



climify.org: Online solution for easy monitoring & control of the indoor environment

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climify.org: Online solution for easy monitoring & control of the indoor environment

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Try it at climify.com - or read more about our solution at <https://doi.org/10.1051/e3sconf/201911105006>

Introduction

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The purpose: CLIMIFY aims at maximizing the occupants' experience in the built environment and at enhancing buildings' performance. We monitor the indoor environment by using data from different sources. Moreover, we collect, directly from the occupants, feedback on the indoor climate. Finally, we control the indoor climate based on the occupancy levels and the real needs of occupants. We enhance the comfort, maximize the occupants' performance, wellbeing and health, save energy, and actively create flexibility that can be offered to the energy grids.

The Problem: Most buildings do not perform as they should. Old buildings, new buildings, retrofit buildings: most of them have issues with indoor environmental quality (IEQ) and energy efficiency. Moreover, the use of renewable energy sources challenges the energy grids: Buildings could play an important role in the near future and help in balancing the energy grids. However, they are still planned as in the sixties, where the usage of buildings was ruled by fixed schedules and modular energy production. BMS systems are usually closed and cannot englobe innovation that arrives in form of IoT sensors and actuators; finally, system from different vendors do not work together. Climify proposes a viable solution to accelerate a smartification of the building stock.

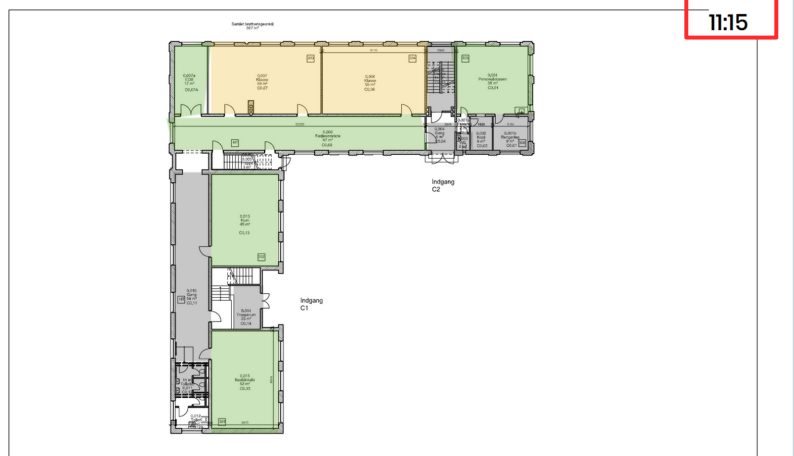
Methodology

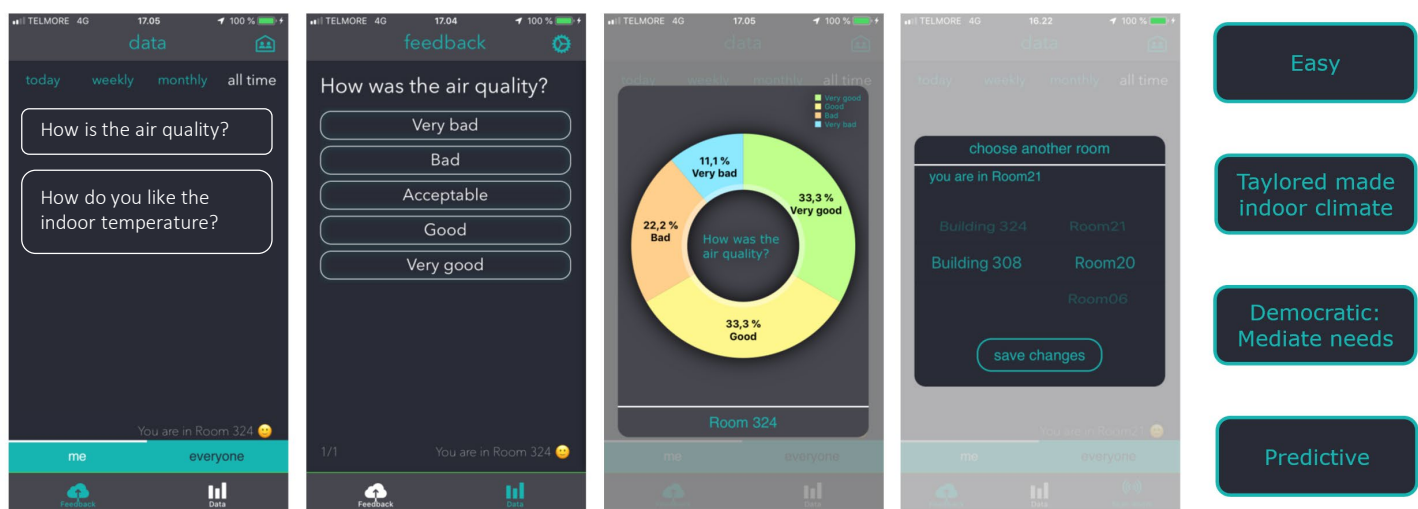
The solution we propose comes at three levels:

1. Monitoring & Debugging of buildings (through the CLIMIFY web platform)
2. Occupants' feedback & easy and predictive control (through the feedback app FEEDME)
3. Flexibility activation

<https://climify.org>

Stueplan - nordbygninger





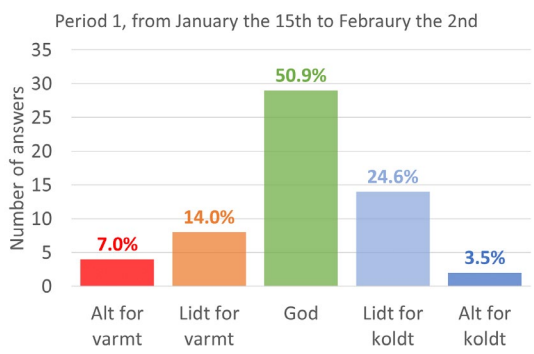
- Easy
- Taylor made indoor climate
- Democratic: Mediate needs
- Predictive

Case study

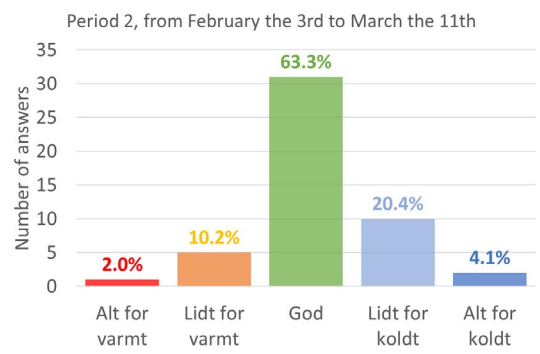
In Høje-Taastrup (Greater Copenhagen area), a school adopted the CLIMIFY and the FEEDME system in 2018 and 2020 respectively. Smart thermostats have been installed, and substituted older manual thermostats, to provide room-wise indoor climate control. The use of CLIMIFY helped the teachers to visualise the indoor climate and objectively evaluate issues related to indoor climate. The use of FEEDME enhance comfort and lowered the running costs for the heating system.

Results

Using smart thermostats increased comfort and decreased energy use. All the classrooms have several radiators, and the old manual thermostats (TRVs) were too often set to diverging settings. Different settings of the TRVs within the same room lead to discomfort (high asymmetries in heat distribution). Moreover, a TRV set to the max provokes a very high return temperature, which causes extra penalties fees to be paid to the DH network. In general, comfort ("good" indoor climate perception) was increased by approx. +24% thanks to the smart TRV control obtained using the data from FEEDME.



Fixed set points control



Set points control based on FEEDME

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