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Magneto-Engine: Engine with the power of magnetic energy

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Today many people are opting luxury vehicles, which can deliver performance but at the cost of low mileage. Still the majority of the people stick to the mileage and it has become a social interest also due to green revolution. The main idea of my proposal is that we can use magnetic energy to reduce the fuel usage in running the IC engines. When the engine piston goes up and down inside the cylinder there will be a lot of friction and a part of the energy obtained by burning the fuel is wasted. Hence in-order to avoid the losses we can use the magnetic repulsion technique to overcome this problem. When the walls of the engine cylinder are made of permanent magnet and the pistons are also made of same material, there exists a magnetic force repulsion which will provide a small separation amongst them thereby reducing the losses. In this way the amount of fuel burnt per combustion cycle could be reduced by 20% and results in more mileage.

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Simulation of aerodynamic behaviour of a super utility vehicle

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The main objective of the study is to reduce the aerodynamic drag and increase the stability of the car on the road for a three dimensional full-sized Super Utility Vehicle (SUV) using computational fluid dynamics (CFD). The study calculates the pressure and the streamline of velocity around the car. The SUV baseline model in the simulation is Mercedes - Benz GL class model 2013. Modifications and aerodynamic add-on devices are used to improve the aerodynamic behaviour of the Mercedes - Benz GL class model 2013. There are many modern aerodynamic add-on devices which are used in this research, such as many types of the spoiler, ventilation duct, mud flaps, vortex generators, ditch on the roof and diffuser. New design of devices is used to improve the aerodynamic performance of the SUV model. All of these tools are used individually or in combination. The improvement of aerodynamics should not mainly affect the vehicles capacity and comfort. This study has dealt with three boundary conditions for the velocity of the air, one with airflow of 28 m/s (100.8 km/h), 34 m/s (122.4 km/h) and 40 m/s (144 km/h). At 28 m/s, an aerodynamic drag reduction of up to 25.64% compared with the baseline is achieved for Mercedes - Benz GL class, model 2013 with all modifications and add-on devices. It is clear that the use of ventilation duct has a significant effect in reducing aerodynamic drag.

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