

# **FLEX: ENHANCE USER ENGAGEMENT IN PHYSICAL ACTIVITY APPLICATION USING ADAPTIVE GAMIFICATION**

A dissertation submitted in partial fulfilment of the requirement for  
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## Abstract

Engagement in physical activity application is major concern. Several methods have been tested to increase user engagement. Gamification is one of the techniques that has been used. However, studies have shown that user motivation and engagement cannot be improved for every user due to personality differences, user type differences, age differences, gender, and so on. It is expected that by incorporating adaptive gamification using Bartle's user type into this project, user engagement will increase.

The suggested system uses adaptive gamification and the game elements that are used in the prototype are according to the Bartle's user type that the user selects. To make the prototype more engaging the author has developed the prototype with an eye-catching user interface. To evaluate the prototype and to evaluate whether the game elements that are being used according to the user type had a positive impact, a questionnaire was sent to the target audience and the feedback from the domain experts were also taken.

The functional and non-functional requirements were tested, and the results were satisfactory. Domain-level experts, software engineers, and common end-users were also involved in the evaluation process. The evaluation results aided in identifying the project's strengths and weaknesses, as well as future improvements that are required. The enhancement of the user engagement is proven in this research.

**Keywords:** User engagement, gamification, adaptive gamification, Bartle's user type