

# PERCEPTION AND AWARENESS LEVEL OF ELECTRIC VEHICLE AMONG KANNUR POPULACE

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## Abstract:

As our planet faces the costs of climate change, actions are needed to adapt to a more sustainable development model. The European Union (EU), a global leader on climate action, is developing measures aimed at increasing investments in green technologies. Green technologies describe those technologies that attempt to protect natural environment by reducing pollution and by conserving energy and resources. In recent years, many existing automobile manufacturers and new dedicated companies have put a remarkable effort in transforming the conventional vehicle into an Electric Vehicle (EV) that provides green and reliable solution. A study on perception and awareness level of Electric vehicle was made from 150 respondents from Kannur populace, which was analyzed by using percentage analysis method. The object of the study about the consumer behavior towards EV and factors influencing and discouraging to buy an EV. It is found out that less carbon emissions, publicity, good looking and easy to drive are the highly beneficial factors while purchasing an e-vehicle, and limited range, long recharging time, batter replacement are the most discouraging factors of an e-vehicle.

Key Words: Electric Vehicle, EV

## Introduction

An electric drive vehicle, or simply electric vehicle (EV), is a vehicle based on one or multiple motors (electric or traction) to ensure propulsion. The degree of electrification varies from one vehicle to another. EVs can run solely on electric propulsion or they can have an ICE working alongside it. Having only batteries as energy source constitutes the basic kind of EV, but there are kinds that can employ other energy source modes. These can be called hybrid EVs (HEVs). The International Electro-technical Commission's Technical Committee 69 (Electric Road Vehicles) proposed that vehicles using two or more types of energy source, storage or converters can be called as an HEV as long as at least one of those provide electrical energy [4]. This definition makes a lot of combinations possible for HEVs like ICE and battery, battery and flywheel, battery and capacitor, battery and fuel cell, etc. Therefore, the common population and specialists both started calling vehicles with an ICE and electric motor combination HEVs, battery and capacitor ones as ultra-capacitor-assisted EVs, and the ones with battery and fuel cell FCEVs [2–4]. These terminologies have become widely accepted and according to this norm, EVs can be categorized as follows:

- Battery Electric Vehicle (BEV)
- Hybrid Electric Vehicle (HEV)

- Plug-in Hybrid Electric Vehicle (PHEV)
- Fuel Cell Electric Vehicle (FCEV)

### **Scope and significance of the study**

Study is concentrated to know the perception and awareness level of electric cars among Kannur populace. Through this study it is possible to know the consumers awareness about electric vehicle. The theoretical scope of the study includes the beneficial factors of EV, types of EV, discouraging factors of EV, impact of EV. The study also helps to know about the purchasing mind of the consumers towards EV

### **Problem of the study**

E-vehicles are growing in our developed world .It offers a no. of benefits to the consumers. As it is purely electric/battery, it poses some vulnerability. The project study is the enquiry into all aspects and pertains to consumers' behavior towards e-vehicle. It is intended to analyses the impact also.

### **Objectives of the study**

- To study about the consumer behavior towards electric vehicle.
- To identify factors influencing while purchasing an electric vehicle.
- To analyze beneficial factors to own an electric vehicle.
- To identify factors discouraging to buy an electric vehicle.

### **Research design**

Research methodology is a way to solve the research problem systematically. It may be understood from the study how research is done systematically. The data may be collected through primary source and secondary sources. The researcher has collected the data from both the sources. The researcher has collected primary data through questionnaire method and personal interview method and secondary data from the company profiles, booklets and websites. The sampling technique used in this study was Convenience sampling. The total sample size was 150 respondents in Kannur District.

### **Review of Literature**

Chau et al, (2001) proposed a vitality administration framework for hybridization and coordination of different vitality sources. It is displayed that one of a kind preferred standpoint of different EV vitality sources can be completely used, prompting ideal efficiency. Two parameters are fundamentally thought for estimations viz. mass proportion and hybridization proportion in relationship with driving cycle.

Morkel, (2010) in this paper the prerequisite for framework improvement, difficulties and open doors for plan and sending of rising foundation, identified with Plug in Electric Vehicle (PEV) and the potential advantages are abridged in detail. The creator had tended to the essential focuses to amplify the advantages from the open door for decreasing fuel utilization, from battery assembling to correspondence and control between the vehicle and the electric power network to furnish for clean power with wellbeing.

Chetan Kumar Maini, (2005) in his paper showed potential necessity of the plan and improvement of all around aggressive little electric idea vehicle for India and reasoned that EVs are the best answer for diminish

contamination in urban areas, and critical societal and monetary advantages would come about by execution of EVs and HEVs. The paper likewise laid out the pretended by the Government and networks worldwide to advance and quicken EV program.

McLaren, (2016). As the need and interest for electric autos develops quickly, the requirement for related innovation likewise rises appropriately. One part of electric autos is that, they are as often as possible overlooked while figuring Carbon outflow. The creation of power requires control stations to concentrate and utilize non-inexhaustible assets. The consuming of the non-renewable energy sources are horrible to the supportability of life on Earth.

### Data Analysis and Interpretation

Table 1: Demographic Profile of the respondents

The age group of consumers	Particulars	No. of Respondents	Percentage
	Below 25	18	12
	26-35	30	20
	36-45	60	40
	45 above	42	28
	TOTAL	150	100
Gender of the consumers	Particulars	No. of Respondents	Percentage
	Male	111	74
	female	39	26
	total	150	100
The yearly income range of consumers	Particulars	No. of Respondents	Percentage
	less than 25000	0	0
	25000-50000	15	10
	50000-75000	45	30
	More than 100000	90	60
	total	150	100
Educational level of the consumers	Particulars	No: of respondents	Percentage
	High school	40	40
	Bachelor's degree	51	34
	Professional degree	36	24
	Master degree and above	3	2
	Total	150	100
Options	Options	No: of respondents	Percentage
	Yes, fully e-vehicle	45	30

Consumers who personally owned an e-vehicle	No, never	105	70
	Total	150	100

Source: Primary data

Table 2: Factors influencing while purchasing an e-vehicle

Particulars	Very Influential	%	Moderately Influential	%	Not Influential	%	Total
Style of the vehicle	75	50	30	20	45	30	150
Price of the vehicle	45	30	45	30	60	40	150
Size of the vehicle	54	36	90	60	6	4	150
Performance of the vehicle	45	30	84	56	21	12	150
Environmental friendly	129	86	21	14	0	0	150
Brand of the vehicle	39	26	60	40	51	34	150
Maintenance	48	32	66	44	24	24	150
Cost of insurance	24	16	45	30	81	54	150
High resale value of the vehicle	45	30	66	44	39	26	150
Battery life of the vehicle	24	16	45	30	81	54	150

Source: Primary data

The above Table shows the influencing factors while purchasing an e-vehicle. Most of the consumers are influenced by the factor environmental friendly. Different factors are influenced by different consumers according to their choice.

- The first factor is style of the vehicle, most of the consumer's opinion is that this is moderately influencing factor.
- Price of the vehicle is another factor in which majority of the consumers are not influencing with this factor.
- Size of the vehicle is the factor in which majority of the consumers are moderately influenced.
- Performance of the vehicle is the factor in which majority of the consumers are moderately influenced.
- Environmental friendly is the factor in which 80% of the consumers that is most of them are much influenced and 0% are not influenced.
- Brand of the vehicle is the factor in which most of the consumers are moderately influenced.
- Maintenance is the factor in which most of them are moderately influenced
- Cost of insurance is another factor in which majority of them are moderately influenced.
- High resale value is the factor in which most the consumers are moderately influenced
- Battery life is the factor in which most of the consumers are not influenced.

Table 3: Beneficial factors to own an e-vehicle

Particulars	Highly Beneficial	%	Moderately Beneficial	%	Low Beneficial	%	Total
Fuel economy	72	48	54	36	24	16	150
Less carbon emissions	75	50	57	38	18	12	150
Reduce the dependency on fossil fuels	54	36	90	60	6	4	150
Good looking and easy to drive	84	56	45	30	21	12	150
Publicity	96	64	24	16	30	20	150
Safety improvement	39	26	60	40	51	34	150
Popularity	36	24	45	32	66	44	150
Other savings	24	16	45	30	81	54	150
Health benefits	45	30	66	44	39	26	150
Infrastructure availability	45	30	60	40	45	30	150

Source: Primary data

This table shows that consumers with different choices prefer e-vehicle with different beneficial factors. Carbon emissions, publicity, dependency on fossil fuels are the highly influencing factors among the consumers.

- Fuel economy is the factor in which majority of the consumers opinion is that they are highly beneficial.
- Less carbon emissions is the factor in which majority of the consumers opinion is that they are highly beneficial.
- Reduce the dependence on fossil fuels in which majority of the consumers opinion is that they are moderately beneficial.
- Good looking and easy to drive is the factor in which most the consumers opinion is that they are highly beneficial.
- Publicity is the factors in which 64% of the consumers opinion is that they are highly beneficial.
- Safety improvements is the factor in which half of the consumers (50%) opinion is that they low beneficial
- Popularity is another factor in which most of the consumers opinion is that they low beneficial.
- Other savings is the factor in which majority of the consumers are with the opinion that they are low beneficial.
- Health benefit is the factor in which 44% of them are with the opinion moderately influential.
- Last factor is infrastructural facility in which majority of the consumers are with the opinion that they are moderately influential.

Table 4: Factors discouraging to buy an e-vehicle

Particulars	High	%	Medium	%	Low	%	Total
Limited range	87	58	48	32	15	10	150
Long recharging time	75	50	57	38	18	12	150
Price	54	36	90	60	6	4	150

Lack of consumer choice	45	30	60	40	45	30	150
Lack of trust to new technologies	96	64	24	16	30	20	150
Unwillingness to change a lifestyle	39	26	60	40	51	34	150
Expensive	36	24	48	32	66	44	150
Battery replacement	87	58	57	38	6	4	150
Short driving range and speed	75	50	57	44	18	12	150
Silence of vehicle	84	56	60	40	6	4	150

Source: Primary data

This table shows the discouraging factors of buying an e-vehicle. Different factors are discouraging consumers from buying an e-vehicle. Majority of the consumers opinion is that main discouraging factor is recharging time.

- Most of the consumer's opinion is that limited range is a highly discouraging factor.
- Half of the consumer's opinion that long recharging time is also a highly discouraging factor.
- 40% of the consumer's opinion is that lack of consumers choice is a medium discouraging factor.
- Lack of trust to new technologies is a highly discouraging factor for consumers.
- Lack of trust is a highly discouraging factor for consumers.
- Unwillingness to change a lifestyle is a medium discouraging factor consumers.
- Expensive is a low discouraging factor for consumers. About 44% of consumers are with this opinion.
- Battery replacement is a high discouraging factor for consumers and it is the most discouraging factor.
- Short driving range and speed is a highly discouraging factor for consumers.
- Silence of the vehicle is highly discouraging factor for consumers. About 56% are going with this opinion.

### Conclusion

It was an excellent opportunity to conduct a study on perception and awareness level of electric cars among Kannur populace. Respondents were genuine which made it convenient and helpful in conducting the project. They shared their opinion by filling questionnaire. From this paper I conclude that e-vehicles are definitely more environmentally friendly than internal combustion vehicles. Batteries should be engineered to a long life. Most of the consumers are not well aware about the e-vehicles so some methods should be adopted for providing more awareness towards the consumers. And also from the study it is understood that most of the consumers had never driven e-vehicle. As the consumers have different reasons behind negligence of e-vehicle. The consumers are not highly aware about e-vehicle and they should concentrate more on advertisement.

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