

## Master thesis “A sensor network for cable car oscillations”

### Motivation and Informal Description

Oscillations are an important issue when designing and operating cable cars and chair lifts. The consequences of these oscillations range from passengers feeling uncomfortable, faster material fatigue on to fatal accidents. They may arise through external factors such as wind, swinging people etc. as



well as due to internal factors such as a sudden stop of the system, or even just during normal operation due to forces on the rope when people sit down on the chairs or when the chairs get attached to the main rope. Up to this date, these oscillations are not well understood and not controlled automatically. To get a better understanding, we want to build a system keeping track of these movements. In this thesis we target to build a wireless sensor network to measure the accelerations. The work involves a full system development, starting from building the hardware, e.g. selecting the right sensor and case, designing a communication protocol and implementing it on to actually deploying and testing the system on a real chair lift (and/or cable car).

### Requirements

Any student is welcome to apply for the thesis! However, ideally, the student is a hands-on person, who likes building things in a workshop and has already a little bit of experience in building electrical circuits.

Interested? Please contact us for more details!

### Contact

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