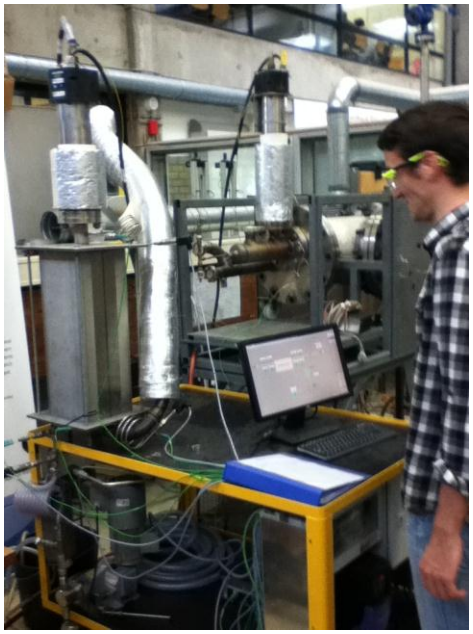
Master project: development of a waste heat driven generator for a hybrid truck

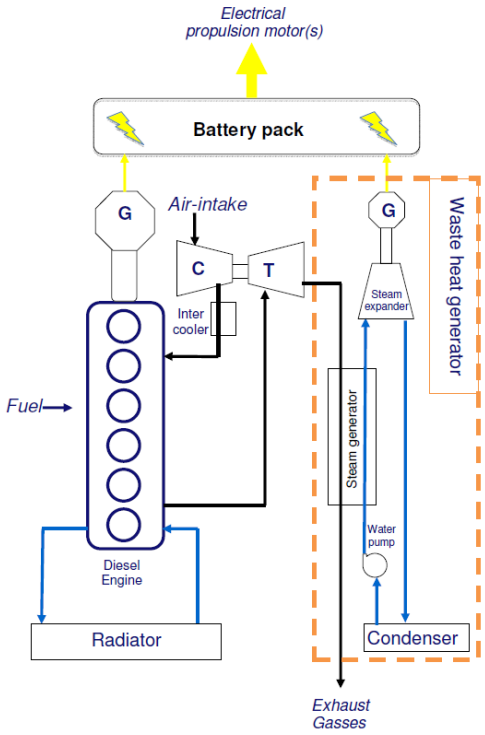
Background

Together with the company Heat Power, Eindhoven University of Technology developed a compact, fast responding and economic once-through steam generator.

Due to its compactness, short start-up time and low investment costs, the once-through steam generator technology will enable waste-heat utilisation with a steam system in decentral and automotive applications, like e.g. ships propulsion and hybrid trucks.



In a lab of the TU/e an experimental set-up of the once-through steam generator (15kW thermal power) was realized. Also a finite volume model of the once-through steam generator was developed.



Goals

- Improve the design of the steam generator and expand the set-up with a micro steam turbine and electrical generator
- Perform experiments to investigate the response to simulated varying exhaust gas flow of a drive cycle
- Expand the model with expander & condenser and develop an operating strategy
- Validate the model and operating strategy with results of the experimental set-up

Assignment

Pursue goals as described in the above. The supervisors and master student together will assess which of the above goals are feasible within this assignment and where the focus of this assignment will be.

Contact: Rick de Lange (H.C.d.Lange@tue.nl) & Henk Ouwerkerk (H.Ouwerkerk@tue.nl)