

Sweatcoin: Developing novel algorithms to re-define rewards for physical activity

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All of us want to be fit and healthy and yet over 60% of the UK are classed as physically inactive¹. The vast majority can't find motivation to exercise enough. This lack of motivation to exercise can be explained by the systematic biases towards immediate reward in human behaviour, known as "present bias"². Despite its value in terms of quality of life, the rewards of exercise are long-term and hence from a behavioural aspect are heavily discounted. There is evidence that a combination of user interface elements, financial³ and non-financial incentives for exercise provides the immediate reward, encouraging longer-term motivation and engagement.

Sweatcoin has taken the idea of incentivised exercise and developed an innovative digital platform that makes physical movement valuable and thus solves the problem of motivation to exercise more. Sweatcoin tracks and verifies physical movement and converts it into virtual currency. The currency can subsequently be exchanged for goods and services. Since launch in May 2016, Sweatcoin has 140,000 downloads with a 28% 30-day retention rate (compared to the health and fitness industry average of 4.5%). Importantly, initial results indicate an average uplift of 14% in number of daily steps recorded by Sweatcoin users compared before they had downloaded the app.

In this talk we will discuss a collaborative project between Sweatcoin and The Institute of Digital Healthcare, WMG, University of Warwick. The first part of the project will tackle the current technical challenges the company has identified. This involves broadening the range of activities that can generate currency. Advanced verification algorithms are required to maintain the robustness of the currency such that it can't be 'gamed' by the user (e.g. by shaking the phone). Currently, currency generation is limited to outdoor walking, due to a reliance on GPS signals. The project will collect data on cycling and indoor walking to facilitate the development of new algorithms for these activities. The IDH will verify the algorithms against gold-standard measures, to ensure the validity of the currency is maintained.

The company's philosophy is to encourage those with sedentary lifestyles to become more active and receive instant reward for doing so. Therefore, the second part of the project will involve research into motivation and reward in inactive populations. Focus group discussions will investigate the value of '1000 steps' and what products and services would motivate individuals to earn currency to spend on the market-place.

1. Hallal, P. C. *et al.* Global physical activity levels: surveillance progress, pitfalls, and prospects. *The Lancet* **380**, 247–257 (2012).
2. Camerer, C. F., Loewenstein, G. & Rabin, M. *Advances in Behavioral Economics*. (Princeton University Press, 2011).
3. Mitchell, M. S. *et al.* Financial Incentives for Exercise Adherence in Adults: Systematic Review and Meta-Analysis. *Am. J. Prev. Med.* **45**, 658–667 (2013).