

The MobileCoach – An Open Source Solution for Behavioral Change Interventions

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Purpose: The MobileCoach (MC) project aims to build a fully automated behavior change intervention that aims to improve health behavior. Due to its modularity and open source approach, the MC lays a fruitful ground for researchers and applications in several domains of health behavior change such as smoking cessation, alcohol abuse, nutrition, physical activity or mental diseases.

Methods: Building on the foundations of automata theory, the MC follows the concepts of a state machine that uses intervention rules for state transitions, which can be referred to as a fully automated expert system. Here, the state is an aggregate of all relevant attributes related to the intervention progress of a participant whereas state transitions triggered by intervention rules lead to a change in these attributes. In particular, each participant of the intervention group is assigned to a particular intervention state based on her answers during a baseline assessment. In response to this assessment, a web-based feedback is generated individually by the system for each participant. Then, depending on a participant's regular feedback (e.g. by text messages), intervention rules trigger state transitions and the tailoring of subsequent feedback messages (e.g. text messages).

Results: The MC allows health professionals to create behavioral interventions without any technical programming skills such as a baseline assessment survey, tailored feedback messages or intervention rules. First empirical results of two MC-based interventions (for smoking cessation and the reduction of problem drinking) are presented.

Conclusions: The MobileCoach is a fully automated behavioral intervention system that will be made public as open source project by the end of 2014.