

DESIGN AND DEVELOPMENT OF A SWITCHABLE SETUP BETWEEN IC AND ELECTRIC ENGINES FOR TWO WHEELER

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College : *Vidyavardhaka College of Engineering, Mysuru*
Branch : *Department of Mechanical Engineering*
Guide(s) : *Dr. Arun C Dixit U*
Student(S) : *Mr. Nachiketh R*
Mr. Anirudh Ramesh
Mr. Jeevan B L
Mr. Vivek N S

Keywords:

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Introduction:

Hybrids have become a necessity in the current world automotive scenario. The hybrid vehicle is getting more and more popular among the people due to its economical and eco-friendly operating characters. Fossil fuels have served as well for past century but they are depleting & causing irreversible damages so we need to find an alternative. Although electric vehicles are the solution but they have lot of disadvantages as of now. So, we turn to Hybrid Vehicle technology which combines both the IC and Electric's advantages and can be implemented much more easily and cost efficiently than pure EV's. Considering the urban status in India, a well-organized and fuel efficient two-wheeler has to be designed and developed. Hybrid electric vehicles comprise of an electric motor, inverter, battery as electric drive and an internal combustion engine with transmission connected as gasoline based drive. It is to achieve better fuel economy and reduce toxic emissions.

Objectives:

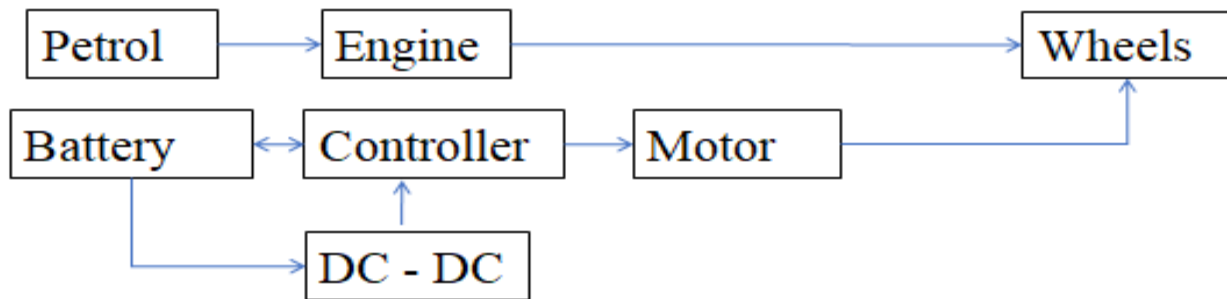
To Design and Develop a Hybrid Two – Wheeler which enables the rider to seamlessly switch between IC and Electric Modes

Methodology:

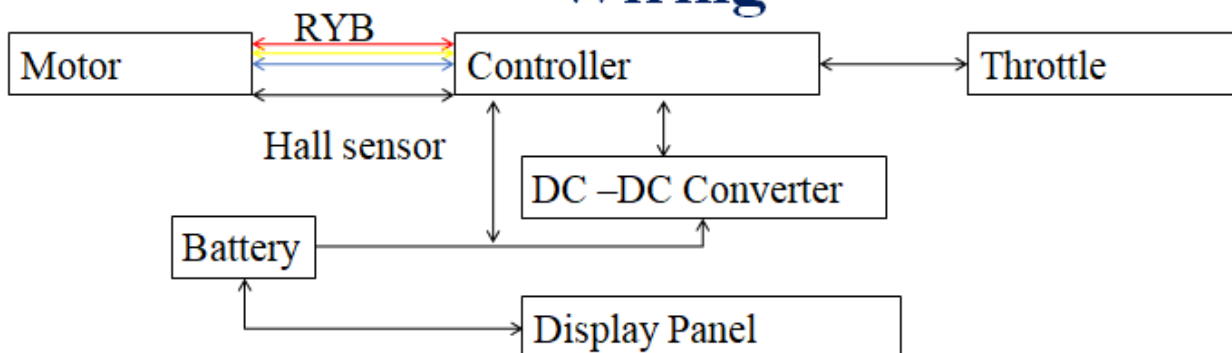
1. Based on the weight of the vehicle, decide the battery capacity and hub motor rating.
2. Attach the hub motor assembly on the rear wheel.
3. Install the customized sprocket on the wheel hub (In order to accompany the drive chain of the IC engine).
4. Battery placement should be such that the weight distribution should be symmetric for vehicle stability.

5. Installing Panniers/Luggage boxes on side of the vehicle to house the battery, controller and junction box.
6. Install Dual – purpose Throttle including both IC throttle wire and electric connection.
7. Install Disc Brakes to the rear by removing old drum brakes.
8. Complete required EV wiring.

Basic Block Diagram



Wiring



Conclusion:

Scope for future work:

When the entire world is facing the scarcity of petrol and gasoline prices are touching the sky, Hybrid Vehicles have come up as a promising and feasible option to cope with the situation. The use of hybrids is being encouraged by many governments around the world to try and combat pollution and economic problems.