Bachelor/Master thesis
Am Lehrstuhl für Betriebswirtschaftslehre ist in der Arbeitsgruppe Projekt- und Ressourcenmanagement in der bebauten Umwelt eine Abschlussarbeit zu folgendem Thema zu vergeben:

Literature review:
Sensor-based drone-mounted energy leakage detection and management systems for urban quarters

- Background
The building stock is very material and energy intensive. As a space for living, use and production it massively influences the achievement of energy efficiency and energy transition as well as municipal, national and international climate protection and sustainability goals. The digitalization, the detection of energy leakages and the reduction of energy losses on the scale of urban quarters are a great chance to increase energy efficiency, to invest and reduce energy cost and to meet climate goals.

- Contents of the work
It is the aim of this thesis to conduct a comprehensive literature review on sensor-based and drone-mounted data acquisition of urban quarters. This includes research on applied drones, used sensors, data processing and data use. Furthermore, desk-based research on energy and sustainability management in urban district is part of the work.
Are there any theoretical approaches, or even practically applied systems? What kind of data is used? What data is connected to the infrared data? How is the data processed? Can they be used for identification of quarters or buildings in need of energy retrofitting with positive net present values? How does the data management (interfaces, combatibility) and actualization work (Smart City, etc.)?

The targeted result is a structured review of publications and projects in the field as well as a comparing overview on existing approaches. Resulting research and development needs should be clearly outlined. The elaboration as well as own results and conclusions are to be presented comprehensively within the scope of the work.

- Conditions
The offer aims primarily at students of industrial engineering but also at students of other disciplines. As this work is done in cooperation with the University of Southern California (USC), Los Angeles, the thesis’ language has to be English.

Beginning / Duration
Straightaway / 3-6 Months

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