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Electric Vehicle Mileage Booster

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Abstract: *Electric power serves as the primary energy source in this system, providing numerous advantages, including high efficiency in power conversion. The concept behind this idea is that in order to increase the mileage of a vehicle through solar. If we tend to increase the mileage of the vehicle, a bigger battery is typically used. However, this leads to an increase in the weight of the motor, which in turn increases the power of the vehicle. To address this issue, a new system has been proposed which utilizes flexible solar panels that are designed as stickers to be attached to the surface of the vehicle. This system aims to provide an additional source of power for the vehicle, allowing it to move more efficiently.*

Keywords: Direct current motor drive; with 12v batter,and solar pnale ,buck converter

I. INTRODUCTION

The increasing demand for transportation, coupled with the need for sustainable energy sources, has resulted in an urgent need for the development of efficient and environmentally-friendly transportation systems. The transportation sector is a major contributor to greenhouse gas emissions, and as such, efforts are being made to reduce these emissions through the incorporation of renewable energy sources in transportation systems. One of the most promising solutions for this challenge is the use of electric power in vehicles, as it provides high efficiency in power conversion and significantly reduces emissions. The concept of using solar energy to power vehicles has been explored for many years, with various approaches being proposed and tested. (electrics vehicle), in applications of weak power using battery system (motor of toy) or for the electric traction in the multi-machine systems too. The speed of DC motor can be However, the primary limitation to this approach has been the need for a large battery to store the solar energy for use in powering the vehicle. The use of a larger battery increases the weight of the vehicle, which in turn reduces the efficiency of the vehicle. This issue has been addressed through the development of a new system that utilizes flexible solar panels, designed as stickers, which can be attached to the surface of the vehicle. This new system aims to provide an additional source of power for the vehicle, thereby increasing its efficiency and range.

In addition to the flexible solar panels, this new system incorporates a super-capacitor, which can be fully charged in just 30 seconds. Once fully charged, the super-capacitor can switch the power supply to the motor of the vehicle. This means that the vehicle will receive power from the battery for the first 30 seconds, and then from the solar panel (super-capacitor) for the next 30 seconds. By alternating the power source in this way, the vehicle can achieve 100% mileage efficiency. While this new system has the potential to significantly improve the efficiency and sustainability of traditional vehicles speed controlling techniques.

- To control the dc motor to give a variable speed, which has high performance, reliability and adaptability for different dc motor ratings with good speed response, and develop a system with constant speed at any load condition automatically.
- To keep the rotation of the motor at the present speed and to drive a system at the demandspeed.
- To compare and analyse the performance of each controllers.

II. EXISTING SYSTEM

2.1 Problem statement

The emergence of electric vehicles (EVs) has brought a revolutionary change in the automotive industry. With the aim of reducing carbon emissions and improving environmental sustainability, many automakers have begun to introduce EVs into their product line. EVs run on electricity stored in batteries, making them a greener alternative to traditional

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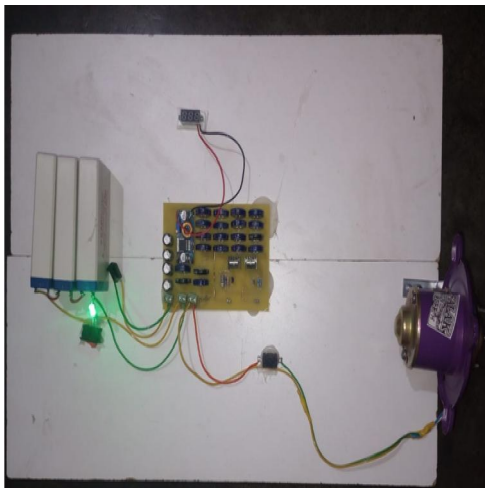
gasoline-powered vehicles. However, as with any new technology, there are still some challenges to be addressed. One such challenge is range anxiety,

DC Motor

The electric motor is a motor that convert electrical energy into mechanical energy. There are two types of motor which are AC motor, and DC motor. A simple DC motor use electricity and magnetic field for producing torque which rotate the motor. Permanent magnet DC motor (PMDC) outperforms to AC motor because it provides better speed control on high torque loads and use in wide industrial application. DC motors are more usable as it designed to use with batteries and solar cells energy sources, which provide portability where we required it and thus provide cost effective solution, because it is not possible to have AC power supply in every place, DC motor show its response at both voltage and current. The applied voltage describes the speed of motor while current in the armature windings shows the torque. If applied load increased in the shaft of motor, then in order to sustain its speed motor draws more current from supply and if supply is not able to provide enough current then motor speed will be affected. Generally, it can be said that applied voltage affect speed while torque is controlled by current. DC motors provide more effective results if chopping circuit is used. Low power DC motor usually use in lifting and transportation purposes as low power AC motors do 5 not have good torque capability. DC motor used in railway engines, electric cars, elevators, robotic applications, car windows and wide verify of small appliances and complex industrial mixing process where torque cannot be compromised. There are several types of DC motor but most common are brushed DC motor, brushless DC motor, stepper motor, and servo motor. These DC motors have three winding techniques such as shunt DC motor, series DC motor, and compound DC motor Control

Boost Converter

A boost converter is a type of DC-DC converter that is used to increase the voltage of a DC power source. It works by converting a lower voltage input into a higher voltage output, which can then be used to power other electrical devices or components. In an electric vehicle (EV), a boost converter can be used as a mileage booster by increasing the voltage of the battery pack. This allows the motor to operate more efficiently, resulting in an increase in the vehicle's overall range. The boost converter can be connected between the battery pack and the motor controller, boosting the voltage of the battery pack to match the motor controller's input voltage requirements. This allows the motor to operate more efficiently and with less heat generation. The boost converter can also be used to compensate for voltage drops that may occur due to factors such as high currents, low temperatures, or aging batteries. One of the main benefits of using a boost converter in an EV is that it can improve the efficiency of the system by reducing the amount of current that is required to produce a given amount of power. This can help to extend the range of the vehicle, as well as reduce the size and weight of the battery pack, which can be expensive and heavy. Overall, a boost converter can be able two famous type of



Working

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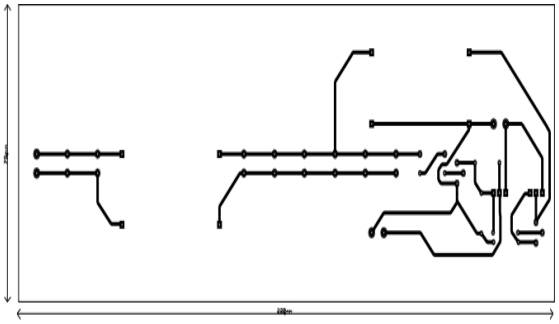
III. CIRCUIT DIAGRAM AND OPERATION



IV. TABLE OF COMPONENTS AND BLOCK DIAGRAM

Sr. no.	Used Components		
	Components	*Specifications*	*Quantity*
1	LCD	digital	1
2	Power Supply	12 V/Amp	1
3	Electrolatic Capacitor	1000 uF/25 V	4
4	SUPER Capacitor	5.5uF	16
5	BOOSTE CONVERTER		1
6	Solar pannel	30w	1
7	Motor	12V	1
8	Battery	12v	1

Applications

- Long-distance travel: Electric vehicle mileage boosters, such as battery extenders, can help EV drivers travel longer distances without the need for frequent charging stops.
- Remote areas: EV drivers in remote areas or those who live in areas with limited charging infrastructure can benefit from electric vehicle mileage boosters to extend their range and provide more flexibility in their driving

V. FUTURE SCOPE

- Further research and development: The concept of using flexible solar panels and a super-capacitor to power vehicles is still in its early stages, and further research and development will be necessary to refine the technology and overcome its limitations.
- Integration with other renewable energy sources: While the use of solar power is a promising solution for powering vehicles, it is not the only renewable energy source available. Future research could explore the integration of other renewable energy sources, such as wind or hydroelectric power, to create a more robust and sustainable transportation system.

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Advantages

- Increases mileage efficiency of the vehicle by utilizing solar energy
- Incorporates a super-capacitor that can be fully charged in just 30 seconds.
- Improves the sustainability and efficiency of vehicles.
- Helps to reduce carbon emissions by utilizing renewable energy sources.

Disadvantages

- You have to regularly update the rules of a Fuzzy Logic controlsystem.
- The systems require a lot of testing for validation and verification

VI. CONCLUSION

The transportation sector is a significant contributor to greenhouse gas emissions and the increasing demand for transportation has made it urgent to develop efficient and environmentally-friendly transportation systems. One of the most promising solutions to reduce these emissions is the use of electric power in vehicles. The concept of using solar energy to power vehicles has been explored for many years, but the primary limitation has been the need for a large battery to store the solar energy for use in powering the vehicle. The use of a larger battery increases the weight of the vehicle, which in turn reduces the efficiency of the vehicle. However, a new system has been developed that utilizes flexible solar panels designed as stickers that can be attached to the surface of the vehicle.v

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