Computer Science NEA

REBORN — An adaptive Habit Tracker

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"Civilization advances by extending the number of operations we can perform without thinking about them." — A. North Whitehead

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1 Introduction

"Make it so easy you can't say no."

James Clear, Atomic Habits [1]

Modern digital systems increasingly compete for human attention through algorithmic optimisation, yet provide little computational support for helping users regulate behaviour and build sustainable habits. Many widely used platforms prioritise engagement over user agency, contributing to inconsistent routines and behavioural instability.

This project, **REBORN**, aims to build an intelligent habit-tracking system that automates scheduling, analyses behavioural risk, and dynamically adapts difficulty. When software handles the heavy planning, users can focus their energy on execution.

2 Analysis

2.1 Problem Definition

Many people experience *self-regulation failure* - they want to improve, but the cognitive effort needed to plan and continuously maintain habits often leads to burnout [2], [3]. Technology is not only the largest source of procrastination, but also doesn't provide intelligent ways to reduce this problem [4]. Habit formation, therefore, is both a computational challenge and a psychological one. Tools that can automate planning, predict high-risk periods, and adapt interventions in real time are therefore necessary.

2.2 Users

The primary users of REBORN are students, especially those studying multiple A-Levels and struggling with procrastination and the mental load of planning habits. For this group, automation and predictive intervention allow them to focus on doing the habits instead of organisation.

The system is also intended for a larger audience, such as:

- Professionals who need structured routines and work-life balance.
- Individuals maintaining regular fitness or health-related habits.
- Users interested in general self-improvement and long-term behaviour change.

All of these user groups experience forms of self-regulation failure, where manual habit tracking can lead to cognitive overload and burnout.

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References

[1] J. Clear, *Atomic Habits: An Easy & Proven Way to Build Good Habits & Break Bad Ones*, English. New York, NY, USA: Avery, an imprint of Penguin Random House, 2018, p. 320, First published October 16, 2018; Hardcover edition; Bestseller on habit formation, ISBN: 9780735211292 (cit. on p. 1).

[2] R. F. Baumeister and T. F. Heatherton, "Self-regulation failure: An overview," *Psychological Inquiry*, vol. 7, no. 1, pp. 1–15, 1996, Foundational theoretical review defining mechanisms of self-regulation failure across domains. DOI: 10.1207/s15327965pli0701_1 (cit. on p. 2).

[3] R. F. Baumeister et al., "Ego depletion: Is the active self a limited resource?" *Journal of Personality and Social Psychology*, vol. 74, no. 5, pp. 1252–1265, 1998, Classic empirical paper proposing limited self-control resources; central to burnout and sustained effort arguments. DOI: 10.1037/0022-3514.74.5.1252 (cit. on p. 2).

[4] F. M. Sirois, M. L. Melia-Gordon, and T. A. Pychyl, "Procrastination, stress, and chronic health conditions: A temporal perspective," in *Procrastination, Health, and Well-Being*, F. M. Sirois and T. A. Pychyl, Eds., Frames procrastination as a self-regulation failure with downstream health consequences, San Diego, CA: Academic Press, 2016, pp. 67–92. DOI: 10.1016/B978-0-12-802862-9.00004-9 (cit. on p. 2).