

Performance Analysis of Hybrid Moped for City Riding Condition

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ABSTRACT

The Concern over the Environment with Respect to Pollution, Conservation of Fuel Resources in the World, The Automotive Industry has entered into a New Dimension in Production of more Fuel Efficient low Emission Vehicles and New Technologies. One of them is Electric Hybrid Vehicle (EHV). The Hybrid Electric Vehicle Consists of Two or More Energy Sources For Total Propulsion of the of the Vehicle. Electric Vehicle we are totally dependent on the Domestic as well as Commercial Power Supply getting from the Grid. The overall Transmission efficiency of the Electrical Power with Minimum Losses of Energy and give the maximum efficiency. It is also Reduce Environmental Pollution in Urban Areas, Compare to Vehicle with Engine. Also there are showing tendencies towards Creating Greener Vehicle, Which does not cause Environmental Pollution, but also Demand to leave the Consumption of fossil fuels in Transport Vehicle. We are going to make setup and test it in Various Conditions and Compare with Conventional Parallel Hybrid Vehicle.

Keyword: - boost circuit, super-capacitor, 100 cc Engine

1. INTRODUCTION

The invention of internal engine is one of the greatest inventions of mankind. The conventional vehicle with ICE provides good performance and law operating range. But however, they have caused and continue to causes serious problem for poor fuel economy, environmental pollution and human life. And now a day pollution level is very high so people faces some serious problem and also create effect on environment. Now a day all over the world focus on electric vehicle, but some problem also generate in electric vehicle like battery charging problem there is main problem of electric vehicle. Otherwise electric vehicle generate zero pollution. So this charging problem solve by in hybrid vehicle. First of all what is hybrid, it means one system run by two different energy sources for example, vehicle run by I.C engine and also run by electric motor so there is hybrid vehicle. But we think vehicle run by using petrol energy and also use gaseous energy so there is not hybrid, because there is two different fuel not different sources.

1.1 Power Losses:

The hybrid vehicle gives more efficiency as compare to I.C engine. But some losses also create in hybrid vehicle the main losses is power losses, because number of element involve in this system, like engine, alternator, battery, motor etc. engine run the alternator and alternator generate current and battery charge by using this current and battery run the motor. But generally create two problem first is power losses and second is some time system required more voltage and current so more voltage and current not supply in system so system can stop and also decrease the efficiency.

1.2 Remedies for problems:

This problem solve by using boost circuit and use energy storage device like super-capacitor, it is one type of energy storage device. There is charge and discharge very fast as compare to battery, and boost circuit is one type of circuit, when required more current and voltage so this circuit fulfil the requirement.

2. PROCESS:

Now when we are measuring the power losses with two condition first is “ with circuit ” second is “ without circuit ” in fig.1 there is simple diagram of series hybrid vehicle and this system we are not use any boost circuit and storage device and measure alternator power generate, fuel consumption, and battery charging time.

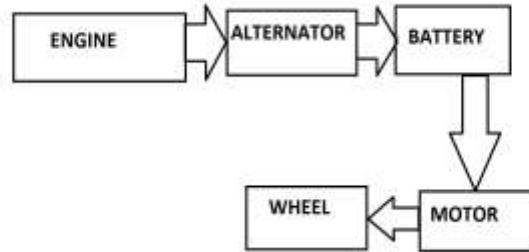


DIAGRAM OF SERIES HYBRID VEHICLE

Figure -1: Diagram of series hybrid Vehicle

In second case we are using super-capacitor and boost circuit, first engine run the alternator and alternator charge the battery so, here boost circuit and control circuit located between battery and alternator and super-capacitor located between battery and motor show in fig.2

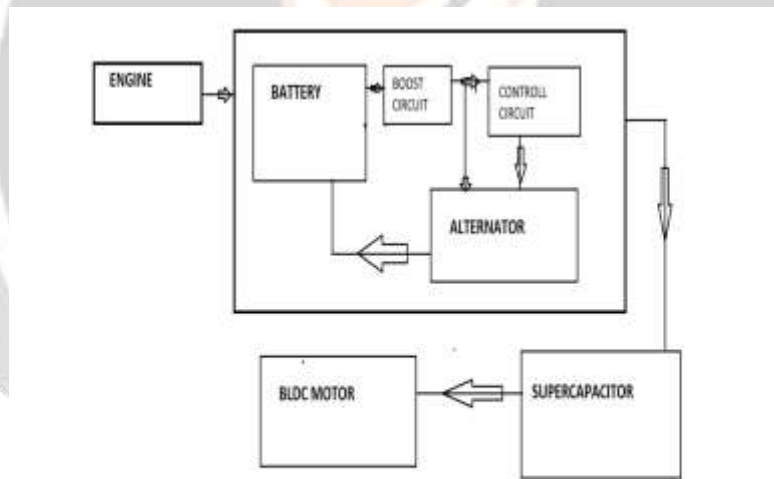


Fig -2 Block Diagram of Hybrid Vehicle with Boost Circuit and Super-Capacitor

3. RESULT & DISCUSSION:

Now show Table-1 here explain both result of hybrid vehicle “ with circuit ” and “ without circuit ” and also consider tow different condition first is running condition and second is steady state condition in this condition vehicle not run. We show the result at steady state condition without circuit, alternator generate more energy and charging time is more as compare to with circuit now here with circuit alternator generate law power and battery charging time is law but fuel consumption is same. In second case running condition without circuit, alternator generate more energy and also charging time is more but in case of with circuit alternator generate law energy and also charging time is law as compare to without circuit and fuel consumption is also different for both cases.

Description	Alternator Generate Energy	Engine Fuel Consumption	Battery Required Energy	Time to Charge the battery
Steady state condition without circuit	609Watts	1.5 Liter	400 Watts	2 Hours
Steady state condition with circuit	470 Watts	1.05 Liter	400 Watts	1.5 Hours
Running Condition Without Circuit	600 Watts	2.3 Liter	400 Watts	1.5 Hours
Running Condition With Circuit	470 Watts	2 Liters	400 Watts	1.3 Hours

Table -1: Experimental Results

4. CONCLUSIONS

In the earlier chapter we are study, what is hybrid vehicle, why it is batter compare to other vehicle and also measuring the power losses, fuel consumption and battery charging time. We found that using boost circuit and super-capacitor increase the overall efficiency of the vehicle like law power losses; law fuel consumption and battery take law charging time. So here boost circuit and super-capacitor is great device to use for increasing efficiency of vehicle.

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