

Electric Drive
Optimization

Chong Chee Kang

Outline

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PMBLDC

Shell Eco-Marathon

Problem Statement

Objectives

Methodology

Result

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Conclusion

Future Work

Electric Drive Optimization

Chong Chee Kang

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■ Permanent Magnet Brushless DC motor



Figure: Source: <http://dev.emcelettronica.com/>

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- Race for mileage, not speed
- Category:
 - Urban Concept
 - Prototype
- plug-in electric
- 4 laps with 10 seconds stoppage between each lap

Problems

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- Types of torque produced by PMBLDC
 - cogging torque
 - reluctance torque
 - mutual torque
- Torque ripple
- Poor Strategy

Objectives

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- 1 To identify the output signal of the controller circuit and the hall effect sensor of the PMBLDC and develop a set of instrument for measuring the mileage of the electric vehicle.
- 2 To study the track profile of Sepang North Track and create a simulation program for simulating the vehicle dynamics at the Sepang North Track.
- 3 To compose a set of strategy to increase the mileage of the electric vehicle running on the Sepang North Track based using the simulation program.

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