Integration of a Folding Electric two-wheeler vehicle for a future commuting transportation - DTU Orbit (30/09/2019)

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The paper issues the development, building and testing of a Folding Electric Motorbike, a lightweight, low cost and all-electric two-wheeler vehicle taking full advantage on today's city infrastructure. The technology offers drivers to combine transportation methods, lowering cost, and greenhouse gas emission. The paper documents innovative studies on how the technology can be used to explode the today's transportation system and be used to bridge the gap of today's challenges and future solutions. The optimum components to be used in the small, lightweight vehicles are selected based on the technology's functional requirements. The selection of motorbike's drivetrain components is based on the latest available technology, with respect to economic viability. The technologies first two development stages are described. In the first development stage the vehicle's functional requirements are defined. This is followed by a feasibility study and a realization on technologies capabilities. The feasibility study is performed by developing, building and evaluating an alpha-prototype vehicle. The research indicate that the possibility of developing a powerful, light-weight, low cost and all-electric two-wheeler vehicle taking full advantage on today's city infrastructure is very prospective. The alpha-prototype was successfully constructed and is considered to be ready for further laboratory testing and test driving before continuations on a fully designed beta-prototype.

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