Division of Sensor Technology and Measurement Systems (SMS)
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Open Master's thesis:

Investigation of Ventilation Control Strategies based upon CO_2-Concentration — Verifying Simulation Results with Measurements

Description:
Demand-controlled ventilation can have great impact on indoor air quality, thermal comfort and heating consumption. The carbon dioxide (CO_2) gas concentration in buildings is one of the major pollutant factor to reduce indoor air quality. In order to improve the indoor air quality, while at the same time reduce the energy consumption in the room, an automatic ventilation system will be necessary. Therefore, the CO_2 concentration in buildings must be measured and appropriate ventilation control strategies implemented to maintain high thermal comfort (temperature variations kept within a small range) and minimize the heating energy consumption.

Activities and objectives:
In the Master's thesis, various ventilation control strategies and methods are to be investigated and their respective advantages and disadvantages are to be compared. The major task is to verify already existing simulation results with measurements, analyze the differences and improve the models used for simulations.

Desirable knowledge and requirements:
A basic knowledge of measurement science, thermodynamics, heat transfer theory, and possibly also of aerodynamics as well as Matlab/Simulink and Labview programming will be helpful in achieving the above-defined objectives in a time-efficient manner.
Applicants should be keen to combine practical work with Matlab/Simulink/Labview programming and metrological evaluation.

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