BASIL
Brainwave-driven assistance system for motor-impaired people

A smart home solution that promotes the independence of motor-impaired persons.

Functionality
A base station serves as the central interface of the assistance system.
The system stimulates the brain, measures the reaction in the brain waves, and captures the user’s wish.

Components
Dry Electrodes
- Individually spring-loaded contacts
- Easy to apply on classical EEG cap

Head-Mounted Display (HDM)
- 8 channels
- Measurement rate: 250 Hz
- Excellent signal-to-noise ratio, relatively stable

Base station
- Wireless using BLE (Bluetooth Low Energy)
- Received data stream forwarded via lab streaming layer (LSL)
- SSVEP stimulation (steady state visually evoked potential) with flickering lights
  > evokes the same frequencies in the brain

Schema, Measurement & Application
Platform Schema

Example Measurements
10 Hz SSVEP 12 Hz SSVEP

Use Cases
- Simple operations in the field of home automation, such as turning a light on or off, can be initiated.
- Text input for communication

Project Partner
Sensorik-Bayern GmbH

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