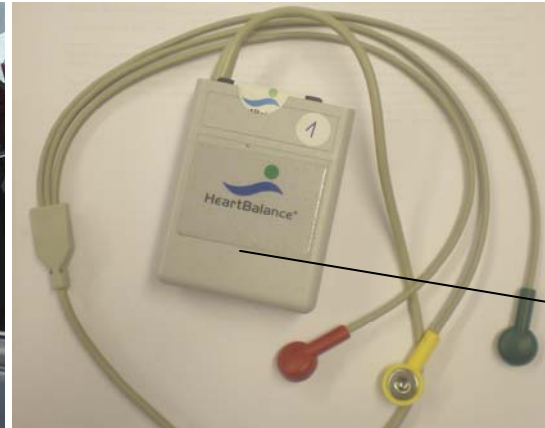


MASTER's THESIS: ECG Analysis while Driving

ECG device attached to the driver (*Bluetooth*)



HeartMan 301 ECG

Problem definition, Approach

- Electrocardiogram (ECG) and related measures (HRV, autochronic image) offer great potential in person psychological state change evaluation
- Measure the influence of several factors of influence on driver's emotional state
- Several small-scale experiments
 - 1) driving through tunnels (in particular for persons with claustrophobia)
 - 2) compare driver workload with copassenger workload while driving on a motorway (200km); changes expected due to concentration on task of driving, getting tired on long distance traveling
 - 3) simulated driving with dual task experiment
 - 4) more situations/scenarios to be developed

MASTER's THESIS: ECG Analysis while Driving

Expected outcome (different results, depending on experiment)

- Changing RR, HRV when driving through a (long) tunnel (further verification: driver compared to co-driver)
- Highway driving: higher RR, HRV variation of the driver compared to co-driver; driver gets faster tired

Prerequisites

- Interest in software/prototype development (Java, C/C++/C#)
- User study: Setup and carry out several (maybe self) experiments
- Good command of English (understanding of related work; Thesis is preferred written in English)
- Typesetting using LaTeX (→ *Miktex*, *TeXnicCenter*) + BibTeX (→ *Jabref*)

Time schedule

- Start: flexible, as of now
- Estimated completion date: within 12 months

Contacts

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