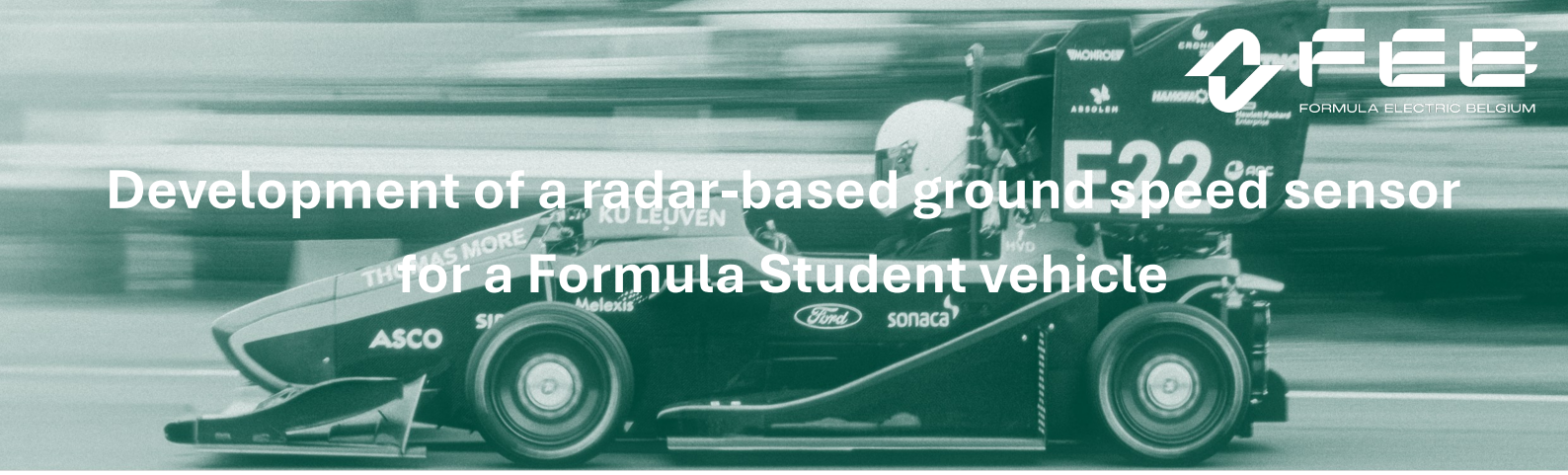

Development of a radar-based ground speed sensor for a Formula Student vehicle

OUR PROJECT

Formula Electric Belgium is a student-run electric race team which competes in Formula Student, the world's largest competition for engineering students. We aim to push the limits of performance, innovation and sustainability within electric racing every year, which is only possible with the help of our Thesis students. These pioneers are responsible for performance-defining innovations within the team, and we would love for you to join our team of highly ambitious and motivated engineers. As a Thesis student, you will research, design, prototype and test your innovations alongside the full-time members which make sure the team pushes itself and the car to new heights.

AIM AND OBJECTIVE

The aim of this thesis is to design and implement a standalone ground speed sensor for a Formula Student vehicle, capable of providing accurate and real-time measurements of vehicle velocity. The system will be based on non-contact technology and will focus on robust embedded electronics design, signal processing, and automotive communication. The project will include the development of firmware to acquire and process sensor data, as well as transmitting the resulting velocity estimates to the vehicle control system. Performance will be validated through laboratory and on-vehicle tests, with a high-accuracy reference system used for evaluation.

Objectives:

- Develop the embedded electronics and sensor interface for high-rate ground speed measurement.
- Implement signal processing algorithms to extract accurate velocity from sensor data.
- Design CAN communication for real-time integration with the vehicle.
- Conduct tests to evaluate accuracy, reliability, and robustness of the sensor system.
- Compare the sensor performance to a reference system and analyze the results.

PROFILE

- Willingness to learn new technologies
- Education in Electronics-ICT
- Experience with PCB design (Preferably Altium Designer)
- Experience with embedded software development

RETURNS

- Practical experience in a high-end engineering context
- Work with the newest technologies and innovative companies
- Developing your hard– and soft-skills in a company-like environment
- Participation in the biggest student competition in the world

INTERESTED?

Send us your contact details and field of interest to

recruitment@formulaelectric.be