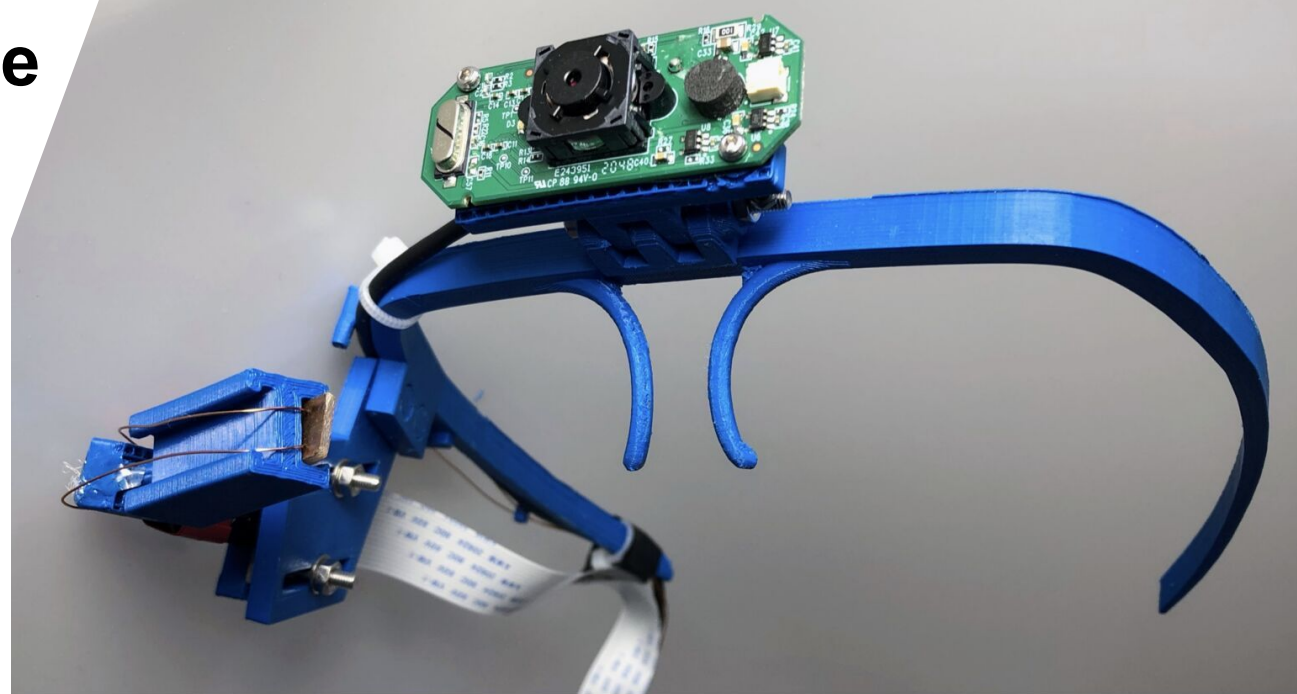


Thesis Topic

An Open-Source & Realtime Embedded Eye-Tracker

- Development of a Python and OpenCV-based wearable system on a Raspberry Pi
- Based on our existing pupil detection system
- Evaluation with two existing state- of-the-art eye tracking systems

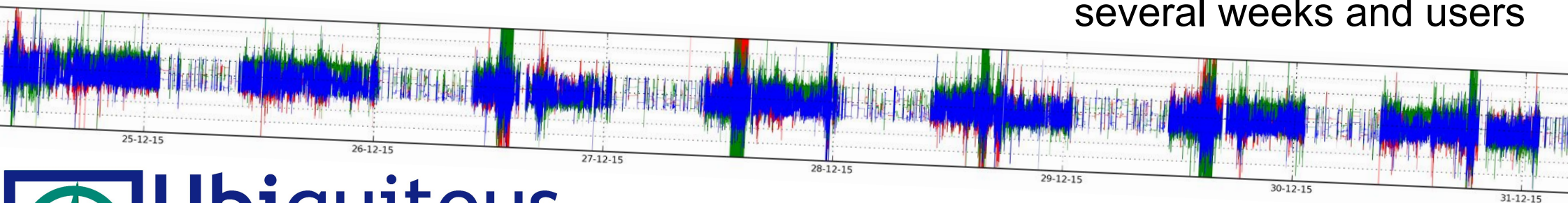
More information in **H-A8110**
kvl@eti.uni-siegen.de





A Wearable Stairs vs. Elevator Detector

- Using the internal barometric pressure and inertial sensor data from the Bangle.js.v2 watch, to detect when the wearer uses the stairs or lift
- Development of an efficient embedded algorithm in the Espruino IDE, an embedded open-source ecosystem to enable long-term operation
- Goal should be to deploy and validate the algorithms in a longitudinal deployment study of several weeks and users



Towards A Medical-Grade Long-Term Activity Sensing Widget

- Develop an embedded Widget that fits in just a few kilobytes and operates in the Bangle open-source smartwatch ecosystem
- Design lossless compression & capture algorithms to acquire and save accurately-timed sensor data from motion and heart rate sensors
- Test your setup on a custom testbench

More information in
H-A8110 or: kvl@eti.uni-siegen.de



LoRaWAN Path Loss Measurements in an Indoor Setting, including Human and Environmental Effects.

- We will design and implement experiments to measure LoRaWAN path loss parameters for indoor settings.
- Analyse the impact of environmental parameters and human presence on LoRaWAN signal propagation based on the acquired dataset.
- To demonstrate usage and significance of the dataset for indoor RF propagation channel modelling.



Thesis Topic

Updating the process to record entry's of the WEAR Dataset

- Implementing Bluetooth synchronisation
- Implementing approximation saving
- Creating a more user-friendly way to convert data
- Compare recording between old and new method



More information in **H-A 8115** or
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