

# DESIGN AND FABRICATION OF PROTOTYPE MODEL MULTI POWER SOURCE VEHICLE

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**Abstract** - The internal combustion engines are used widely for transportation. Our present fuel resources are not going to be around forever and with the ever increasing consumption their extinction is nearly unavoidable. Also our fuel resources which are mostly made up of fossil fuels are not renewable in nature. Currently around the world the consumption of fossil fuels is 100,000 times faster than their natural production. According to an estimate the demand for these fuels will suddenly outstrip their availability in a matter of centuries-or less. Also the combustion of fossil fuels emits carbon dioxide. This harmful gas when released into the atmosphere makes a huge contribution to the greenhouse effect. During the revolution for the ecofriendly technologies bicycles were the most depends modes of transportation , along with this the consideration of the increase in fuel price and environmental factors. It must admit that it is more better to use a bicycle over a motor vehicle for short distance travelling. Imagine how useful would the bicycle be if even the small effort by man for climbing slopes and riding on rough terrain is reduced in it. In the same way to develop the basics of our project. "Multi power source Vehicle" the unit developed by us is a combination of the pedal operated geared bicycle with an electric power motor that would assist the rider throughout his journey. Our idea of implementation of the project was mainly based towards providing a tribute to the "GREEN ENERGY".

**Key Words:** IC engine, fossil fuel, multi power source, green energy

## 1.INTRODUCTION

In recent years, with the increasing severity of energy and environmental issues, countries have vigorously developed the new energy automotive industry. To [1]reduce the difficulty of driver operation and increase endurance mileage, this article proposes a regenerative braking control strategy for a single-pedal pure electric commercial vehicle. Development [2] of automobiles with electric motors is one of the greatest innovations by mankind. Control of carbon emissions has been an emerging challenge over the last decade. The [3] modern automobile industries around the world are still the cause for massive greenhouse gas generation and the reason for the depletion of the ozone

layer. The substantial usage of Internal Combustion Engine (ICE) [4]vehicles deteriorated fossil fuels. The research in transportation led to the invention of an Electric Vehicle which indeed was an appreciable choice for the mode of transportation. Electric Vehicles (EV) [5] are decarbonized, minimizing the soot and smog, and are the better version than ICE because of their lighter weight and better performance in regard to their acceleration. The effective [6] usage of power by the principle of regenerative braking had a considerable advantage amongst the vehicles in the market. Electric vehicles can be easily charged either from local charging stations or from home ports or by renewable energy sources, preserving the limited fossil fuels. Electric vehicles will be unaffected even though the fuel supplies are disrupted or fuel costs increase abruptly. Electric [7] vehicles laid the hold of precedence over other considerations for car enthusiasts because of their torque generation. Rapid torque is generated by the electric and magnetic fields of an electric car. The current-placed [8] operator in a magnetic field encounters a force that causes the arm to rotate, leading to the EMF (Electro-Motive Force) anti-electric force EVs are capable of being quicker than IC engines and they can even sustain higher speeds for longer periods of time. EVs [9] have lesser moving parts, so they are able to run more efficiently eliminating the drivetrain loss and being able to use a lot more of their horsepower. The EV industry is realizing that the car needs to sustain its efficiency over the long haul, which led to several kinds of EVs namely Battery Electric Vehicles (BEV), Hybrid Electric [10] Vehicles (HEV), and Plug-in Hybrid Electric Vehicles (PHEV). In this work, basic modeling of an electric vehicle is built using suitable entities which control the commands from driver input. Motor creates an efficient transformation of energy stored in batteries of an EV to generate motion. The[11] motion developed in the vehicle enables the vehicle's body to function, thus travelling to a distance within a certain period of time. Braking [12] is an essential factor to be considered while designing an EV. This process is achieved when a machine or an electrical device restricts its movement. It is usually necessary [13] to drive the car quickly and smoothly according to a given speed schedule. In a mechanical process, the braking action is performed with a force of contradictory force between the rotating parts and brake pads. On the other hand, in electric braking, brake torque is being opposed to the movement of the rotating

parts which is developed during braking operation. Electrical systems are much more efficient, accurate and have smooth control by which quick stop is possible comparatively.

## 2. Design Specifications:



### Product details

<b>Brand</b>	Generic
<b>Model Name</b>	48V 1000W
<b>Speed</b>	500 RPM
<b>Voltage</b>	48 Volts (DC)
<b>Product Dimensions</b>	25.4W x 17.8H Centimeters
<b>Material</b>	Copper

When a "smart" battery pack is linked to an external data channel, its battery management system (BMS) can remotely monitor and control its internal components. The functionality of a smart battery pack is one method to characterize its advantages. Among the features and functionalities that are up for grabs are a fuel gauge, smart bus connection protocols, general-purpose input/output (GPIO) access, cell balancing, wireless charging, integrated battery chargers, protective circuits, and more. These indicators are designed to provide you with precise battery capacity information in a manner that isn't achievable with other indicators. The rechargeable battery pack is one of the most crucial components of electric propulsions, and researchers are always looking for ways to improve it, aside from the machine and drive and the auxiliary electronics. An illustration of the main conclusions of this study on the use of Li-ion batteries in various nations can be seen in Figure 1.

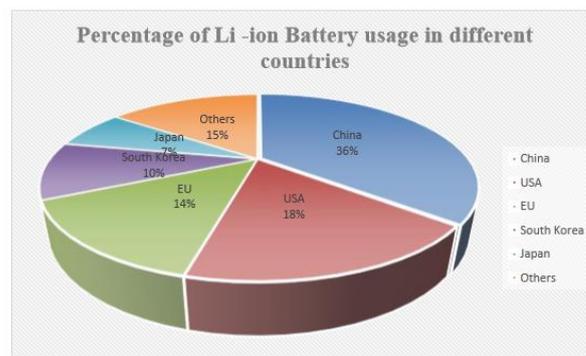


Figure.1

The electric powered car marketplace is about to amplify as a result of the bold plans and tasks of the authorities. The authorities have taken some of steps to incentivize and sell the deployment of electrical automobiles and public charging infrastructure to gain substantial electrification with the aid of using 2030. India is focused on to lessen its immoderate oil imports and reduce pollutants ranges throughout towns within side the coming years. Electric automobiles will play a vitalization in accomplishing this target.

### 2.1 Experimental work:

Everything can be reused now a days. So in a real sense we can say that nothing is a real waste. Everything has their value in this world. In this work we used waste material hollow iron pipes design of chassis. Double pedal operated car four seated capacity while peddling operation batter charged. Battery capacity (18 Ampere hour, Watts – 1000, Volts – 48).



Figure 1: Skeleton of the vehicle





Figure 2. Final body of vehicle with full load



Figure 3. Running condition of the vehicle

### 3. CONCLUSION

Actually there is no waste everything is usage. At end of this decade 50% non-fossil fuel capacity. Of late our researchers focused on Electric and hybrid vehicles. The main aim of this work is reduced air pollution and eco-friendly.

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