

Opportunity for a master thesis – Inverter-Software for an electric race car

Motivation:

The first electric TANKIA was built in 2020, using rear-wheel drive, and now the team is targeting an all-wheel-drive concept, for which a custom-built inverter is required. The inverter power stage is being developed by one of our alumni and we are looking for someone to develop the software for it.

Activities:

- Field Oriented Control of Permanent Magnet Synchronous Motors
- Space Vector Pulse Width Modulation
- Ensure CAN-Bus communication with the vehicle system
- PCB design
- Literature research and selection of the controller
- Development of a real-time system
- Implement error handling
- Testing and optimizing a silicon carbide based inverter
- Cooperation with hardware development
- Design of a user interface to interact with the inverter

Requirements:

- Knowledge of Matlab/Simulink
- Knowledge of modeling/physics
- Knowledge and interest in systems, control engineering and SW development
- Interest in automotive development activities

Organizational Matters:

- Start date: immediately

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