

Ferienakademie 2016

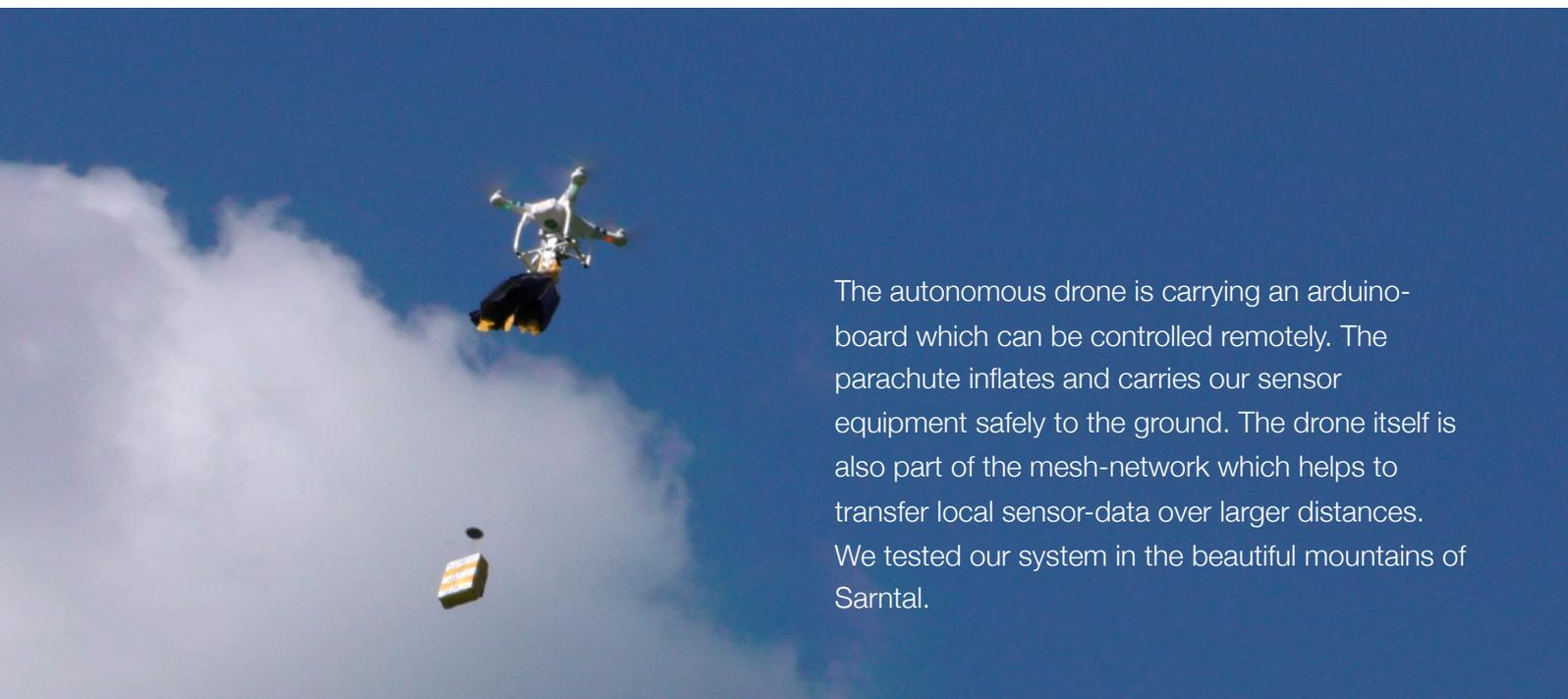
Some insights by Frederik Riedel



Ferienakademie is a voluntary holiday academy organized by three Universities from southern Germany: *Freie Friedrich-Alexander University of Erlangen-Nürnberg (FAU)*, *Technical University of Munich (TUM)* and *University of Stuttgart*. It takes place in Sarntal, which is a beautiful high valley near to Bozen in Italy. Twelve different teams are accommodated in five different hotels: Murrerhof, Feldrand, Rabenstein, Kircherhof and Jägerhof – which are all beautiful places to work and spend time at.

This year I participated in Bernd Brügge's and Daniel Siewiorek's course *Cyber Physical Systems*.

We built a system which can help workers in extreme environments to minimize risks and to identify hazards faster. Our system creates local peer-to-peer mesh-networks which can transfer sensor data from so-called *emergency beacons*. These beacons can be deployed by specially-equipped workers, or from a drone. This can help to collect important environmental data in hazardous environments. Sensors can measure radioactivity, heat, oxygen levels and other essential values.



The autonomous drone is carrying an arduino-board which can be controlled remotely. The parachute inflates and carries our sensor equipment safely to the ground. The drone itself is also part of the mesh-network which helps to transfer local sensor-data over larger distances. We tested our system in the beautiful mountains of Sarntal.



The second part of our project was to develop an intelligent suit that helps workers to navigate in dangerous environments. The suite communicates with our mesh-network and can detect dangerous emergency beacons nearby. This helps workers to avoid dangerous places and find another path instead.

After all it was a wonderful time in Sarntal! It was great to see how much our team could realize in this short period of time – speaking of hiking achievements, hard- and software development.



Ferienakademie is not only work – but also fun, sun, eating and hiking! For example enjoying an afternoon-beer with a local construction worker



Hiking in the mountains surrounding Sarntal is an essential part of Ferienakademie. If you plan to attend a course, don't forget your hiking boots!



Our team in front of our hotel.