Internship project at the University Centre in Svalbard (UNIS)
DIY weather station

Description	With simple meteorological sensors improving in their capabilities and at the same time becoming more affordable, self-made weather stations are getting more and more attractive not only for handymen tinkering around as their hobby. Meteorologists at UNIS want to explore the potential of these low-cost instrumentation for fieldwork in the Arctic, both in terms of quality as well as reliability. The goal of this project is to design and build a weather station from scratch, using low-cost electronics and sensors available at hardware retailers like Adafruit, SparkFun or Arduino. The raw measurements obtained by the meteorological sensors should be processed by a microcontroller included in the station setup. Furthermore, the weather station should be able to communicate wirelessly with a base station in order to transmit data from remote locations. The necessary control software shall be developed by the student. Finally, the student should produce a prototype, test the setup and provide documentation of the whole project, including assembling manuals and user guides. This work will be conducted as part of the research and teaching performed within the Department of Arctic Geophysics at UNIS. All necessary material and a suitable workspace will be provided by UNIS. The candidate is expected to work in Longyearbyen for most of the time period of the project and will get opportunity to test the station during field campaigns. Fig.1: Example setup from http://cactus.io/ Fig.2: Full-scale weather station near Longyearbyen
Tasks	- Review of relevant literature and instruction material - Design of an instrument setup - Development of relevant control software - Production of a prototype (hardware) - Testing hard- and software - Writing documentation on the hardware production, software and usage
Requirements	- Interest in meteorological instrumentation and electronics - Basic skills in soldering and programming (preferably Python) - Independent and reliable work style with a detail-oriented mindset
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