



VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Analysis and Development of Electric Microcar with Hub Motors for Cities

ABSTRACT

Increasing environmental concerns, such as global warming and pollutant emissions have made increase in energy efficiency and emission reduction a primary concern for automobiles. In addition, the compounding effects of adding personal vehicles, increasing density of road traffic and intensifying parking difficulties are indirectly promoting proliferation of small-size vehicles in large cities. Electric microcars are the most promising, simplest and energy efficient option with zero tailpipe emission. They are relatively affordable and maneuverable in heavy city traffic with small parking area requirements. A careful analysis required in order to properly evaluate the propulsion system component sizing, vehicle dimension and performance. This project mainly focuses on modeling and analysis of chassis for electric microcar using wheel hub motors, followed by fabrication and testing.

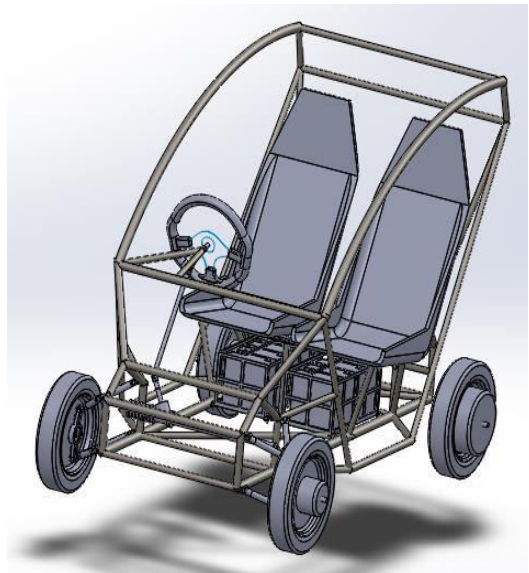


Table 1. Specifications electric microcar using hub motors

Specifications	Electric microcar using hub motors
Electric motor	800 Watt, 48 V hub drive BLDC traction motor, rated torque 33 Nm @ 150 rpm
Battery Pack	23 Ah, 12 V VRLA traction battery – 8 Nos.
Wheel base	1,100 mm
Kerb weight	194 kg
F/R suspension	Double wish bone
R/R suspension	Double wish bone
Maximum speed	50 km/h
Front tyre size	177 mm
Rear tyre size	177 mm
Number of passengers	2
Battery charging time	8 hrs

