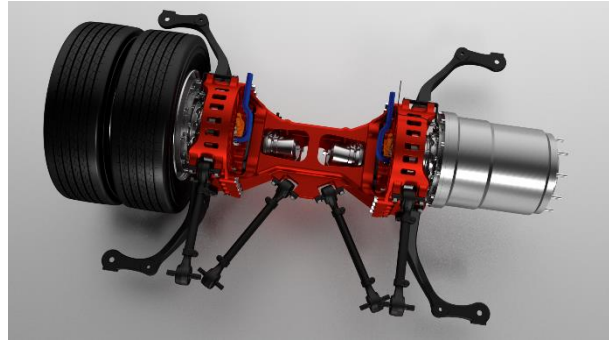


## Internship/Graduation Assignment:

### A multiphase inverter design

Founded in the Netherlands e-Traction offers superior technology in e-mobility and related services that is based on solid expertise and experience. Since 1981 the key focus has been to commercialize and integrate innovative and state of the art e-mobility solutions.

We developed a unique electric in-wheel powertrain technology which offers the essence of pure direct drive power. With our sustainable technology only a bare minimum of components is required to reach the highest efficiency level. The simplicity of our drivetrain is the ultimate sophistication.



#### Assignment description

The common three-phase two-level inverter is most used due to its simplicity. Multiphase inverters can potentially offer desirable benefits as higher efficiency, lower EMI and lower cost. The assignment focusses on defining a figure of merit for an inverter, and challenging the regular three-phase two-level inverter specially with a multiphase inverter which is obtained by parallel connected discrete IGBTs.

#### The assignment can be subdivided in the following parts:

Investigating how to model circuit path of each IGBT and different scenarios of sharing current  
Modelling and simulating the inverter by using a circuit analysis software  
Designing schematic and drawing a PCB for the circuit  
Testing the circuit and deriving conclusions

#### Profile

Preferred Master level engineering, Electrical Engineering specialized in Power Electronics.

For more information regarding this assignment, contact Mert Turhan,  
T. +31 (0)55 521 11 11 - [m.turhan@e-traction.com](mailto:m.turhan@e-traction.com)