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A Study on Consumer Awareness and Perception Towards Electric Vehicles

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Abstract: ***Electric vehicles (EVs) have emerged as an important solution to reduce environmental pollution, fossil fuel dependency, and greenhouse gas emissions. With the increasing awareness of climate change and the rising cost of petroleum fuels, consumers are gradually shifting their interest toward electric vehicles. The Indian government has also introduced several incentives and policies to encourage the adoption of EVs. This study focuses on analyzing the awareness, perception, and purchasing intention of consumers toward electric vehicles in Coimbatore city. Primary data were collected through a structured questionnaire from 100 respondents using a random sampling technique. The collected data were analyzed using simple percentage analysis and chi-square tests. The findings indicate that although a large proportion of respondents are aware of EVs and recognize their environmental benefits, actual ownership remains very low due to factors such as high price, lack of charging infrastructure, and limited product options. The study concludes that improving consumer awareness, reducing costs, and expanding charging infrastructure can significantly increase EV adoption in India.***

Keywords: Electric Vehicles, Consumer Awareness, Sustainable Transportation, Charging Infrastructure, Consumer Perception, Environmental Sustainability

I. INTRODUCTION

Electric vehicles have gained significant attention in recent years as an alternative to conventional petrol and diesel vehicles. Growing environmental concerns, rising fuel prices, and the need for sustainable transportation have increased the interest in EV technology. Unlike conventional vehicles, electric vehicles operate using rechargeable batteries and electric motors, producing minimal noise and zero tailpipe emissions.

The Indian automotive industry is currently experiencing a transition toward electric mobility. Government initiatives such as subsidies, tax exemptions, and the Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme have been implemented to encourage EV adoption. Despite these efforts, the penetration of electric vehicles in India remains relatively low.

Several factors influence consumer adoption of EVs, including awareness, affordability, range, charging infrastructure, and perceived reliability. Understanding consumer perception is therefore essential to identify the barriers and opportunities for EV adoption. This study aims to evaluate consumer awareness, purchasing intentions, and factors influencing the adoption of electric vehicles.

II. OBJECTIVES OF THE STUDY

The study aims to achieve the following objectives:

1) To evaluate the awareness level of consumers regarding electric vehicles.
2) To identify the factors influencing consumers to purchase electric vehicles.
3) To analyze the reasons why electric vehicles have not gained widespread consumer acceptance.
4) To examine consumer perception regarding the performance and benefits of electric vehicles.

III. RESEARCH METHODOLOGY

1) Research Design: The study follows a descriptive research design to analyze consumer awareness and perception toward electric vehicles.
2) Sample Unit: The study was conducted among consumers located in Coimbatore city, Tamil Nadu.
3) Sample Size: A total of 100 respondents were selected for the study.
4) Sampling Technique: The study adopted a random sampling method to collect responses from the population.

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5) Period of Study: The research was conducted over a period of six months.

6) Sources of Data

- Primary Data: Primary data were collected through online questionnaires distributed to respondents. The questionnaire included questions related to awareness, perception, ownership, and purchase intention regarding electric vehicles.
- Secondary Data: Secondary data were collected from journals, research papers, websites, and published reports related to electric vehicles and sustainable transportation.

7) Tools Used for Data Analysis

The following statistical tools were used for analysis:

- Simple Percentage Analysis – to interpret respondent opinions and characteristics.
- Chi-Square Test – to determine the relationship between variables such as occupation and purchasing barriers.

IV. FINDINGS

Based on the analysis of the collected data, the following key findings were identified:

1) The majority of respondents (58%) were male.
2) Most respondents (61%) held a bachelor's degree.
3) A large proportion (65%) of respondents belonged to the 15–20 age group.
4) About 80% of respondents were students.
5) 86% of respondents were aware of electric vehicles.
6) However, only 8% of respondents owned an electric vehicle.
7) 97% of respondents currently use conventional petrol or diesel vehicles.
8) 94% of respondents believe that electric vehicles are environmentally friendly.
9) The internet (42%) was the major source of awareness about EVs.
10) 73% of respondents expressed interest in purchasing an electric vehicle in the future.
11) High cost, lack of awareness, and limited availability were the major factors preventing EV purchases.
12) Most respondents believe that the mileage and speed of EVs are moderate compared to conventional vehicles.
13) A majority of respondents prefer battery electric vehicles over hybrid vehicles.
14) Most respondents prefer charging their vehicles at home rather than at public charging stations.
15) The chi-square analysis showed no significant relationship between occupation and the factors preventing EV purchases.

V. SUGGESTIONS

Based on the findings of the study, the following suggestions are recommended:

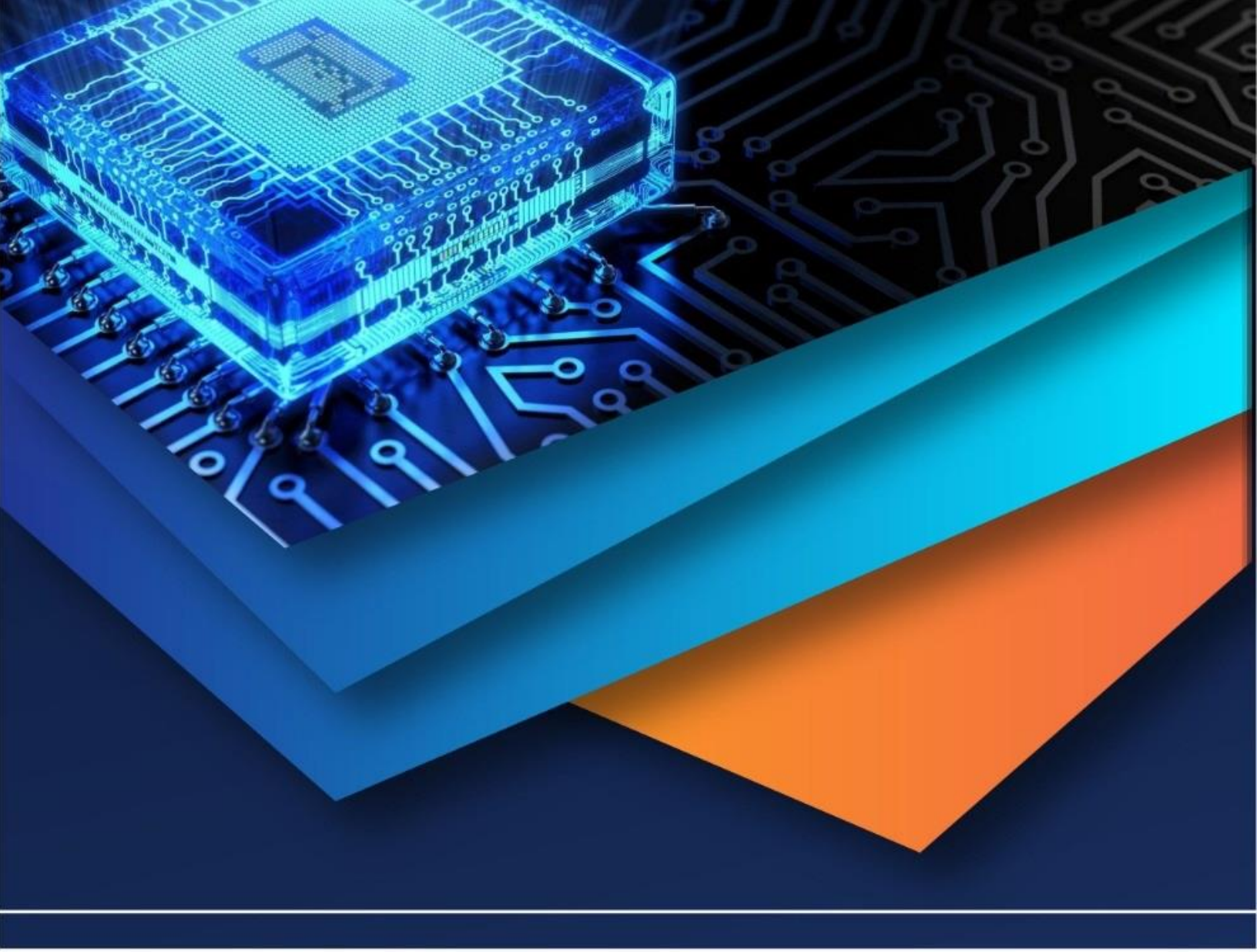
1) Awareness programs should be conducted to educate consumers about the benefits and functioning of electric vehicles.
2) The government should expand the network of public charging stations to reduce range anxiety among consumers.
3) Electric vehicle manufacturers should focus on reducing the cost of EVs to make them more affordable for middle-class consumers.
4) Companies should introduce more models and variants to attract a wider range of customers.
5) Advertising campaigns through internet platforms, social media, and traditional media should highlight the economic and environmental benefits of EVs.
6) Government subsidies and incentives should be effectively communicated to consumers to encourage adoption.

VI. CONCLUSION

Electric vehicles represent a significant step toward achieving sustainable transportation and reducing environmental pollution. Although awareness about EVs is increasing among consumers, their adoption remains limited due to factors such as high cost, lack of charging infrastructure, and insufficient consumer knowledge. The study reveals that many consumers are willing to consider purchasing electric vehicles in the future, indicating strong growth potential for the EV market in India. Government initiatives, technological advancements, and increased infrastructure development will play a crucial role in accelerating EV adoption.

With improved awareness, affordability, and infrastructure, electric vehicles are expected to become a major component of the Indian transportation system in the coming decades, contributing to a cleaner and more sustainable environment.

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