

Implementation on Regenerative Braking System Electric Vehicle

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Abstract - In Regenerative braking system we use to extend battery power of vehicles which is run a electric way. the system is extended with wide range of battery power The Regenerating Breaking System is one such method, to recover a energy that is reused and same it is reduced the break exhaust is emissions. This system works on kinetic energy create by mechanical energy and it's converting to electric energy. These systems offer financial benefits while improves braking efficiency, reduces brake wear and preventing physical damage.

Key Words: Electric Vehicle RBS, Increased Performance of RBS, Regenerative Braking System, Motor, Energy recover.

1.INTRODUCTION

A Regenerative braking system (RBS) is a energy efficient system, which is used to transform kinetic energy into electric energy. As know that the energy neither distorted nor created. In the crises of energy limitations and way of reduce air pollution will a big problem now a days. This method will improve overall efficiency of vehicles by providing more energy to achieve limited power storing capacity. This advance the capacity of vehicles by converting kinetic energy and mechanical energy into pure electric energy.

In now a day we are use electric vehicles and this vehicles are main drawback is battery power loss so we are solve this issue and implement regenerative braking system.

Mechanical breaking system is very different from of the electric breaking system. In vehicles we use dynamic breaking system in this system we implement special type of break system. When we apply dynamic break there is created kinetic energy and it's converted into unwanted and wasted heat by friction, in RBS where energy is recovered by using electric motor as a generator from. And this energy provide to battery system of vehicles.

2. Literature Review

In this Project we can increase the efficiency and performance of electric vehicles through regenerative braking system. In this system it get the kinetic energy of the vehicle from the wheels and the generator (DC motor) and converts it into for the purpose of battery use. Its done by the motor converting the mechanical energy into

electrical energy. This energy is boosted and stored into the capacitor bank through the battery. this mechanism reduces the tear on the friction brakes making it long lasting. The search focused mainly onto the electric vehicles, hybrid electric vehicles. However, more emphasis is placed on literature related to fuel savings objectives rather than on environmental savings on global warming and studies undertaken to reduce the components of harmful emissions. The most important documents to mention here, this paper details the requirements and potential benefits of infrastructure development, challenges and opportunities for the design and deployment of emerging infrastructures associated with plug- in electric vehicles.

3.PROPOSED SYSTEM

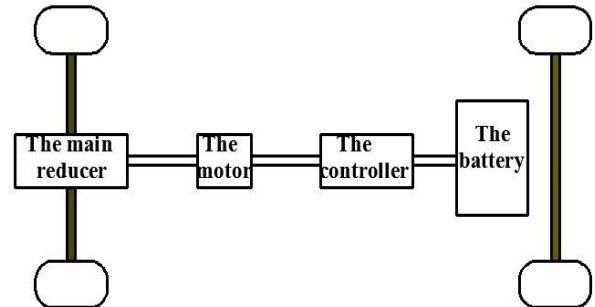


Fig. Front Wheel Drive Vehicle Regenerative Braking System Structure Diagram

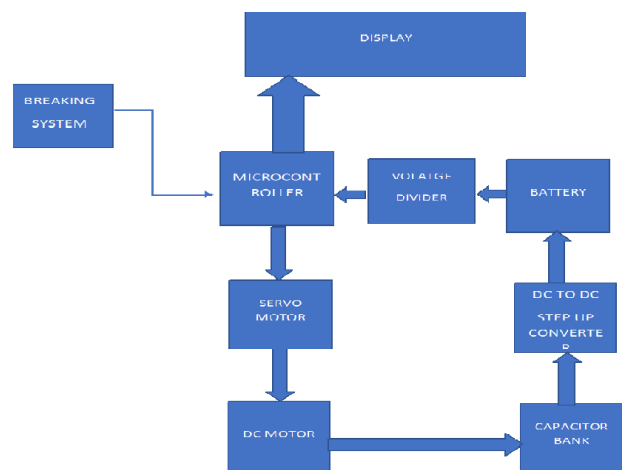


Fig. Block Diagram of Regenerative System

4. WORKING PRINCIPLE

The most common form of regenerative braking system involves an electric motor as an electric generator. Using microcontroller 8051, we are operating the whole regenerative mechanism. This would be making the operation more efficient. The whole process is related to the charging function of battery used in the project.

5. OPERATION

In Regenerative braking system, when we push the break then break create the kinetic energy and that kinetic energy converted into electric energy and give back to the battery.

In regenerative braking system that break signal is gone to the microcontroller and then microcontroller will execute the signal to servo motor to push the DC motor. (A motor behaves as motor and as generator at the same time...as soon as the motor overcomes the battery it inverts the current direction and starts feeding current into the battery) and then dc motor get generated by the wheel or the shaft. Then that generated energy gives to the capacitor bank. We placed the capacitor bank in parallel direction. The capacitor is used to store the energy and release to the DC-to-DC boost converter. That steps up the voltage (while stepping down current) from its input to its output. Without a boost converter, we can't raise voltage coming from the DC motor. And that converted energy goes to the battery of the electric vehicle. Then there is a voltage divider to divide the voltage coming from the battery. Voltage divider (also known as a potential divider) is a passive linear circuit that produces an output voltage that is fraction of its input voltage. And that particular voltage gives to the microcontroller IC and goes to the microcontroller to show the voltage via display. Then that display will show the voltage level.

This is all over about the regenerative braking system. In this way we can regenerate the energy in electric vehicle

6. FUTURE SCOPE

In this braking system its require more research about to develop a better that captures more energy and stop faster. All vehicle in motion can benefit from this RBS by regenerating energy that would have been lost during the process. It can be also used in two-wheeler.

7. CONCLUSION

Regenerative breaking system is an effective method of improving electric vehicles efficiency. Is a very useful in future for energy concepts.

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