



Ruwai - an open hardware seismic data recorder

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The seismic data recorder Ruwai is an experiment to explore the possibility of using open hardware, free software and DIY-oriented hardware assembly for scientific data acquisition and processing under real-life conditions. Ruwai is based on custom built printed circuit boards for analog signal conditioning, analog-to-digital conversion and GPS-based timing of the digitized data and two open hardware prototyping platforms. The Arduino Mega 2560 microcontroller prototyping board is used to control the custom hardware and the BeagleBone Black single-board computer enables extensive data storage, -processing and networking capabilities.

The performance of the system regarding data quality, usability and reliability has been evaluated and the gained knowledge was used to improve the hardware and software of the Ruwai system. Furthermore lessons learned during the development cycle and future development is discussed.