



Electric Powertrain System Design for Low Weight Urban Motorcycle Prototype

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Abstract: Advances in Electric Vehicle Technology have increased their implementation capabilities. However, there is still a lot of development to be done in terms of development of light weight small port EVs for common city use. In this article a powertrain system design is developed aimed at high autonomy utilizing city track mapping and energy consumption simulations for a low weight motorcycle prototype for delivery services. A digital methodology is used for stipulating energy consumption and power through track mapping utilizing satellite data and field data for sizing all components and structure of the prototype's powertrain. Field data is measured through an inertial platform and the run cycles were then validated and the impact of each cycle evaluated upon energy consumption. Furthermore, with energy consumption and overall power needed, the system was designed to ensure ease of maintenance for common everyday use and accessibility utilizing CAD software and FEA to determine the best ratio between accessibility, cost and mass.

Keywords: This section should contain maximum 5 words separated by commas.