle.
- Majority of the respondents 46%usingbatteriescharge at home.
- Majority of the respondents 46.9 %want the EV range up to 50-100 km.
- Majority of the respondents 46.9 % using the yare EV speed of 100km.
- Majorityoftherespondents50 %want to change batteries there cost want 5000.
- Majority of the respondents37.5 %of thepeoplewant30% of government subsidies.

Suggestions

- Drive smoothly. Simply put, lead-footed driving will drain your EV's battery at an accelerated rate.
- Slow Down. Try to keep your speed under 60mph whenever possible.
- Reduceoreveneliminateyourfuelcosts.Weeklytripstothegasstationtofuelupyourcarare expensive, especially when the ever-fluctuating price of gasoline is high.
- Reduce mission to help the environment
- It's better to let the capacity run down to10 or20%, then recharge to around 80%.
- Currentelectricvehiclestravelabout250milesonacharge,thoughtherearesome,suchasteslas,that can do about 350 miles on a charge.

II. CONCLUSION

The process that the electric vehicle industry has seen in recent year not only extremely welcomed, But highly necessary in light of the increasing global greenhouse gas levels.

As and environment analysis sections of this webpage, the benefits of electric vehicles far surpass the costs .The biggest obstacle tot he wide spreadad optionofelectric–poweredtransportation is cost related, as gasoline and the vehicles that run on it are readily available, convenient, and less costly.

As is demonstrated in our timeline, we hope that over the course of the next decade technological advancements and policy changes will help ease the transition from traditional fuel- powered vehicles.

Additionally, the realization and success of this industry relies heavily on the global population, and it is our hope that through mass marketing and environmental education programs people will feel incentivized and empowered to drive an electric-powered vehicle.

Each person can make a difference, so go electric and help make a difference.

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