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HOME MADE ELECTRIC CAR

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ABSTRACT

Electric vehicles (EVs) are a promising technology for achieving a sustainable transport sector in the future, due to their very low to zero-carbon emissions, low noise, and high efficiency. Nonetheless, the large penetration of EVs is expected to affect the existing power grids, due to high loads.In the recent days, carbon emission from the vehicles are found to increase the level of air pollution in a huge manner. In order to reduce the pollution due to transportation, electric vehicles are seen as an alternative. This approach paved way for developing an electric bicycle by incorporating 48V 800W BLDC hub motor, 48 WH lithium-ion battery and pedal assist system (PAS). The maximum speed of the bicycle is 20 km/h. The distance covered using PAS is 75 km. The maximum carrying capacity is 120 kg with a charging time of 2.5 to 3 hours. The pedal assisting system helps to share the torque between manual pedalling & electric motoring. This ensures that the battery is used in an efficient manner. The cost of this bicycle includes cycle assembly, battery, hub motor, controller circuit and wireless odometer. The total expenses involved in developing this prototype is nearly 38.57% lesser without profit when compared to other products available in the market. The cost of developing a bicycle prototype is nearly 38.57% less than other products available in the market. The bicycle consists of wheels, frame, seat, handle bars, and components, with a helmet as a key safety issue. Fully electric vehicles are being introduced to the passenger car market to reduce the risk of occupants and rescue personnel being exposed to hazards. Building an electric car with a cycle structure involves combining electric components with a bicycle-like frame, ensuring proper weight distribution for stability. Designing an electric car with a cycle-like structure involves integrating an electric motor, batteries, and controls into a compact and aerodynamic frame, focusing on aerodynamics, lightweight materials, and energy-efficient technologies. The goal is to create an energy-efficient vehicle powered by electric motors and batteries, The abstract would touch on aspects like sustainable transportation, battery technology, aerodynamics, and smart control systems. The goal is to outline a clean, efficient, and future-forward mode of transportation. If you have specific questions or areas you'd like to explore in the abstract, feel free to specify.

1. INTRODUCTION

An EV is a shortened acronym for an electric vehicle.EVs are vehicles that are either partially or fully powered on electric power. Electric vehicles have low running costs as they have less moving parts for maintaining and also very environmentally friendly as they use little or no fossil fuels (petrol or diesel).Briefly introduce the concept of homemade electric cars and their significance in sustainable transportation.State the purpose of the paper, focusing on analysing the structure of the cycle in homemade electric cars.Petrol or diesel vehicles are highly polluting and are being quickly replaced by fully electric vehicles.fully electric vehicles (EV) have zero tailpipe emissions and are much better for the environment. The electric vehicle revolution is here, and you can be part of it.

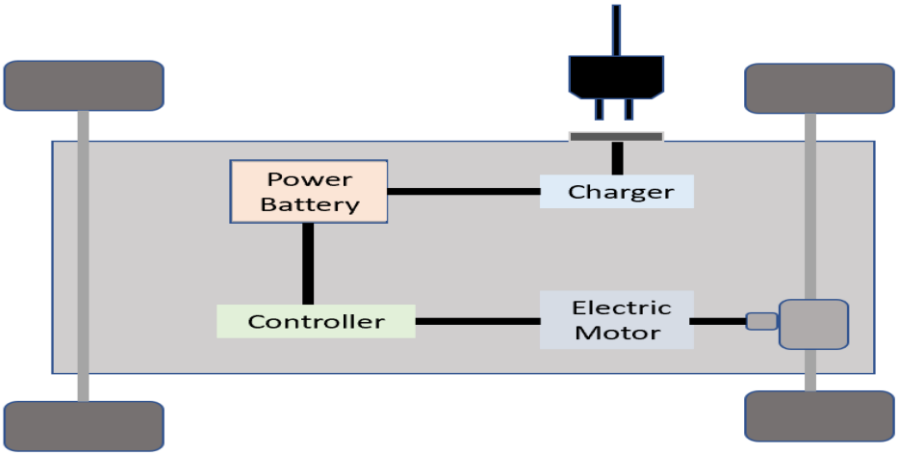

Fig.1 Introduction about electric vehicle

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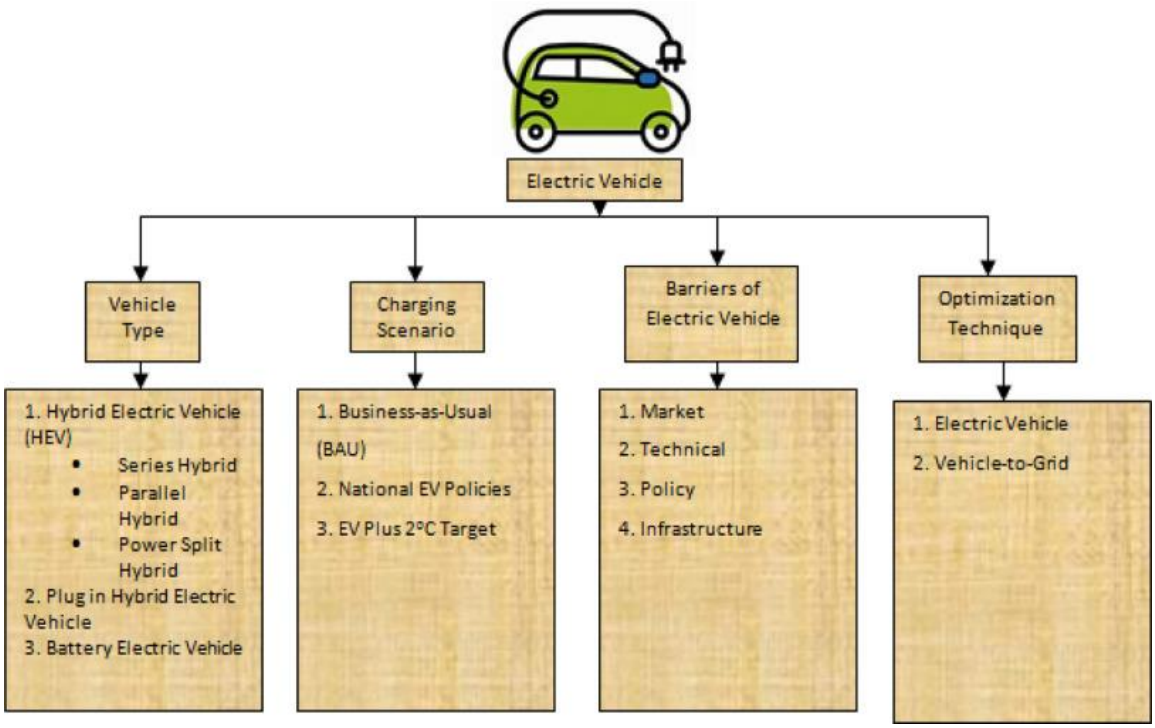
2. LITERATURE REVIEW

Review existing literature on homemade electric cars, emphasizing their structures and components. Discuss notable examples and innovations in the field of DIY electric vehicles. Highlight the challenges faced by enthusiasts in building electric cars from scratch.Garling and Thogersen'survey (2001), "Marketing of Electric Vehicles," discusses how substituting electric vehicles for traditional ones could reduce local pollutants and greenhouse emissions from the transportation system. They contend that the user of an electric vehicle pays a hefty price for these societal benefits in terms of pricing, availability, speed, and acceleration. The authors believe that to finish the diffusion process, supportive national policies and skilled marketing are required. Based on a consideration of current International Management Review Vol. 18. Fall Special Issue 2022 88 and future expected qualities of electric vehicles, as well as a review of data on early adopters, the article outlines a two-phrase strategy for marketing electric automobiles. Afroz (2015) and his colleagues published a study to investigate how individual values and attitudes influence consumers' purchasing intentions for electric vehicles. Customers from Malaysia are the focus of the study. Individual consequences (ICNs), such as measures of convenience, product size range, and perceived utility, were found to be adversely connected to green purchasing intention in the study (PIN). While consumers consider fuel efficiency, consumption, and comfort of a car when making a purchasing decision, they may choose an electric vehicle if the manufacturer offers a battery recycling facility. PIN has no statistically meaningful link with ECN's environmental impacts.

3. METHODOLOGY



Interviews, surveys, or experiments conducted to collect relevant information. Discuss the criteria for selecting homemade electric car projects to study.Electric cars are drastically cleaner than conventional gasoline vehicles. Even the burliest models with the biggest batteries account for less carbon emissions over a life's use than nearly every gasoline-powered vehicle, no matter how small. The science on this is clear andthe gap will only widen as renewable energy increasingly accounts for a bigger share of the grid. And EVs will become more efficient as chemists and software engineers squeeze more miles out of batteries. Even so, let's be clear; there is no such thing as a zero-emission vehicle. Steel body panels don't grow on trees. Lithium doesn't flow out of the ground and into battery plants. Electricity even if it's generated by solar panelsisn't captured without a great deal of capital and carbon expense.

4. STRUCTURAL COMPONENTS OF THE HOMEMADE ELECTRIC CAR

- Battery
- Power inverter
- Controller
- Electric bldc Motor
- Transmission shaft
- Dc converter charger

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5. ELECTRICAL SYSTEMS AND POWERTRAIN

Discuss the electrical components of the homemade electric car, including the motor, controller, and battery pack.Explain how the electrical systems are integrated into the structure of the cycle.Highlight the challenges and solutions related to the power distribution and management within the vehicle.

6. CHALLENGES AND INNOVATIONS

Explore the challenges faced by enthusiasts during the construction of homemade electric cars. Discuss innovative solutions and modifications implemented to overcome these challenges. Highlight any unique features or advancements introduced by the creators of homemade electric vehicles.

The EV industry's biggest challenge is vehicle purchase cost. Electric vehicles are more expensive to build than gasoline-powered ones, primarily because of battery technology. EV batteries must hold a massive charge to provide the minimum range for most owners, requiring expensive raw materials to manufacture.

Some of the recurring challenges include low penetration and up-time of charging infrastructure and higher upfront cost of EVs. The consumer anxiety related to range is more or less addressed as OEMs continue to launch high-range EV models along with fast- charging options."

The electric motor is a key innovation that, without them, EVs would not be possible. Offering many advantages over the traditional internal combustion engine (ICE), the electric motor is the heart of every car of the future. The benefits include reduced maintenance costs, quieter operation, and no emissions.

Barriers to developing the EV ecosystem in Malaysia include high costs and inadequate supporting infrastructure, including component shortages, lack of EV experts and skills. electricity grid challenges, increased demand for lithium-ion batteries, and lack of EV charging standards**.**

7. CONCLUSION

The conclusion of using a homemade electric vehicle with a 48V 1000W BLDC (Brushless DC) motor would depend on various factors such as the design, components used, efficiency, and intended use. Generally, with careful planning and execution, a homemade electric vehicle utilizing such a motor could offer a cost-effective and environmentally friendly transportation solution for short to medium-range commuting. However, it's essential to ensure proper safety measures, adherence to local regulations, and ongoing maintenance for optimal performance and longevity.

8. REFERENCES

[1] DIY Electric Car Forums: Websites like diyelectriccar.com have active communities of enthusiasts sharing their electric vehicle builds, including those using 48V 1000W motors.

[2] YouTube: Many creators document their electric vehicle conversion projects on YouTube, providing valuable insights, tips, and references. Searching for terms like "DIY electric vehicle conversion" or "48V 1000W motor conversion" can yield helpful videos.

[3] Instructables: This platform hosts various step-by-step guides and tutorials on DIY projects, including electric vehicle conversions. You may find detailed instructions and references for building an electric vehicle with a 48V 1000W motor here.