

# Electric Vehicles

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**Abstract:-** Electric vehicles (EV) also called battery electric vehicles (BEV's) are vehicles with an all-electric motor instead of the commonly used internal combustion engines. It utilizes the energy stored in its battery pack to provide power to the motor.

## I. INTRODUCTION

An electric vehicle is a type of vehicle that runs on electricity. It has emerged and gained rapid popularity in the last decade given the growth and awareness in climate change and the current technological advancements in the automotive industry.

## II. TECHNICAL BACKGROUND

Electric vehicles utilize the wasted energy generated by heat from the engine and exhaust and also by the energy that comes during braking, then it stored the energy in a battery pack for usage, as well as charging it by an electric power source. Electric Vehicles have about nine key components that work simultaneously to transfer the mechanical power generated from electrical motors to power the wheel for movement.

## III. PROS AND CONS

### A. Pros:

- Very fuel-efficient
- Power Delivery is faster
- Clean energy and environmentally friendly
- Minimum maintenance required
- Lower engine noise

### B. Cons:

- These vehicles are more expensive
- Eclectic vehicles are heavier
- Less practical by having longer charging time
- Charging stations are not populated much yet

## IV. EXAMPLES AND CURRENT USES

### A: All Electric Vehicles:

An all-electric vehicle which as well named battery electric vehicles, contain a battery that is charged by an electric power source in charging stations or charging

equipment. These vehicles are function in a fully electric mode and has a driving range mileage of an approximately 240 to 650 kilometers.

### B: Hybrids Electric Vehicles:

A Hybrid electric vehicle are powered by both an internal combustion engine and electric motors that utilizes the energy available in its battery. The car is filed by the conventional fuel for its internal combustion engine and by regenerative methides such as during braking and by utilizing wasted energy form the exhaust. These types of electric vehicle are the most commonly populated in the current time.

### C: Plug in Hybrids Electric Vehicle:

Plug in hybrids electric vehicles “PHEV” are also powered by an internal combustion engine and electric motors. It has the capability to function in an all-electric mode in slower speeds. However, it requires a larger battery which can be recharged using an electric power source. This type of electrical hybrids is usually the heaviest and most expensive.

## V. CONCLUSION

The increased awareness of climate change and the need for a more power efficient means of transportation and more economically sound, has led to more and more desire for electric vehicle. In addition, car manufacturer has taken a huge step in improving the performance and the technological advancement of electric vehicles and its increased range, as well as producing more variant options of electric vehicles. This in result has increased popularity for electric vehicles and its bright future.

## REFERENCES

- [1]. Alternative Fuels Data Center: How Do All-Electric Cars Work? (energy.gov)
- [2]. Alternative Fuels Data Center: Electric Vehicles (energy.gov)