IEEE VTS Motor Vehicle Challenge 2026

Design of Powertrain and Energy Management Strategy for a Refrigerated Lorry

The Motor Vehicle Challenge (MVC), supported by IEEE Vehicular Technology Society, is an annual activity to find an appropriate energy management strategy to improve electric vehicles' performance. For the first time since the MVC launch, the challenge focuses not only on the propulsion system of a refrigerated lorry, but also on smart planning of its charging schedule. The competition is open to everyone (students, academics, and industry).

THE CHALLENGE

The refrigerated lorry follows a predefined delivery route shaped by speed profiles, cargo weight as well as road slope, and wind conditions. Along the way, it can rely on high- and low-power charging stations, as well as an innovative wireless charging system, to keep its battery powered. And for complete peace of mind, an emergency charging option is always available.

Thereby, the MVC 2026 participants must design a powertrain for a dual-motor refrigerated lorry and develop both the energy management strategy and the charging schedule, while minimizing a given cost function.

Participants of the challenge will be provided with a free-to-use model of the studied vehicle on MATLAB/Simulink, which is then used as a common platform to evaluate submitted solutions fairly. The whole studied vehicle model is implemented in MATLAB/Simulink R2023b using the Simscape toolbox.

PRIZES

Teams that develop the best solution will receive an award consisting of a certificate, an invitation to write and present a paper for the IEEE VPPC 2026, and a grant that supports the expenses related to participation and attendance in the IEEE VPPC 2026:

- First prize: Up to a limit of 3500 US$.
- Second prize: Up to a limit of 1500 US$.

Only VTS members are eligible to receive the grant.

DOWNLOAD

All the material is available on the GitHub repository of the MVC 2026 at (active after IEEE VPPC 2025): https://github.com/VTSociety/MVC_2026

REGISTRATION

Participant can register by using this form available at (active after IEEE VPPC 2025): https://forms.gle/3MTkcwJzZAA31YNd7

IMPORTANT DATES

- Registration deadline: 31st January 2026
- Submission: 1st March 2026
- Results: 31 March 2026

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