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Customer Satisfaction towards Electric Vehicles in Kollam district

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Customer Satisfaction towards Electric Vehicles in Kollam district

Abstract

The shift from conventional vehicles to electric vehicles is gaining popularity globally, driven by environmental issues, rising fuel costs and the pursuit of sustainable energy solutions. InIndia, the transition is supported by government initiatives and growing public awareness about its benefits. Kerala, known for its environmental focus, has taken active steps to promote EV adoption, yetcustomer satisfaction remains a key factor in ensuring the long term success of this transition. This study examines the satisfaction levels of electric vehicle users in Kollam district, aiming to identify the key factors influencing purchase decisions, evaluate user experiences and highlights common challenges. The results reveal that while users appreciate the low running and maintenancecosts, concerns remain regarding charging time and infrastructure availability.

Keywords: ElectricVehicle, Customer satisfaction

Introduction:-

The growing concerns regarding environmental pollution, rising fuel prices, and the need for energy sustainability alternatives have accelerated the global transition from conventional vehicle to electric vehicle. In India, theelectric vehicle industry has witnessed steady growth, largely driven by government policies, subsidies and increased public awareness. Within this framework, Kerala has demonstrated notablecommitment in environmental sustainability, has positioned it as a pioneer in advancingelectric vehicle adoption.

Despite the growing popularity of electric vehicles,customer satisfaction plays a major role in determining the long-term success of this transition. The level of satisfaction are influenced by multiple aspects such as affordability, availability of charging stations, vehicleperformance, comfort, after sales service and maintenance costs. While nowadays many consumers prefer electric vehicles for their economic benefits and eco-friendliness, but their overall experience is largely influenced by the availability and quality of supporting services and infrastructure available in their locality.

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This study focuses on analysing the level of satisfactionof electric vehicle users in Kollam district. The study aims to provide insight into the effectiveness of current policies and infrastructurein supporting EV adoption,by analysing theirexperiences, preferencesand challenges. The result of the study can help the stakeholders tostrengthen the overall electric vehicle infrastructure.

Review of Literature :-

Mohamed.M, Tamil Arasan et al., (2018)explores boththe opportunities such as environmental benefits, cost efficiency and reduced dependence on fossil fuels, andthe challenges like limited charging infrastructure, high battery cost, and theneed for sufficient government supports,in promoting electric vehicle adoption in India. The study concluded by addressing these challenges through policy support and infrastructure development are crucial for the widespread acceptance of electric vehicles in India

M.Kalimuthu andSugeerthi AV (2023) in their study, pointedout that electric vehicles are the rapidly growing segmentof automotiveindustry, as more people are opting for environmental friendly and cost-effective alternatives to traditional vehicles. However, there are still challenges toovercome, such as limited availability of charging infrastructure and limited range of EV models.

Nagesh, Mulugeta.etal (2024) developed a conceptual framework that integratesvarioustheoretical perspectives, offering insights into the key underlying drivers of consumer behaviour in the electric vehicle market while addressing barriers to their widespread acceptance.

Kanujiya, Punit.etal, identifiedseveralfactors influencing the adoption of electric vehicles, including environmental concerns, cost savings and technological advancements. They emphasized that socialinfluence, especially recommendations from peers and family, plays a significant role in shaping consumer decisions regarding electric vehicles. Despite theirgrowing popularity, the study concluded that challenges such as limited charging infrastructure and range anxiety continue to hinder widespread acceptance.

Statement of the problem:-

The adoption of electric vehicle in India is steadily growing, yet customer satisfaction remains a critical factor in determining their long-term acceptance. InKerala, even

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though variouspolicies and initiatives promotesustainable mobility, challenges still affect user experiences. In Kollam district, there is insufficient research evidence to assess how far consumers are satisfied with electric vehicles and thedifficulties theyface in theirusage. In this context it is essential to assess the level of satisfaction of customers in this region, identify existing gaps and recommend measures to enhance electric vehicle adoption

Objectives:-

1. To identify the factors influencing respondents to purchaseelectric vehicles.
2. To assess the level of satisfaction of customers towards electric vehicles.
3. To find out the major challenges faced by customers while using electric vehicles.

Scope of the study:-

Research design of the study is descriptive in nature and employs a survey method to examine the customers satisfaction towards electric vehicles. The scope of the study isanalysing the satisfaction levels, challenges faced and experiences of electric vehiclesusers in Kollam district.

Methodology:-

The study used Judgement samplingmethod, selecting only electric vehicle users as respondents to ensure relevant and reliabledata. Primarydata was collectedfrom seventy five respondents through a structured questionnaire focussing on user-experiences, level of satisfaction and challenges faced.Percentage analysis and chi-square testwere used to analyse data.

Results and Discussions:-

Table1provides a summary of the demographic characteristics includinggender, age, educational qualification, income and occupation of respondents. Thisdata is essential for understanding the relevance of the respondents in the context of the study oncustomer satisfaction with electric vehicle. Thestudyexamines the factors influencing the adoption of electric vehicles, level of satisfaction and challenges faced by the respondents. The following findings and interpretations are based on the data provided.

Table 1. Demographic Distribution

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Variable	Classification	No of Respondents	Percentage of Respondents
Gender	Male	48	64
	Female	27	36
	Other		
Age	18-25	18	24
	25-40	29	39
	40- 60	22	29
	Above 60	6	8
Educational Qualification	SSLC	12	16
	Higher Secondary	19	25
	Degree	28	37
	Post Graduate and above	16	22
Monthly Income	Below 20000	8	11
	20001-50000	14	19
	50001-100000	24	31
	Above 100000	29	39
Occupation	Government Employee	21	28
	Private Employee	17	24
	Self employed	20	27
	Student	8	12
	Others	7	9

Source- Primary Data

The survey results show that majority of respondents are male, and the dominant age group is 25–40 years. Most respondents hold at least a degree-level qualification, with 37% being graduates and 22% having postgraduate education.A significant portion of the respondents (39%) earn a monthly income above ₹100,000. Regarding occupation, government employees form the largest group of 28%, closely followed by self-employed individuals (27%).Overall, the data reflects a respondent pool that is relatively well-educated and financially stable

Factors influencing the purchase of Electric Vehicle

Table 2 Factors influencing the purchase of Electric Vehicle

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Particulars	Number of Respondents	Percentage
Low Running Cost	28	37
Convenience of Charging at home	12	16
Environmental Friendly	5	7
Comfort	15	20
Low Maintenance cost	9	12
Others	6	8
Total	75	100

Source : Primary data

The most influencing factor driving the purchase ofelectric vehicles is the low running cost, highlighted by37% of participants.This is followed by comfort (20%) and the convenience of charging at home (16%), indicating that both cost-efficiency and ease of use play key roles in consumer decision-making. Less emphasis was placed on environmental concerns (7%) and low maintenance costs (12%), while only 8% selected other reasons.Overall, economic benefits appear to be the strongest motivator behind electric vehicle adoption.

Level of Satisfaction on Availability of charging stationsin Travel Routes

Table 3Level of Satisfaction on Availability of charging stations in Travel Routes

Particulars	No of Respondents	Percentage
Highly Satisfied	8	11
Satisfied	14	19
Neutral	22	29
Dissatisfied	24	32
Highly dissatisfied	7	9
Total	75	100

Source: Primary data

Table 3 shows level of satisfaction of respondents regarding the availability of charging stations along travel routes. While 30% of participants are satisfied or highly satisfied, the largest group remains neutral, making up 29% of the total.41% of respondents expressed dissatisfaction, highlighting concerns over insufficient charging infrastructure.

Level of Satisfaction on Charging time of Electric Vehicle

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Table 4 Level of Satisfaction on Charging time of Electric vehicles

Particulars	No of Respondents	Percentage
Highly Satisfied	5	7
Satisfied	12	16
Neutral	18	24
Dissatisfied	23	31
Highly dissatisfied	17	22
Total	75	100

Source: Primary data

The data indicates that only a small portion of respondents (23%) are satisfied with the charging time of electric vehicles. Whereas majority of respondents (53%), expressed dissatisfaction or high dissatisfaction, indicating concerns about the length of charging time. Meanwhile, 24% of participants remain neutral, reflecting uncertainty or mixed experiences regarding charging times.

Level of Satisfaction on Comfort and Convenience

Table 5Level of Satisfaction on Comfort and Convenience

Particulars	No of Respondents	Percentage
Highly Satisfied	32	43
Satisfied	38	51
Neutral	3	4
Dissatisfied	2	2
Highly dissatisfied	-	-
Total	75	100

Source: Primary data

The majority of respondents expressed high level of satisfaction with the comfort and convenience of electric vehicles, with 43% highly satisfied and 51% satisfied. Only a small fraction,4% remained neutral, and an even smaller number,2% reported dissatisfaction.This indicates that most users find electric vehicles comfortable and convenience to drive.

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Level of satisfaction on Maintenance cost of Electric Vehicle

Table 6Level of Satisfaction onMaintenance cost of Electric Vehicle

Particulars	No of Respondents	Percentage
Highly Satisfied	22	29
Satisfied	34	45
Neutral	12	16
Dissatisfied	7	10
Highly dissatisfied	-	-
Total	75	100

Source: Primary data

Most respondents are satisfied with the maintenance cost of electric vehicles, with 29% highly satisfied and 45% satisfied. However,16% remain neutral and 10% expressed dissatisfaction, indicating some concerns on maintenance expenses by smaller group.

Level of Satisfaction on Overall Performance Electric Vehicle

Table 7 Level of Satisfaction on Overall Performance of Electric vehicles

Particulars	No of Respondents	Percentage
Highly Satisfied	28	37
Satisfied	32	43
Neutral	5	7
Dissatisfied	8	10
Highly dissatisfied	2	3
Total	75	100

Source: Primary data

The data shows that majority of respondents are satisfied in the overall performance of electric vehicles with 37% highly satisfied and 43% satisfied.Despite concerns related to long charging times and limited availability of charging stations during travel, only a small percentage expressed dissatisfaction with overall performance.

Challenges faced by Electric vehicle users

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Table 9Challenges faced by Electric Vehicle users

Problems	No of Respondents	Percentage
High Initial Cost	16	21
Long Charging time	21	28
Limited Charging stations	18	24
Range anxiety	10	13
Limited model availability and choice	1	1
Battery degradation and replacement	5	7
Insufficient After-sales service	3	5
Others	1	1
Total	75	100

Source: Primary data

The main challenges faced by electric vehicle users include long charging time (28%) and limitedavailabity of charging stations (24%) which are significant concerns of the respondents. High initial cost is also a major issue, affecting 21% of respondents. Other problems such as range anxiety, battery degradation and after-sales service were less frequently reported but still contribute to the overall user experience

Hypothesis

Null Hypothesis (Ho): There is no significant relationship between gender and satisfaction with overall performance of electric vehicle.

Alternate Hypothesis (H1): There is significant relationship between gender and satisfaction with overall performance of electric vehicle.

Table10Gender wise analysis on satisfaction with overall performance of electric vehicle

Gender	**Male**	**Female**	**Total**
Highly Satisfied	**20**	**8**	**28**
Satisfied	**20**	**12**	**32**
Neutral	**3**	**2**	**5**
Dissatisfied	**4**	**4**	**8**
Highly dissatisfied	**1**	**1**	**2**
Total	**48**	**27**	**75**

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Table 10Computation of Chi square value

Observed Frequency(O)	Expected Frequency(E)	(O-E)2/E
20	17.92	0.23
8	10.08	0.43
22	20.48	0.11
10	11.52	0.20
3	3.2	0.01
2	1.8	0.02
2	5.12	1.90
6	2.88	3.44
1	1.28	0.06
1	0.72	0.12
Total χ^2 value		**6.52**

Calculated value is 6.52

Degree of freedom = (5-1) (2-1) =4

The table value of chi-square at 5% level of significance is 9.488

Result: As the calculated value (6.52) is less than the table value (9.488), we fail to reject the null hypothesis. Therefore, there is no significant relationship between gender and satisfaction with overall performance of electric vehicle.

Conclusion

The study highlights that electric vehicle users in Kollam district reported a high level of satisfaction, particularly in terms of comfort, convenience, andmaintenancecosts. However, challenges such as long charging time and limited charging infrastructure remain key concerns affecting the overall user experience. The analysis also shows that economic factors, like low running and maintenancecosts, are primary motivators for electric vehicle adoption. These findings can help relevant stakeholders inimproving infrastructure and services, thereby promoting wider acceptance of electric vehicles in the region.

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