



Research Paper

PROVIDING ADDITIONAL SOURCE OF ENERGY IN A VEHICLE USING PIEZOELECTRIC MATERIAL WITH NO RECURRING COST

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Energy generation to get power in automobiles is a very crucial factor. Piezoelectric material may be a good option for additional power source in automobiles without any extra cost. A circuit has been designed with the use of piezoelectric crystal, step-up transformer and magnetic plates using Hall effect principle, to get additional power in automobiles with no recurring cost.

Keywords: Piezoelectric, Hall effect, Suspension system, Magnetic plates

INTRODUCTION

In this project, piezoelectric material has been used to develop additional power for the vehicle with no recurring cost. Piezoelectric material is used to convert the load applied by weight of passengers as well as the fluctuating load experienced in the suspension system to develop additional power for the vehicle in terms of increasing the speed of output shaft.

This essentially results in the development of clean and non-exhaustible energy. The application of this project is applicable to virtually all the vehicles whether they run on land, water or air. It is highly efficient and do not produce any noise due to absence of moving parts.

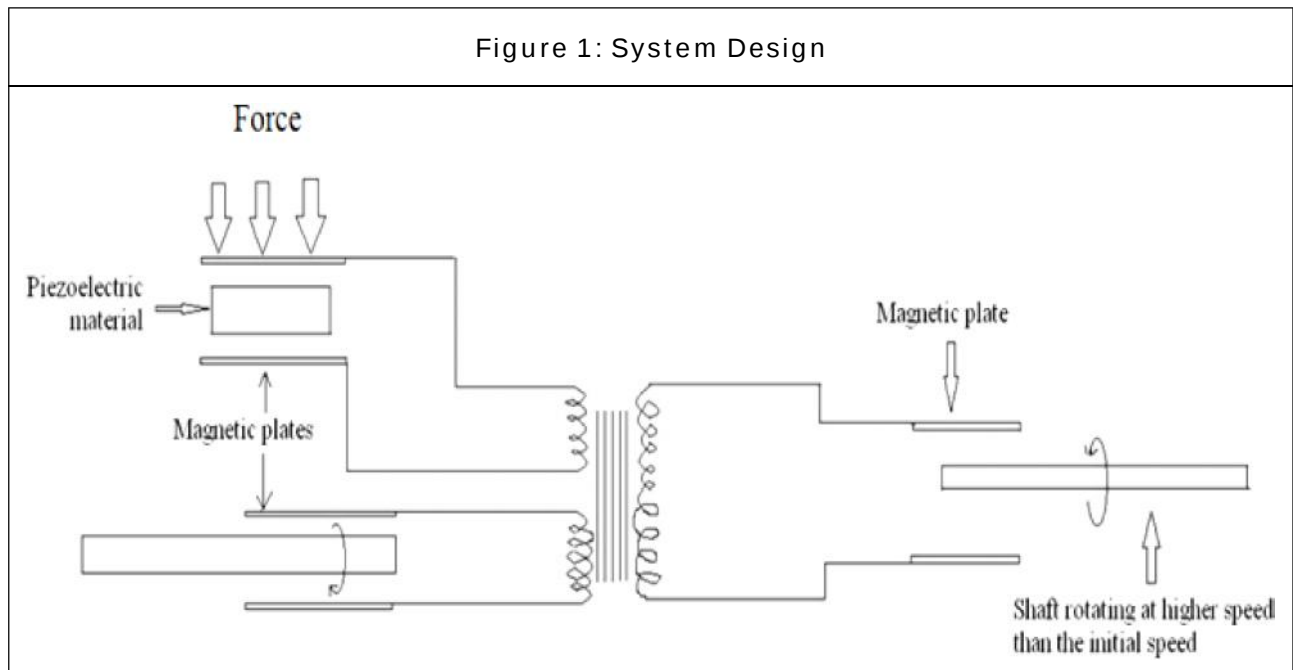
DESIGN

Design has been shown in the Figure 1, last of the manuscript.

WORKING

Forces in the form of load of passengers and suspension system, is converted into electrical signal by using piezoelectric material with the principle of Hall Effect. By Hall Effect, current flow in electric wires connected across the magnetic plates. End of these wires form the part of primary coil of step-up transformer. Same time crankshaft is placed between magnetic plates which produce magnetic fields by electromagnetic induction principle and current flows in wires

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connected across magnetic plates, forms another part of primary coil of step-up transformer. By the use of step-up transformer greater voltages are produced in secondary coil of step-up transformer. Both ends of secondary coil are connected to magnetic plates and in same way using electromagnetic principle, speed of crankshaft is increased to provide higher power output at same specific fuel consumption. So this circuit acts as coupling between output shafts.

ADVANTAGES

- Providing additional energy with no recurring cost.
- Providing clean energy, i.e., no pollution involved.
- Minimal maintenance.
- Inexhaustible resource.
- No noise production due to absence of moving parts.
- High efficiency (~100%).

DISADVANTAGE

- The project has only one disadvantage that it has a high initial cost due to the high cost of the piezoelectric material.

FUTURE RECOMMENDATIONS

- Circuit design can be made using new piezoelectric material capable to give higher output.
- Material for magnetic plates and wirings can be updated to enhance efficiency and reduce magnetic and transmission losses.

CONCLUSION

This circuit design gives development of extra power in automobiles at the same rate of fuel-consumption using an eco-friendly and sustainable energy resources which will most certainly help in the sustained running of automobiles as a whole. 🌀

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