

Demonstration: A digital coach for self-tracking athletes

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Abstract. In this paper we present a digital coach for runners that provides feedback in an intuitive way, without interrupting the athletes running flow. This is done by giving vibration pulses in combination with visual led feedback. The digital coach is built into a wristband with GPS module, vibration motor and several LEDs. The digital coach is given a personality model according to the DISC coaching model. From the GPS data collected the digital coach should identify which style gives the best results for the athlete.

Keywords: Quantified Self, Coaching, Haptic feedback, Feedback loop, Self-learning systems, Running

1 Introduction

Self-tracking, lifelogging or the quantified self is the phenomenon by which people measure their own behavior or activities using tracking devices [1]. This way they are trying to get insights into their own lifestyle in order to be able to improve it. The most popular category of trackers is fitness and sports related.

The iterative process of measuring, analyzing data and modifying behavior is called a feedback loop [2]. All these measurements delivers a huge amount of data, but data is not necessarily equal to insights. Many existing fitness trackers, like the popular Fitbit and Nike Fuelband, only measure the performance of the athlete, but do not give any feedback. The user must interpret the data himself. Moreover, this data analysis is done only after an activity. Especially for athletes, it is desirable that they get immediate feedback on their performance during exercise. Therefore, we have developed a wearable coaching module for runners. using a combination of tactile sensors and a GPS module, that is able to measure the performance of the athlete using GPS and can give feedback immediate feedback while running, using a vibration motor and LEDs. The digital coach can adapt its behavior to the athlete's personality by altering the frequency and intensity in which it gives feedback. The athlete's personality is determined by using the DISC coaching model.

2 Demonstration

In this demonstration participants will experience the different styles of the digital coach. Participants are asked to wear a wristband (see fig 1), which is equipped with a GPS module, 8 RGB LEDs and a vibration motor. The wristband can provide feedback by vibration impulses, which can vary in intensity, length and frequency.

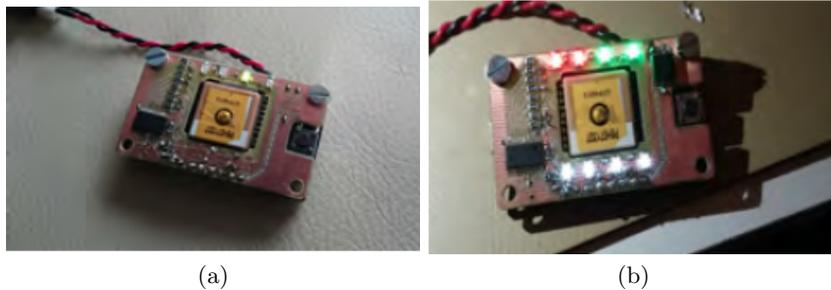


Fig. 1. The digital coach wristband we use in our study contains a GPS module, a vibration motor (a) and 8 RGB LEDs, of which four are white, two are red and two are green (b)

Participants will also be asked to complete a digital questionnaire on a laptop to determine what kind of athlete they are. This questionnaire is part of the DISC coaching theory. This theory distinguishes four styles of personality, ranging from task-oriented to human-oriented, and from direct to indirect.

On the basis of this questionnaire the output of the digital coach is adjusted to that of the athlete. This means that the feedback of the wristband is tuned to the user. In the demonstration the participant is presented various scenarios that a runner might encounter, to which the digital coach will react accordingly.

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