UNIVERSITÄT LIECHTENSTEIN

The Role of Space in Information Systems

Gregor Kipping

What we did

- **Information systems scholars** have been encouraged to become involved in **fighting the pandemic**
- This call was primarily driven by the fact that **digital technologies have proven powerful** to **inform and evaluate policies**
- Space has been playing a key role in all major policies to fight COVID-19

How can we **design a sociotechnical system** for mining space-relevant data to ensure a **healthy life for all people and promote their well-being** as well as recommending actions to **prevent virus transmission in indoor environments**?

Outcomes of this project

- Using the practice-oriented **Design Science Research** methodology, we have developed **a smart space management system** that identifies space-related parameters and provides **effective recommendations**
- Our work is a contribution to solving real-world problems, especially in the context of COVID-19
- Considering the United Nations Sustainable Development Goals, we aim our solution to ensure a healthy life
- We see myriad of possible research directions emerging in response to ubiquitous sensors and data
- Our ongoing research explores the evolving role of space and spatial data for the information systems field

We developed (1) **design requirements**, (2) a **set of design principles**, (3) a **prototype implementation**, and a report on our initial design cycle. The design principles based on the results will be continually revised and the artifact will evolve in a new design cycle to produce solutions for **space mining**.

In analogy to the technology of process mining, **space mining** refers to collecting, mining and **visualizing space-relevant data** to analyze the current situation in a room, e.g., to **prevent the airborne transmission of SARS-CoV-2.**

This is us

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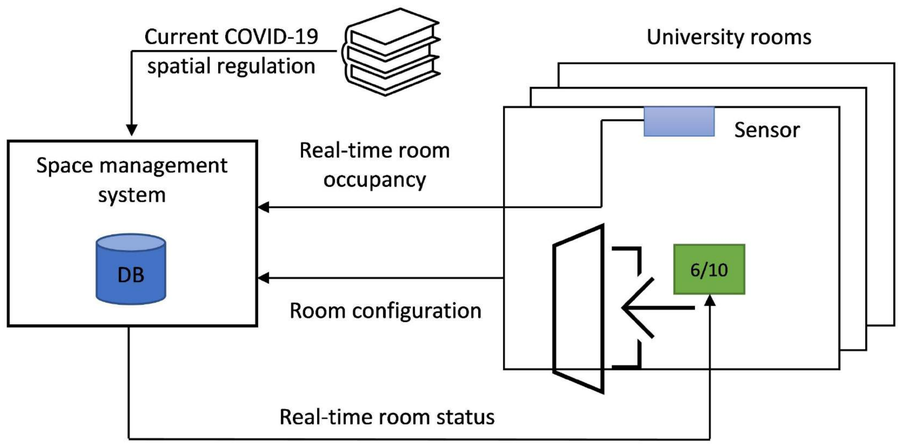
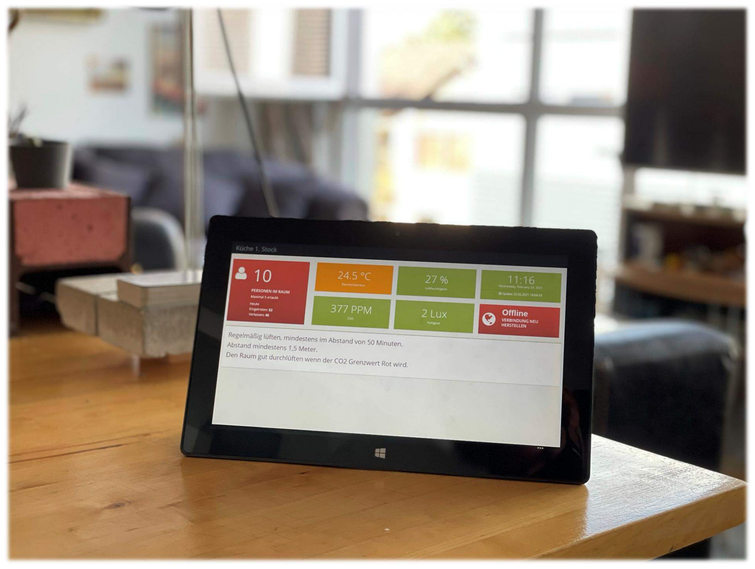
Our space management system architecture



Our prototype and the test environment in the university dormitory, Vaduz, Liechtenstein



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Our first publication

Towards Space Mining: A Smart Space Management Solution to Minimize Indoor Spreading Risk of COVID-19

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Abstract. Policies to fight COVID-19 have largely targeted at indoor spaces. Abundant empirical evidence showed that COVID-19 spreads more easily through aerosols in closed rooms. We have been utilizing Design Science Research (DSR) to develop a smart space management solution that draws from space-related trace data to prevent the spread of COVID-19 in indoor environments. At the heart of our solution is a digital device that mines and visualizes these data to create awareness about the spreading risk of COVID-19 at a given

Forschungsförderungsfonds