

A STUDY ON CUSTOMER PERCEPTION TOWARDS ELECTRIC TWO-WHEELERS.

Submitted in partial fulfillment of the requirements for the award of

Bachelor of commerce

By

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DEPARTMENT OF BUSINESS ADMINISTRATION

SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade “A” by NAAC

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **MOHANA SHREE.A (39740147)** who has done the Project work entitled **A STUDY ON CONSUMER PERCEPTION TOWARDS ELECTRIC TWO WHEELERS** under my supervision from December 2021 to February 2022.

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DECLARATION

MOHANA SHREE A (39740147) Hereby declare that the Project Report entitled “**A STUDY ON CUSTOMER PERCEPTION TOWARDS ELECTRIC TWO WHEELERS**” done by me under the guidance of **Dr.PARAMASIVAM P, MA, PhD.**

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Abstract

This paper presents the consumer's behavior with reference to the automobile industry (two-wheeler) in Tonk city Rajasthan (INDIA). The Group surveyed 100 consumers using semi-structured questionnaires to examine people's perception about two wheelers and assess their behavior and willingness to pay for such products. The study revealed that all respondents are willing to pay a price premium, but the level of acceptability varies considerably and some factors work behind this behavior shown by the consumer. "Consumer is king" the statement carries profound truth in it. Today the success of any firm depends upon the satisfaction of the consumer. For satisfying the consumer the firm should know about the behavior of the consumer. The study mainly focuses on understanding the factors like demographic, social, cultural, price, quality, product attributes etc. for buying two wheelers. A total of 58% of the consumers are willing to pay the premium price of bikes. Comparatively, sales of scooters are less. Most consumers want bikes and give preference for buying bikes that have better design, comfort, mileage, fuel efficiency etc. The survey also suggested that the consumption of two wheelers is increasing; however, product development and innovations in certification, Processing, labeling and packaging are needed to further stimulate demand.

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CHAPTER-1

INTRODUCTION :

India is a country with the third-largest road network in the world. Road travel seemed to be a preferred choice in India with over 60 % of the population using personal or shared vehicles to commute. (Statista , 2020)

Conventional vehicles are a major cause of global warming and environmental air pollution. All types of vehicles produce dust from brakes, tires, and road wear. The average diesel vehicle has a worse effect on air quality than the average gasoline vehicle. But both gasoline and diesel vehicles pollute more than the electric vehicle. (EEA , 2018)

Governments started using fiscal policies, such as road tax, to discourage the purchase and use of more polluting cars. Green tax is imposed while re-registering the vehicle after 15 years of use to make people discontinue the use of polluting vehicles and encourage them for fuel-efficient and less polluting vehicles. Fuel taxes may act as an incentive for the production of more efficient, less polluting, vehicles and the development of alternative fuels. High fuel taxes or cultural change may provide a powerful incentive for consumers to buy lighter, smaller, fuel-efficient cars, or to not drive. (transport policy)

The FAME India Scheme is an incentive scheme for promotion of electric and hybrid vehicles. It aims to promote electric mobility and gives financial incentives for enhancing EV production and the creation of electric transportation infrastructure. In 2015 the Ministry of Heavy Industries and Public Enterprises launched FAME to incentivize the production and promotion of eco-friendly vehicles including EV and hybrid vehicles.

The scheme is proposed for establishing charging infrastructure (Jose, 2018) The National Electric Mobility Mission Plan (NEMMP) 2020, a National Mission document providing the vision and therefore the roadmap for the faster adoption of EVs and its

manufacturing. This plan has been designed to boost national fuel security, to supply affordable and environmentally friendly transportation, and to enable the Indian automotive industry to attain global manufacturing leadership.

1.2 Scope of the study

- ❖ The study focuses on the consumer perception of electric two wheelers.
- ❖ Many studies and researches happened to analyze the technology, benefits, environmental impact, and social acceptance related to electric two wheelers.
- ❖ Here, the study is conducted by considering those works of literature and the inferences from a sample survey from the individual owning vehicles, to address the issue of lack of knowledge with the public regarding electric two wheelers.
- ❖ Further this study throws light upon the expectation about these two wheelers in the mind.
- ❖ To suppress the problem of air pollution and environment hazard to the maximum extent while using EV.

1.3 Need for the Study

- The Electric Vehicle (EV) industry is still in its nascent stage in India.
- There is a lot of need to create awareness among the general public to make this alternative model successful.

- While it is for sure that sooner or later the electric vehicle will emerge as a strong component, for the time being there is the need for educating the customers to arouse a need for the product.

1.4 Objectives

- To study consumer awareness about e-vehicles.
- To research the factors driving customers to buy electric vehicles .
- To know the future need and perception of the people towards electric vehicles.
- To study the level of customer satisfaction toward electric vehicles.

Chapter-2

2.1 LITERATURE REVIEW

History repeats itself. A famous quote has been proved right, by the powerful emergence of EV again in the Indian transport industry. The use of electric vehicles was in life before 1918 but it almost completely vanished with the development of gasoline-powered internal combustion engine vehicles. These fueled cars put the story of electric vehicle manufacturing on to a sleep mode. But 2017 has again revived the story, with the concept of making EV for longer distance drives too and upliftment in a vehicle maintenance support system by the Government. Technology perception and adoption has two aspects: first is the attribute of technology and second is of the adopter. In management perspective it can be explained through "innovation diffusion theory (IDT) (Rogers, 1962) and subsequent extensions (such as the TOE framework. Sternitzky and Fleischer, 1990). This relates to adoption of new technology based on usefulness (performance expectancy), ease of use (effort expectancy) Social influence and facilitating conditions (Venkatesh and Davis, 2000: Venkatesh et al., 2003)". These parameters also play a very crucial role in the adoption of Electric Vehicles.

Chan, (2002) Environmental challenges force the transportation sector to move to more eco-friendly technologies. Electric Vehicles (EVs) are regarded as a green transportation solution. The main focus of the paper is on batteries as it is the key component in making electric vehicles more environment-friendly, cost-effective and drives the EVs into use in day-to-day life.

Hadley and Tsevtko (2008), The impacts of charging will undoubtedly vary by region, depending on PEV market penetration, the types of PEVs sold, the electricity generation mix, and seasonal variations in electricity use. In certain scenarios and regions, additional capacity will be necessary to meet the increase in demand created by charging PEVs, which will require capital investment from utilities and may increase electricity prices

Kurani et al(2009) survey included the driving behavior, recharging habits and confusion about PHEV and their operation, and potential cost saving And also identified that drivers accrue information and develop complex ideas about the technology and its possible impact on lifestyle.

(Dow et al. 2010) One way to manage the increase in electricity demand due to PEVs is to offer reduced electricity rates during off -peak hours, or time of use (TOU) rates, in order to create a financial incentive for PEV owners to charge at night

Neumann et al (2010) Environmental perspective, increase in high CO2-emissions and depletion of Fossil reserves, the roll out of Electric vehicles can be perceived as a safety measure and future security. Technology to be used in the upcoming EV is very mature and uptrend leading to high distance coverage with efficiency and comfort.

Caperollo and Kurani (2011) worked through rounded theory on 36 households in California, USA for 4-6 Weeks and found that the basic reason of non-adoption of electric vehicles was confusion in how battery works, not finding appropriate charging stations nearby, avoidance of acceptance of new technology and driving habits.

Gyimesi & Viswanathan(2011) U.S. The shift to electric vehicles :

Interviews with executives from auto companies and surveys of consumers to understand their attitudes towards EVs. 45% of the drivers they surveyed have little to no understanding of EVs. Consumers with better understanding are generally more willing to pay a premium for the technology. Nevertheless, even well informed consumers are sometimes unaware of the lifetime fuel savings that EVs offer.

Egbue & Long (2012) U.S. Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions .Survey that samples technology enthusiasts to determine attitudes toward EVs. Consumer attitudes and uncertainty regarding EV battery technology and sustainability of fuel sources may be a barrier to widespread adoption; this uncertainty may stem from lack of understanding and familiarity.

Axsen et al (2012) did a quantitative online survey based on lifestyle practice theory on 711 representative households in California, USA and found that adoption of this new technology of EV is based on Pro-environmental lifestyle. technology oriented lifestyle and Openness to change.

Egbue & Long (2012) U.S. Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions . Survey that samples technology enthusiasts to determine attitudes toward EVs. Consumer attitudes and uncertainty regarding EV battery technology and sustainability of fuel sources may be a barrier to widespread adoption; this uncertainty may stem from lack of understanding and familiarity

Burgessetal (2013) did a qualitative-research on the adoption model of EV in 55 private drivers of the UK, and found that major factors which lead to purchase are Technical ,Cost, individual and social factors.

Carley et al. (2013) found that closely after price as an impediment to EV adoption is driving range. In their survey, over 70% of respondents say range is either a major disadvantage or somewhat of a disadvantage. The survey was done only within urban areas, so this lends itself to a group who would likely be less concerned with driving range than those in rural areas (see travel distance below) – thus underestimating the true concern of driving range among U.S. consumers. Similarly they also found that respondents show much more interest in buying a PHEV rather

than a BEV to overcome this barrier (making the vehicle closer in performance to an HEV).

Carley et al. found that of those identified as very interested in buying a BEV, only 22% are exclusively interested in BEVs. Of those identified as very interested in buying a PHEV, 60% are exclusively interested in PHEVs

Tamor et al. (2013) conclude through an EV cost payback model for Minneapolis, with a particular consideration for trip chaining and range, that PHEVs will be more accepted than BEVs.

Cahill et al. (2014) New car dealers and retail innovation in California's plug-in electric vehicle market. Interviews with automakers and dealers, and analysis on customer satisfaction data. Overall, consumer experience at dealerships is much better for conventional vehicle buyers than PEV buyers. Introducing new methods for educating and scaling dealer competence regarding electric vehicles could greatly improve the consumer experience.

Larson et al. (2014) Canada Consumer attitudes about electric cars:

Pricing analysis and policy implications. A survey of consumer attitudes was carried out and results were analyzed. Individuals with greater familiarity and experience with EVs are more likely to value the vehicles higher and consider them in future purchases

CFA (2015) Knowledge affects consumer interest in EVs, new EVs guide to address info gap. Survey by Consumer Federation of America that shows how knowledge affects consumer interest in EVs. Clear and significant correlation between EV knowledge and positive attitudes towards the technology. Positive attitudes and a willingness to purchase them are also correlated. For consumers that were more knowledgeable, there was a significant correlation between understanding and purchase desire.

Rezvani et al (2015) review work discusses the adoption of electric vehicles using various theoretical framework. he explained consumer EV adoption behavior from various theoretical perspectives like mix, planned and symbolic behavior. The maximum studies on EV adoption are revolving around technological, individual, social parameters.

Sabri et al., (2016), It is important to mention that dual-mode has contributed not only to conventional HEV technologies but also to some plug-in HEV technologies. Conventional HEV technologies have been researched extensively and have vastly improved

Fanchao Liao, Eric Molin & Bert van Wee (2017), Widespread adoption of EVs may contribute to lessening of problems like environmental pollution, global warming and oil dependency. However, this penetration of EV is comparatively low in spite of governments implementing strong promotion policies. They presented a comprehensive review of studies on consumer preferences for EV aiming to convey policy-makers and give direction to further research. They compared the economic and psychological approach towards consumer preference for Electric vehicles. The impact of financial and technical attributes of EV on its utility is generally found to be significant, including its purchase and operating cost, driving range, charging duration, vehicle performance and brand diversity on the market. The density of charging stations also positively affects the utility and promotion of EV. The impact of incentive policies, tax reduction is quite effective.

Lingzhi Jin, Peter Slowik (2017), The early market growth for electric vehicles continues, but a number of barriers prevent their widespread uptake. These barriers include the additional cost of the new technology, relative inconvenience of technology considering range and charge times, and consumer understanding about the availability and viability of the technology. This last point, typically referred to as “consumer awareness,” is crucial.

Mohamed M, G Tamil Arasan, and G Sivakumar (2018), The replacement of ICE with electric engines will reduce pollution to a great extent and be profitable to consumers. Many countries have implemented this technology and are contributing to the improvement of the environment. The researcher saw the opportunities and challenges faced in India over implementing EVs. Opportunities like Government Initiatives, Batteries, Industries, and Environment have been considered. With these challenges like cost of EVs, efficiency of EVs in India and demand for EVs were taken into consideration. The implementation of EVs in India aims primarily to scale back greenhouse emissions and cut oil expenses. The govt. should make the foremost out of the opportunities available and find suitable ways to tackle the challenges.

Pritam K. Gujarathi, Varsha A. Shah, Makarand M. Lokhande (2018), Indian Scenario is different because the current market share of EV/PHEV is around 0.1%. Presently almost all vehicles consider fossil fuel-based transportation. These pollute the atmosphere by the emission of greenhouse gasses & causes global warming. The gap between domestic petroleum production and consumption is widening. India imports around 70% of oil required per annum. Hence there's an urgent need to investigate factors and challenges for sustainable and cleaner alternatives.

Masurali.A, (2018), India contributes around 18% in the transport sector alone in terms of carbon emission. The Electric Vehicle (EV) is one of the foremost feasible alternative solutions to beat the crises. Several automotive companies are introducing EVs and are expanding their portfolio. Promoting EVs can help reduce fuel dependence and pollution and be beneficial for both consumers and the nation. The education of people has significantly higher influence over their awareness level on EVs. Apart from manufacturers, Government should strive hard to spread awareness and influence positive perception among potential customers

Pretty Bhalla (2018), Choice of cars depends upon environmental concern, cost, comfort, trust, technology, social acceptance, infrastructure availability. These arguments have been tested for both conventional cars and EVs. They assume that these factors have direct influence on individual choice of vehicle. They found that EV manufacturers and Government have to invest more in social acceptance of the vehicle by creating more infrastructural facilities, putting more thrust on technology to create trust. The analysis depicts that the population is well aware of the environmental benefits. The responsibility lies on the shoulders of the Government and manufacturers to investing in the manufacturing of vehicles

Mr. A. Rakesh Kumar (2019), Global pollution is on the rise and each effort made is to cut back the CO₂ emissions and save the earth. One such effort is the introduction of EVs. The transport sector is one of the largest emitters of CO₂ and hence it's important to reduce it. The government has come up with ambitious plans of introducing EVs to the Indian market and keeping pace with the development of EVs globally. The National Electric Mobility Mission Plan 2020 has included an in-depth report on EVs. India encompasses a huge challenge in shifting the transportation sector from ICE engines to EVs. This needs lots of planning along with R&D. Charging infrastructure must be adequately built to deal with range anxiety. It's vital to form demand generation by making all government buses electric and offering tax exemptions for personal EV owners.

Janardan Prasad Kesari (2019), Developing an aggressive strategy for the adoption of EVs in India and ensuring a well-executed implementation is a challenge but vital for the government. The geography and diversity of India will present problems that require thoughtful solutions. Public procurement is expected to be an important driver of growth of EVs, with the purchase of four-wheeled vehicles for government offices, three-wheeled vehicles and buses for public transport. Investments by fleet operators such as Ola and Uber, and operators of food distribution services, are also expected to boost the initial growth of two- and four-wheeled electric vehicles. However, the private EVs may take 5-6 years to gain popularity and acceptance

Yogesh Aggarwal (2019), Users of scooters, who need only to travel short distances, may consider an EV, but those, who need to travel longer distances and already own bikes like a Hero Splendor, may find it difficult to move to an e2W. For cars, it is relatively simple to improve the range with increased battery size. For electric 2Ws though, every increase in kWh may provide an extra 30km in range, but the increase in weight is around 0kg, approximately a 10% increase in the total weight of the bike. This weight issue is even more pronounced in smaller bikes (less than 150cc).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 METHODOLOGY:

Research methods are the techniques and tools by which you research a subject or a topic. Research methodology involves the learning of various techniques to conduct research and acquiring knowledge to perform tests, experiments, surveys, and critical analysis.

Research methodology simply refers to the practical “how” of any given piece of research. It’s about how a researcher systematically designs a study to ensure valid and reliable results that address the research aims and objectives.

3.2 RESEARCH DESIGN:

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. This Research design applied for the study is ‘Descriptive Research’.

3.2.1 Descriptive research design:

Descriptive research aims to accurately and systematically describe a population, situation or phenomenon. It can answer what, where, when and how questions, but not why questions. A descriptive research design can use a wide variety of research methods to investigate one or more variables.

3.3 SAMPLING TECHNIQUE:

Sample design is the theoretical basis and the practice means by generalizing from characteristics of relatively few of the comprising population. It is the method by which the sample is chosen.

3.3.1 Non-probability sampling:

Non-probability sampling is defined as a sampling technique in which the researcher selects samples based on the subjective judgment of the researcher rather than random selection.

3.3.2 Convenience sampling:

A convenience sample is a type of non-probability sampling method where the sample is taken from a group of people easy to contact or to reach.

3.4 SOURCES OF DATA:

Sources of Data begins with figuring out what sort of data is needed, followed by the collection of a sample from a certain section of the population. Next, you have to utilize a certain tool to gather the data from the chosen sample. The two types of sources of data are:

3.4.1 Primary data:

The Primary data for this study was collected through questionnaires.

3.4.2 Secondary data:

Secondary data was collected from external sources like Websites, Journals etc.

3.5 STRUCTURE OF THE QUESTIONNAIRE:

The questionnaire follows a simple and basic layout. It is made easy for the participants to respond to the questionnaire without any delay or confusion. The set of questions and the answer options present in the questionnaire are predetermined and are constructed by myself based on general questions regarding the main topic. The structure of the questionnaire used in this project is as follows.

3.5.1 Basic introduction:

The questionnaire begins with a small and simplified description regarding the questionnaire – Title and description of the topic.

3.5.2 Personal details:

The actual questionnaire begins here where the participants are asked about their personal details such as their name, age, gender and occupation.

3.5.3 Research related questions:

The next set of questions in the questionnaire consists of the questions related to the public where the participants are asked their general opinion on their electric two wheelers.

3.5.4 Perception questions:

The next set of questions in the questionnaire focus on the increase in fuel price related question on whether the participants are affected due to increase in fuel price.

3.5.5 Likert scaling questions:

The likert scaling questions include moderate options in its scale.

3.5.6 Suggestion questions:

The last and final questions in the questionnaire focus on the suggestion questions of the participants regarding the questionnaire.

3.6 SAMPLE SIZE:

The sample size for the project had a target of 70-100 participants. The fixed target of the sampling size has been achieved as the total number of respondents for the 12 survey questionnaire was 90. Total of 90 responses helped the project to analyze more responses and it helped to derive a conclusion recording people's perception towards a study of satisfaction of the public how they consider it.

3.7 PERIOD OF STUDY:

This is one-time research where the research is conducted only for one-time and that the project is based on the responses derived from a definite period of time. The period of study for the project of about December 2021-february 2022

3.8 PROFILE AREA OF THE STUDY:

- My survey location is Chennai.
- My survey targeted people is both Men and Women at the age group of [18-60]

3.9 HYPOTHESIS / ANALYTICAL TOOLS:

CHI-SQUARE TEST:

A chi-square statistic is one way to show a relationship between two categorical variables. In statistics, there are two types of variables: numerical (countable) variables and non-numerical (categorical) variables..

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

The following consist of the data analysis and interpretation of my questionnaire

4.1 Survey analysis of data

4.1.1. Gender of respondents

Table 4.1

Male	55
Female	35
Total	90

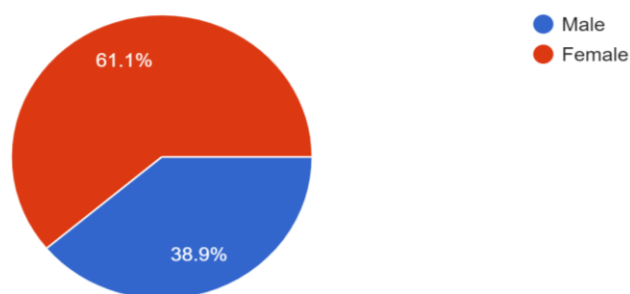


Fig 4.1 gender of respondent

Interpretation:

From the chart 38.1% of the respondents are male. 69.1% of the respondents are female . The maximum 55 is female respondent and the minimum 35 is male respondent .

4.1.2. Age of respondents

Table 4.2

below 25	49
26-35	19
36-45	11
46-55	6
Above 55	5
TOTAL	90

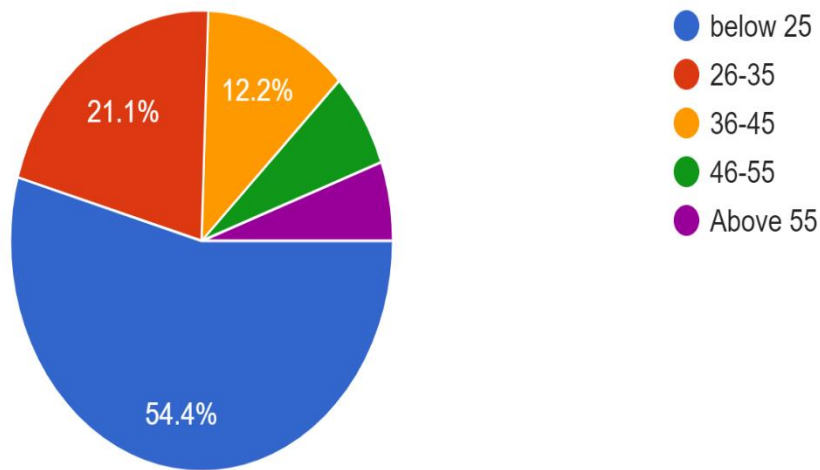


Fig 4.2 Age of respondent

Interpretation:

In the chart we can observe 54.4% of respondents are between the ages of below 25. 21.1% of the respondents are between the ages of 26-35. 12.2% of the respondents are between the ages of 36-45. 6.7% of the respondents are between the ages of 46-55. 5.6% of the respondents are above 55. Mostly the age group below 25 are most involved and excited to purchase electric two wheelers.

4.1.3. Marital status of the respondents

Table 4.3

Unmarried	52
Married	38
TOTAL	90

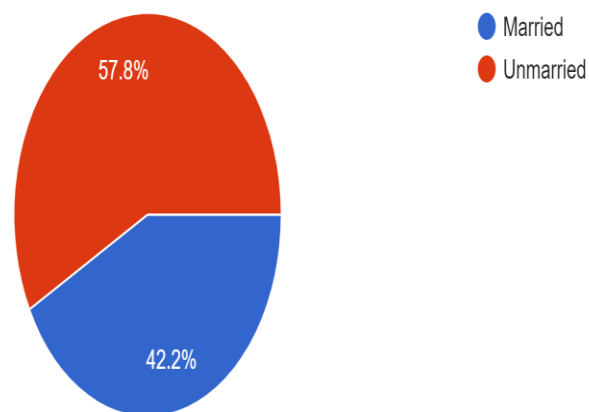


Fig 4.3 marital status of respondents

Interpretation:

From the chart 57.8% of the respondent is unmarried. 42.2%% of the respondent is married . The maximum 52 are unmarried respondents and the minimum 38 are married respondents .

4.1.4. OCCUPATION OF THE RESPONDENT

Table 4.4

Govt employee	9
Private employee	41
professionals	23
business	17
Total	90

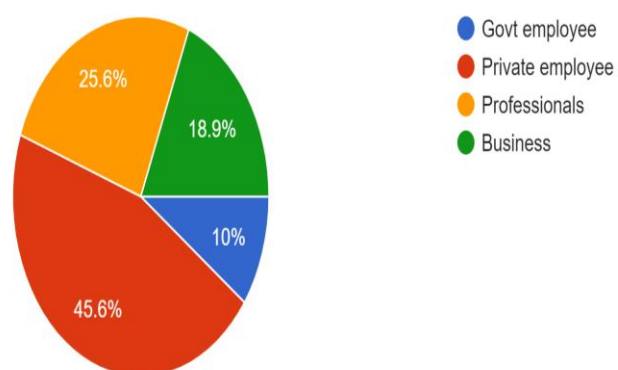


Fig 4.4 occupation of the respondents

Interpretation:

From the chart 10% of the respondents are government employees. 45.6% of the respondent is a private employee. 18.9% respondent is doing their business. 25.6% of the respondents are professionals. The maximum 41 respondents are private company employees and the minimum 23 respondents are professionals.

4.1.5. MONTHLY INCOME OF THE RESPONDENTS

Table 4.5

Below -20000	28
20000-40000	33
40000-60000	24
60000-80000	5
Total	90

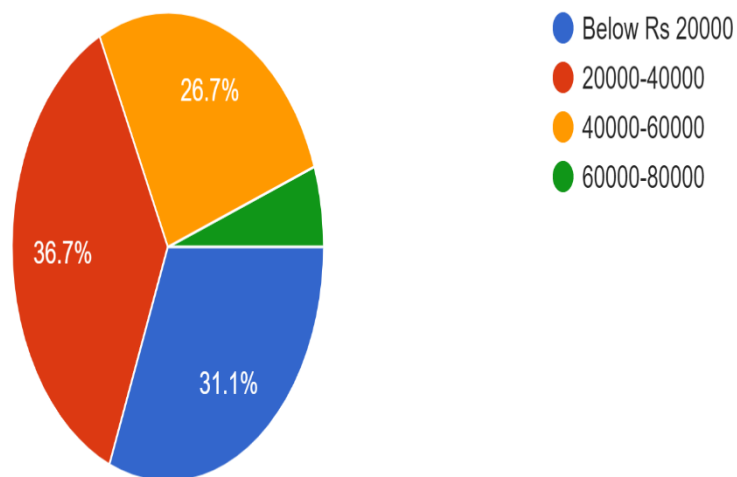


fig 4.5 monthly income of the respondents

Interpretation:

From the chart 31.1 of the respondents earn below -20000 as monthly income. 36.7% of the respondents earn 20000-40000 as monthly income. 26.7% respondent earn 40000-60000 as monthly income and 5.6% of the respondent earn 60000 -80000 as monthly income. The maximum 33 is earn 20000-40000 as monthly income respondent and the minimum 28 is earn below-20000 as monthly income respondents

TABLE 4.1.6 . HOW DID YOU CAME TO KNOWN ABOUT ELECTRIC BIKES .

TABLE 4.6

Newspaper / magazine	8
Television	30
Internet	30
Friends /family members	20
Others	2
Total	90

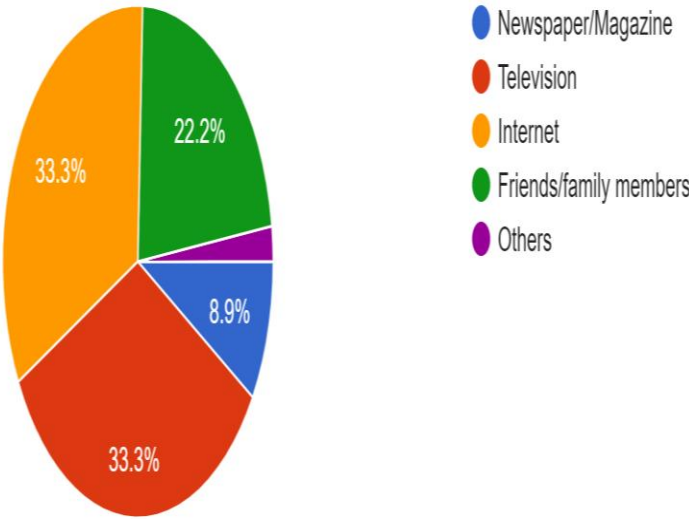


fig 4.6 Know about electric vehicles of the respondents
INTERPRETATION;

The above table interpreted that 33.3% respondent internet and 33.3% was respondent television , and 22.2% was respondent friends /family members and 8.9% was respondent news paper and 2.2%was respondent others .

**TABLE 4.1.7 . SOURCE WHICH INFLUENCE YOU TO BUY
ELECTRIC TWO WHEELERS .**

TABLE 4.7

Advertisement	22
Family members	21
friends	20
Self interest	23
Others	4
Total	90

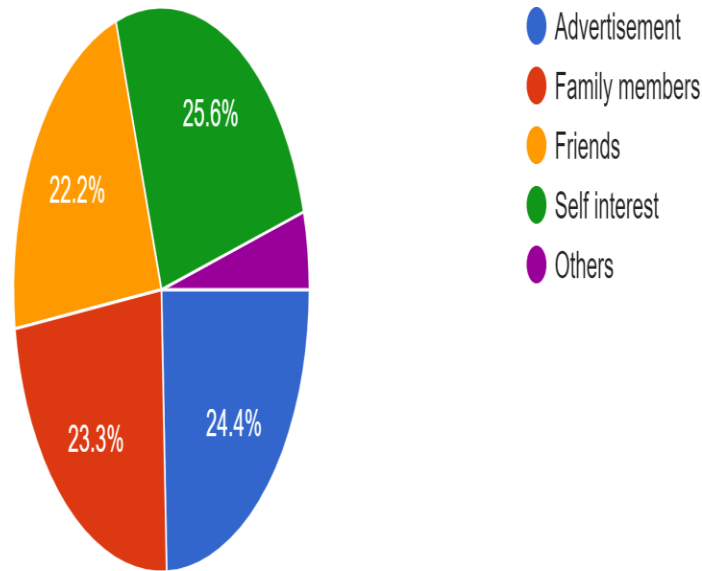


fig 4.7 Which Influence to buy electric bikes of the respondents

INTERPRETATION;

The above table interpreted that 25.6% respondent self interest and 24.4% was respondent advertisement , and 23.3% was respondent family members and 22.2% was respondent friends and 4.4%was respondent others . The maximum 23 respondents are self interest and the minimum 22 respondents are advertisements.

TABLE 4.1.8 . WHICH OF THE ELECTRIC TWO-WHEELERS BRANDS YOU AWARE OF .

TABLE 4.8

TVS	19
Bajaj	12
HERO	23
Ather energy	4
revolt	6
Okinawa	1
Ampere	6
ola	8
simple one	3
bounce Infinity	4
others	4
Total	90

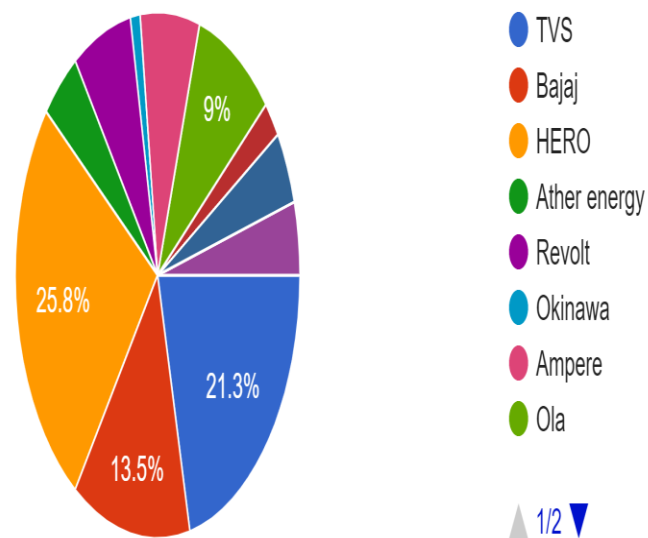


fig 4.8 Aware of electric two wheelers in brand of the respondents

INTERPRETATION:

From the above table interpreted that 21.3% respondent Tv and 13.5% respondent bajaj , and 25.8% was respondent HERO and 4.5% was respondent Ather energy , 6.7% respondent Revolt and 1.1% respondent Okinawa , and 6.7% was respondent Ampere and 9% was respondent Ola , 21.3% respondent Tv and 13.5% respondent bajaj , and 3.3% was respondent Simple one and 4.5% was respondent bounce infinity , and 4.5% was respondent others.

TABLE 4.1.9 . REASON FOR PURCHASING ELECTRIC TWO WHEELER.

TABLE 4.9

S:N o	Objectiv e	Less running cost. (No of respondent s)	Eco- friendl y (No of respond ents)	Safety (No of responde nts)	Low maintenan ce (No of respondents)	No registrati on (No of respondent s)	Less nois e (No of respo ndent s)
1	Strongly agree	44	26	44	27	17	56
2	Agree	34	53	31	47	54	23
3	Neutral	12	11	12	13	18	10
4	Disagree	-	-	2	3	1	1
5	Strongly disagree	-	-	1	-	-	-
	TOTAL	90	90	90	90	90	90

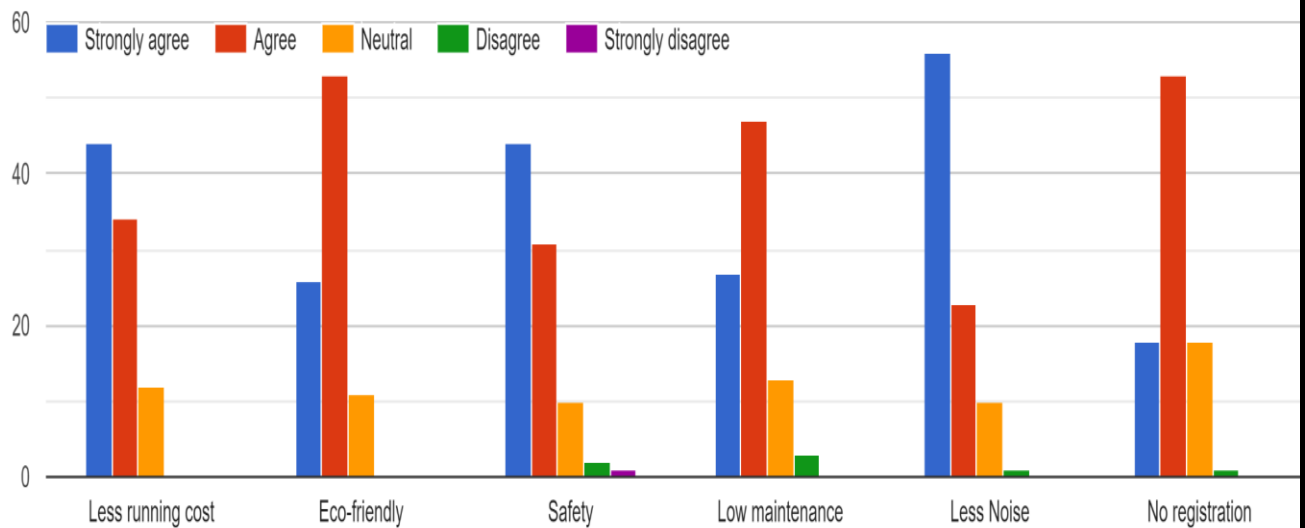


fig 4.9 Reason for purchasing electric two wheelers of the respondents

INTERPRETATION:

From the above analysis, less running cost 34% of them are agreed and 44% of them strongly agree and 12% neutral. Eco-friendly 53% of them are agreed and 26% of them strongly agree and 11% neutral. Safety 31% of them are agreed and 44% of them strongly agree and 12% neutral and 2% disagree and 1% strongly disagree. Low maintenance 47% of them are agreed and 27% strongly agree and 13% neutral and 3% disagree. Low noise 23% of them are agreed and 56% strongly agree and 10% neutral and 3% disagree. No registration 54% of them are agreed and 17% strongly agree and 18% neutral and 1% disagree

TABLE 4.1.10 .LEVEL OF SATISFACTION TOWARDS THE FOLLOWING.

TABLE 4.10

Sno	Objectiv e	Price (No of respo ndent s)	Mileag e per chargi ng (No of responde nts)	Spee d (No of respo ndent s)	Extern al appea rance (No of respon dents)	Batter y life (No of respon dents)	After sales service (No of responde nts)	Resale value (No of respondent s)	Social statu s (No of respon dents)
1	Highly satisfied	29	36	28	42	25	39	16	36
2	Satisfied	44	43	52	36	50	36	57	40
3	No opinion	14	10	8	12	12	15	15	12
4	Dissatisfi ed	3	1	-	-	3	-	-	-
5	Highly dissatisfi ed	-	-	2	-	-	-	2	2
	TOTAL	90	90	90	90	90	90	90	0 90

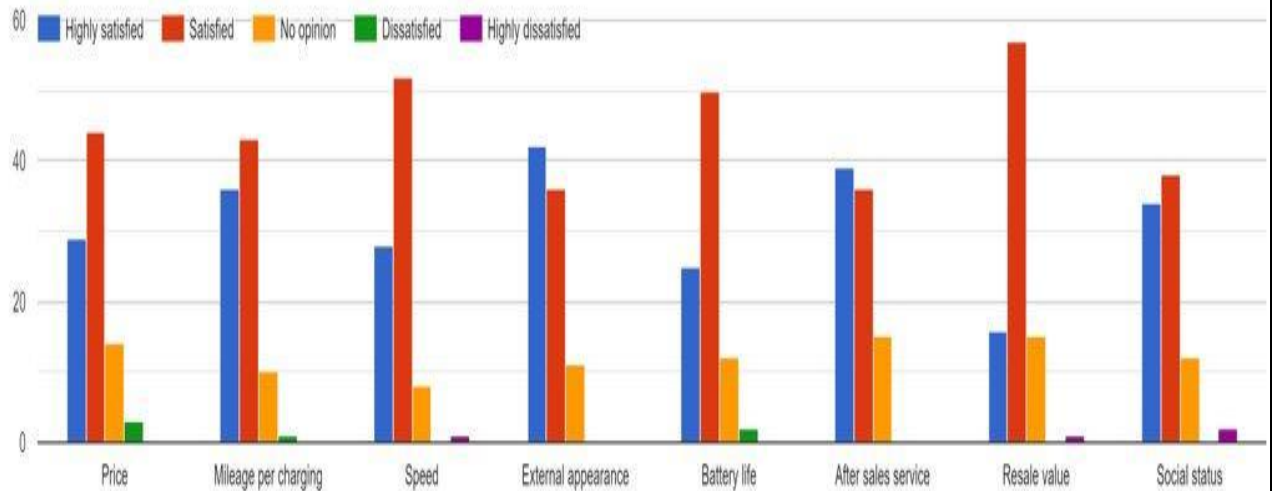


Fig 4.10 Level of satisfaction towards of the respondents

Interpretation:

From the above analysis, Price 29% of them are highly satisfied and 44% of them satisfied and 14% have no opinion and 3% are dissatisfied. Mileage per charge 36% of them are highly satisfied and 43% of them satisfied and 10% have no opinion and 1% are dissatisfied. In speed 28% of them are highly satisfied and 52% of them satisfied and 8% have no opinion and 2% are highly dissatisfied. External appearance 42% of them are highly satisfied and 36% of them satisfied and 12% have no opinion. Battery life 25% of them are highly satisfied and 50% of them satisfied and 12% have no opinion and 3% are dissatisfied. After sales service 39% of them are highly satisfied and 36% of them satisfied and 15% have no opinion. Resale value 16% of them are highly satisfied and 57% of them satisfied and 15% have no opinion and 2% are highly dissatisfied. Social status 36% of them are highly satisfied and 40% of them satisfied and 12% have no opinion and 2% are highly dissatisfied.

TABLE 4.1.11 WOULD YOU SUGGEST ELECTRIC TWO WHEELERS TO OTHERS

TABLE 4.11

Yes	82
No	8
Total	90

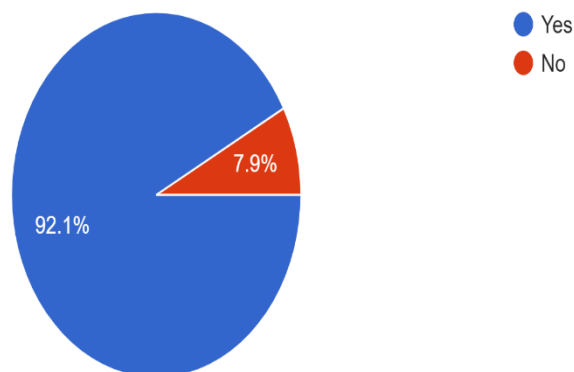


Fig 4.11 Suggestion

Interpretation:

The chart explains the respondent is suggesting the electric two wheelers to their others . 92.1% of the respondents say yes it means they will suggest the electric two wheelers to their others and 8.9% of respondents say NO they will not electric two wheelers to their others . The maximum 82 respondents say yes I will suggest and minimum 8 respondents say NO I will not suggest.

TABLE 4.1.12 OVERALL SATISFACTION TOWARDS ELECTRIC TWO WHEELERS YOU OWN.

TABLE 4.12

Highly satisfied	12
Satisfied	69
No opinion	6
Dissatisfied	2
Highly dissatisfied	1
Total	90

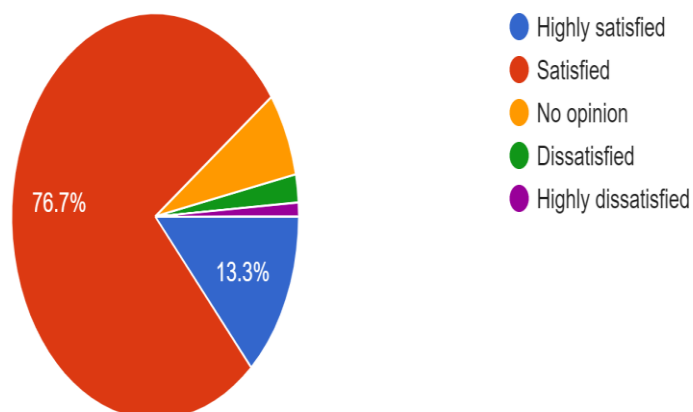


Fig .12 Satisfaction towards electric two wheelers .

Interpretation:

The chart explains the respondent is satisfied with electric two wheelers 13.3% of the respondents say highly satisfied and 76.7% of the respondents say satisfied and 6.7% of the respondents say no opinion and 2.2% of the respondents say dissatisfied and 1.1% of the respondents say highly dissatisfied.

4.2 CHI SQUARE TEST

The Chi-square (χ^2) test represents a useful method of comparing experimentally obtained results with those to be expected theoretically on some hypothesis. Thus Chi-square is a measure of actual divergence of the observed and expected frequencies.

OBSERVED VALUE

GENDER	FRIENDS /FAMILY MEMBERS	INTERNET	NEWSPAPER / MAGAZINE	OTHERS	TELEVISION	TOTAL
MALE	17	16	3	1	7	34
FEMALE	13	14	5	1	23	56
	20	30	8	2	30	90

EXPECTED VALUE

MALE	$34 * 20 / 90$ = 7.56	$34 * 30 / 90$ = 11.33	$34 * 8 / 90$ = 3.02	$34 * 2 / 90$ = 0.76	$34 * 30 / 90$ = 11.33
FEMALE	$56 * 20 / 90$ = 12.44	$56 * 30 / 90$ = 18.67	$56 * 8 / 90$ = 4.98	$56 * 2 / 90$ = 1.24	$56 * 30 / 90$ = 18.67

CALCULATION OF χ^2

Observed value	Expected value	(O - E)	(O - E) ²	$\chi^2 = \sum (O - E)^2 / E$
7	7.56	-0.56	0.3136	0.0415
16	11.33	4.67	21.8089	1.9249
3	3.02	-0.02	0.0004	0.0001
1	0.76	0.24	0.0576	0.7579
7	11.33	-4.33	18.7489	1.6548
13	12.44	0.56	0.3136	0.0252
14	18.67	-4.67	21.8089	1.1681
5	4.78	0.02	0.0004	0.0001
1	1.24	-0.24	0.0576	0.0465
23	18.67	4.33	18.7489	1.0042
			TOTAL	6.6233

GENERAL SIGNIFICANT LEVEL = 5% = 0.05

DEGREES OF FREEDOM = (COLUMN - 1) (ROWS - 1)
 = (5 - 1) (2 - 1) = 4

χ^2 TABULAR = 9.49
(OR CALLED AS χ^2 CRITICAL)

SIGNIFICANT LEVEL (α) = 0.05

χ^2 calculate = 6.6233

X2 calculate < X2 tabular (OR CALLED AS χ^2 CRITICAL)

INFERENCE : Since the **X2 calculate 6.6233 is smaller than X2 tabular 9.49**, the null hypothesis is accept , and alternate hypothesis is rejected . Therefore there is no relation between the gender and information about electric bikes .

INFERENCE : We accept null hypothesis ,and reject alternate hypothesis .

Null Hypothesis

There is no relation between the gender and information about electric bikes .

CHAPTER-5

FINDINGS, SUGGESTIONS AND CONCLUSION

Based on the analysis and discussion on primary data in the previous chapter. Finding, Suggestions, and Conclusion of the study in a logical manner.

5.1 FINDINGS

From the questionnaire, the following points are found and noted

- Majority (54.4%) of the respondents of my questionnaire belong to the age group below 25.
- Majority (61.1%) of the respondents of my questionnaire is female.
- Majority (57.9%) of the respondents is unmarried.
- Majority (44.6%) of the respondents' occupation status are all private employees.
- Majority (36.7%) of the respondents monthly income is 20000-40000.
- Majority (33.3%) of the respondents say they have come to know about electric bikes on the internet and television.
- Majority (25.6%) of the respondents are influenced to buy electric two wheelers in self interest.
- Majority (25.8%) of the respondents say they are aware of the brand of electric two wheelers in HERO .
- Majority (44%) of the respondents strongly agree in less running cost .
- Majority (53%) of the respondents agree that it is eco-friendly .
- Majority (44%) of the respondents strongly agree in safety

- Majority (47%) of the respondents strongly agree in low maintenance cost.
- Majority (56%) of the respondents strongly agree in less noise.
- Majority (44%) of the respondents were satisfied with the price .
- Majority (43%) of the respondents were satisfied with the mileage per charge
- Majority (52%) of the respondents were satisfied with the speed
- Majority (57%) of the respondents were satisfied with the resale value.
- Majority (76.7%) of the respondents say they are satisfied with electric two wheelers.
- Majority (92.1%) of the respondents suggested to their others about electric two wheelers.

5.2 SUGGESTION

- ❖ As globally people are getting more and more conscious towards environment-friendly living, it's the right time for the two-wheeler industry to also move towards its eco-friendly option of electric vehicles.
- ❖ Electric two-wheelers can solve a big global issue of oil availability and pollution control.
- ❖ It can take the world to a new era if all customers understand its value and start using only electric vehicles.
- ❖ Electric two-wheelers can make the world a better place to live by reducing pollution at a higher rate.
- ❖ Electric two-wheeler marketers need to create awareness and develop positive customer perception about their products.

- ❖ It is important to increase the extent of marketing efforts for creating more awareness and creating positive customer perception in the Indian market.
- ❖ Another good suggestion is to increase advertisements and provide freebies for potential customers to test ride electric vehicles.
- ❖ When customers can test drive and check the performance efficiency of products at no cost, they will develop a positive perception about the vehicles.
- ❖ One more way of creating positive perception is to provide rewards and recognition for reference marketing.
- ❖ Electric two-wheeler marketers have to create public events and awareness programs to reach a wider potential customer base.
- ❖ It is important to attach an eco-friendly and intelligent image with the choice of electric two-wheelers.
- ❖ Future research can be conducted with higher sample size and wider geographical scope for generalization of results

5.3 CONCLUSION

The present study provides an overall positive perspective towards electric bikes , among the sample. It was observed that more people are willing to shift to electric vehicles in the near future, realizing their impact on the environment. There is a need to make more brands and models of EVs known to people as although they receive support, consumers are seen to remain unaware of various models in the market. It was also observed that various sources are acting as a medium to gain information and knowledge of electric vehicles, showing a general spirit of interest and curiosity. Respondents also revealed their willingness to pay a higher amount for an electric vehicle, compared to a gasoline one. This reflects an attitude that is in favor of electric vehicles, that people are willing to put that extra resource into buying them. Electric vehicles are also seen as a solution to global warming by a larger part of the sample.

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[New Data Shows Consumer Interest in Electric Vehicles Is Growing · Consumer Federation of America](#)

APPENDIX:

A STUDY ON CONSUMER PERCEPTION TOWARDS ELECTRIC TWO - WHEELERS ..

QUESTIONNAIRE:

1. Name
2. Gender
 - a. Male b. female
3. Age
 - a. below 25 b. 26-35 c.36-45 d. 46-55 e. Above 55
4. Marital status
 - a. Married b. unmarried
5. Occupation
 - a. govt. employee b. private Employee c. professionals d. Business
6. How much Income are you earning?
 - a. Below Rs. 20000 b. 20000-40000 c. 40000-60000 d. 60000-80000
7. How did you come to know about Electric bikes?
 - a. Newspaper/magazine b. Television c. internet d. friends /family members e. Others
8. Source which Influence you to buy electric two wheelers?
 - a. Advertisement b. family members c. friends d. Self-interest e. Others
9. Which of the electric two-wheeler Brands are you aware of?
 - a. TVS b. Bajaj c. HERO d. Ather energy e. revolt f. Okinawa
 - g. Ampere h. ola i. simple one j. bounce Infinity k. Others

10. Which electric two-wheeler brand do you prefer the most?

11.. Which brand of electric two wheeler you won?

12 . Reason for purchasing an electric two wheeler?

	Reason	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.	Less running cost					
2.	Eco-friendly					
3.	Safety					
4.	Low maintenance					
5.	Less Noise					
6.	No registration					
7.	Any other (please specify)					

13. Level of satisfaction towards the following

		Highly satisfied	satisfied	No opinion	Dis-satisfied	Highly dis-satisfied
1.	Price					
2.	Mileage per charging					
3.	Speed					
4.	External appearance					
5.	Battery life					
6.	After sales service					
7.	Resale value					
8.	Social status					

14. Would you suggest an electric two-wheeler to others?

a. Yes b. no

15. If yes, which brand do you suggest?

a. TVS b. Bajaj c. hero d. Ather energy e. Revolt f. Okinawa g.
Ampere

h. ola i. simple one j. bounce infinity k. Others (please specify) -----

15. Overall satisfaction towards the electric two-wheeler you own,

a, Highly satisfied b. satisfied c. No opinion d. dis-satisfied e. highly
dis-satisfied

17. Suggestions (if any) -----