Design of an Electric 2-Wheeler Conversion Kit Model (For Existing Indian Vehicles)

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Abstract:

The GOI has set a deadline of 2030 for electrification of all vehicles. So, first and most importantly we must recognize the need to control and reduce pollution.

Studies indicate that the electrification of two wheelers will be very important for the time ahead, as this will help reduce pollution levels and also protect investments by large number of people.

This project involves the design of a Conversion kit model for an Electric 2-Wheeler in a staged manner. Our candidate vehicle is the Honda CB Shine. We have used a Mathematical model & different software tools like CATIA &MATLAB- Simulink for our design analysis, develop & validate the design of our Conversion kit model.

With the help of MATLAB-Simulink, we have simulated and compared the performance characteristics of the proposed Electric 2-Wheeler model with its Conventional Internal Combustion Engine (ICE) 2-Wheeler counterpart. We have then tabulated our comparisons to identify how an Electric 2-Wheeler is more efficient than its ICE counterpart and thus is more environment friendly.
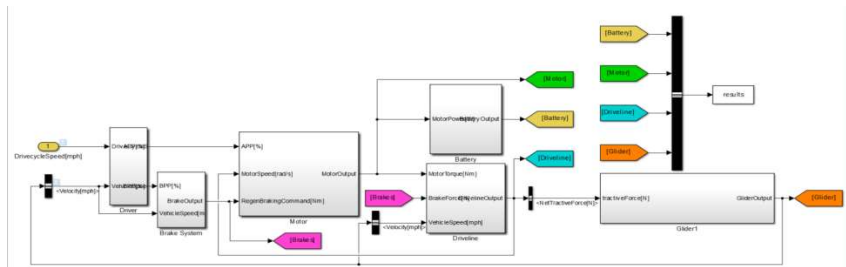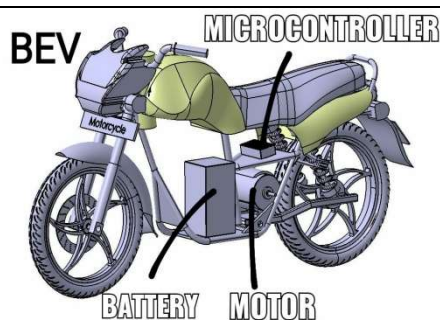
CAD model of BEV showing the packaging and its MATLAB- simulink Model

Conclusion:

BEV can achieve better performance with mainly the following benefits:

Reduction in the use of fuels and Lubricants. It produces fewer direct emissions, thus contributing less to climate change. Cost of ownership is reduced. As a highlight for interested stakeholders and decision makers, we proceed to contrast the problems caused by ICE vehicles and the merits of converting to Electric vehicles.