

Energy Storage System of Shock Absorber Generating Machinery for Electric Vehicles

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ABSTRACT

Nowadays, the technologies have advanced rapidly that makes life more convenient for people around the world; however, it has raised many severe environmental issues. Our need and reliance on petroleum has been dramatically increasing and by doing so has pointed out the need for the development of energy conservation and carbon reduction is a matter of great urgency. Governments all over the world have been donating their manpower and money for study into alternative energy to sort out these problems. One way is to use Electric Vehicles, but they suffer from power insufficiency, long charging times and lack of access to charging stations. In short, an invention of new vehicles that could extend their battery endurance is more likely to change people's viewpoint on the drawbacks of Electric Vehicles. This study is based on the China Green Energy Company's research, adapting its shock absorber power device to design a generator power test platform, and energy storage systems. It is to improve the vehicle's shock absorber device, by the use of micro-vibration power generator to convert the kinetic energy generated by the shock absorber into electricity. First of all, this research has developed the storage system of human-machine interfaces, which displays the instant-stored energy and accumulated energy via the signal measurement. Secondly, it worked on an efficient energy configuration method, completed energy storage system circuit design and calculation method of storing energy up with shock absorbers in generators. Finally, the study has achieved platform design and testing. Besides, the paper has figured out power calculation based on the measured signal. In conclusion, our results indicate that this storage system could convert the mechanical energy from shock absorbers into power, and be successfully stored in the battery pack. Furthermore, the human-machine interfaces created by the LabVIEW software could also monitor its operation simultaneously.

Keywords : Renewable energy、electric vehicles、shock absorbers for power generation

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