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Introduction

Logging data as energy on sub-levels, indoor climate and weather can be the foundation for changing the daily process of operating buildings and processes more sustainable. Building management system samples a lot of data, but these are proprietary and access is not possible for students and researchers. Therefore the Campus facilities are equipped with low-cost IOT sensors. Here and at the conference we address these questions: How to utilize the energy data and indoor climate data in a Big Data analysis platform for improving a sustainable Campus? How can the small scale enterprises be involved together with students?

The system

Right now we are logging data from: Parking smart light, electrical meters, weather station, and indoor climate meters. At the conference we present the system shown in the figure below and examples on non-intrusive data loggers, some examples on analysis which can be done by zeppelin notebook[1] [2]
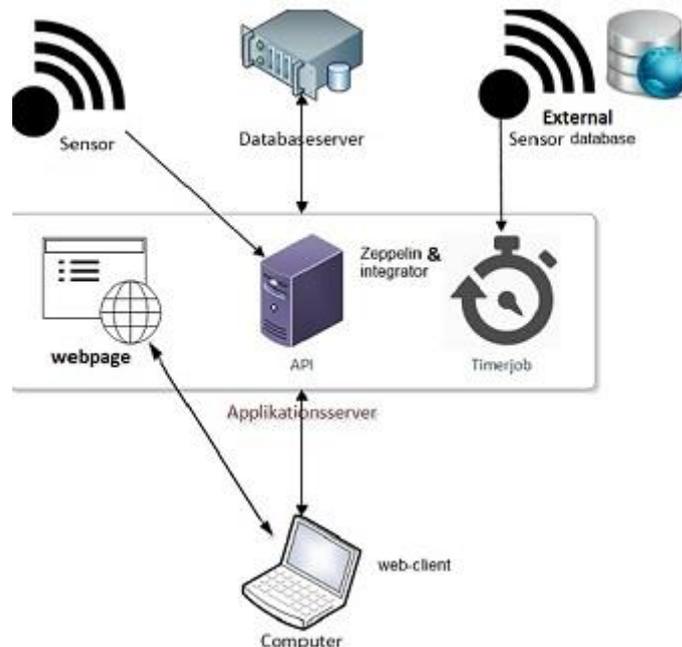
Last semester, three Bachelor of Eng. Students   [3] configured the platform and developed the back-end and front-end and the sensor databases as well. The sensors were developed by the authors (osch, tomb).

This work and platform has a lot of potential and purpose for corporation with the industry and doing CDIO-projects. The system fits with the monitoring and check in energy management in ISO 150001 described in [4]. Currently, we are partner in Sustainable Production in WP41, funded by The Danish Industry Foundation, where the system is a part of the deliverables

References:

[1] Nov. 2017. URL: https://zeppelin.apache.org/.
[2] Carolyn Duby. "Reproducible research at scale with apache spark and zeppelin notebook". Open data science conference (2017).
[3] Hakan Yurdakul Pedersen - S133835 Nicklas Ejberg Storm Jensen - s135274 Abdirazak Mohamud Yusuf - S130599. "Data Samling". 2017.
[4] Danish Energy agency. "Energy Policy Toolkit on Energy Efficiency in Industries Experiences from Denmark". (2015).