

WLR – Wearable Lifestyle Recommender

Micro-coaching via personalized science-based tips for work & life

Motivation and Goal

Individuals often have to manage many different life domains all competing for attention, time, and energy. Therefore, **managing one's resources well is important to stay healthy and reach goals**. However, while there is a lot of literature on self-management, highly engaged individuals often don't have the time to sort out what is relevant for them. Moreover, habits may interfere with desired changes. Hence, the goal is to support individuals with **personalized micro-coaching to put existing knowledge "in action"** as well as inspire and nudge for positive lifestyle changes.



Key Idea

Smartwatches have proven to be effective in initiating behavior changes, e.g., regarding physical activity. Hence, **smartwatches provide a basis for micro-coaching via personalized and context-sensitive notifications** intended to inspire positive lifestyle changes.

Highlights

Goals (G), interventions (I), and knowledge tips (K) are sent to a smartwatch:

(G) Encourage the user to perform an activity that helps realize a self-set goal, e.g., to plan the week each Sunday evening, **(I)** are triggered if a rule is applicable in the current situation, e.g., if the user wants to walk a specified number of steps daily but has missed this goal until evening, and **(K)** are science-backed actionable tips for self-management practices, e.g., on the positive effect of focus and micro-breaks.

For **personalization and context-sensitivity, user-settings and sensor data are processed on the server**. In this way, tips are not sent when e.g. pulse is very high.



Solution Design

A catalog of over **100 empirically grounded tips** that focus on physiological, behavioral, and mental aspects has been developed along with a concept for personalization. The **recommendation approach is primarily rule-based leveraging various sensor and context data**, e.g., time, weekday, location, pulse, step counter, and calories burnt. In addition, user-defined settings on activity goals and preferences on notification topics, timing, and frequency will be considered for recommendation generation. In technical terms, the WLR is implemented as an **Android companion app**. Notifications are displayed on the smartwatch and the user can give feedback that leads to adaptation of the system.

Future Research

- Features of micro-coaching notifications causing effective and lasting behavior change.
- Optimal parameter settings for notification generation.
- Comparison of different strategies for learning from user feedback.