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EXTENDED ABSTRACT

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Universiti Teknologi MARA Cawangan Melaka
International Jasin Multimedia & Computer Science Invention and Innovation Exhibition
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LetsGoFit Unlocked: Revolutionizing Wellness with Gamified Mobile Health

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***Abstract*— Mobile applications have emerged as valuable tools to promote physical well-being in an era marked by the fusion of technology and health-conscious lifestyles. Despite the growing awareness of the importance of exercise and stretching in maintaining health, many women struggle to find accessible and personalized solutions to incorporate regular physical activity into their lives. Existing fitness apps often lack tailored stretching exercises for women, leading to a gap in addressing their unique physiological requirements. Therefore, we developed a women's stretching exercises application called *LetsGoFit*, which combines the convenience of mobile technology with the engaging elements of gamification to create a user-friendly and enjoyable exercise experience. The gamified mobile health implemented Rapid Application Development (RAD), providing a flexible and iterative approach to software development that emphasizes rapid prototyping and continuous feedback. The development of *LetsGoFit* is based on the GMHealth framework that consists of eight themes: *Self-Representation, Self-Monitoring, Esteem, Enjoyment, Continuous, Guidance, Socializing* and *Improvement.* In conclusion, *LetsGoFit* represents a novel approach to promoting women's health through a gamified mobile health application. The accessibility of a mobile application with aspects of gamification empowers women to maintain their stretching exercises, contributing to improved physical health and overall quality of life.**

Keywords*— mobile health, gamification, engagement, Rapid Application Development, gamification framework

I. INTRODUCTION

In the digital age, health and wellness have never been more important. Gamification is a fascinating and innovative approach that applies game design elements in non-game contexts. It aims to engage and motivate individuals to achieve their goals while enhancing their overall experience [1][2]. *LetsGoFit* is a gamified mobile health application designed to revolutionize how people engage with their fitness and well-being. Gamification in healthcare is a growing trend that leverages game principles and mechanics to encourage patients or healthcare app users to increase user engagement and improve healthy habits [3], [4], [5]. It can be as simple as prompting them to take medication on time, stay active, or take a lab test when needed. This innovative app will combine the power of technology, behavioural psychology, and gaming elements to make health and fitness a fun and rewarding journey. The *LetsGoFit* app motivates users to adopt healthier habits, stay active, and prioritize their well-being.

II. OBJECTIVES

The project aims to design and develop a *LetsGoFit* mobile health (m-Health) application to motivate individuals to adopt healthier habits, stay active, and make well-being a top priority in their lives. By blending gamification features, this application will turn the pursuit of a healthier lifestyle into an exciting, rewarding, and habit-forming journey. In accomplishing the main aim, the following specific objectives need to be achieved: 1) to design a user interface of *LetsGoFit* m-Health that implements gamification features, 2) to develop a *LetsGoFit* m-Health and 3) to evaluate the engaging experience in *LetsGoFit* m-Health.

III. SIGNIFICANCE

Gamification principles integrated into *LetsGoFit* make the pursuit of health fun, engaging, and sustainable. Users are motivated by rewards, challenges, and friendly competition, which keeps them returning for more. This sustained motivation leads to healthier habits and improved quality of life. Here, the profound significance of *LetsGoFit* in today's world is:

LetsGoFit empowers individuals to take control of their health and wellness journeys. By providing personalized fitness plans, health tracking, and a range of engaging challenges, it fosters a sense of ownership over one's well-being. This empowerment translates into healthier lifestyles and reduced healthcare costs, contributing to the overall improvement of public health.

LetsGoFit leverages behavioural psychology to encourage positive change. Through gradual progression and tailored plans, it assists users in forming lasting habits that extend beyond the app. Consistency in exercise and healthy choices aids in preventing chronic diseases and promoting mental well-being.

LetsGoFit has the potential to reduce healthcare costs significantly by promoting preventive health measures and encouraging early intervention. Preventing chronic diseases and promoting a healthier lifestyle can alleviate the burden on healthcare systems and improve overall economic well-being.

LetsGoFit is designed to be accessible to people of all ages and fitness levels. Its user-friendly interface, personalized plans, and varied challenges ensure that anyone can participate, regardless of their current state of health or fitness. This inclusivity promotes equity in health and well-being.

LetsGoFit a sense of community and social support, crucial components of health and well-being. Users can connect, share achievements, and collaborate with peers, creating a virtual support network. This social interaction enhances accountability, reduces feelings of isolation, and strengthens mental resilience.

As a pioneering mobile health application, *LetsGoFit* represents a significant innovation in the digital health sector. It showcases the power of technology to address pressing health issues and provide accessible solutions for individuals worldwide.

IV. METHODOLOGY

Rapid Application Development (RAD) methodology is being implemented in this project because it provides its potential to expedite development, enhance user satisfaction, and adapt to the ever-evolving health and fitness landscape [6]–[8]. RAD is well-suited for projects like *LetsGoFit* that require agility, frequent iterations, and a focus on user-centric design. Fig. 1 shows the phases of the RAD methodology.

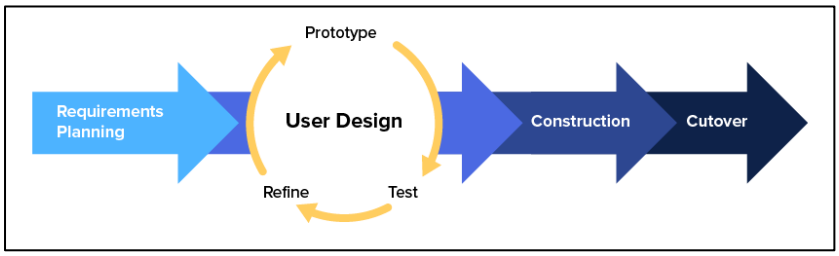

Fig. 1. Example of a figure caption.

Moreover, RAD methodology consists of four phases, including *Requirement Planning Phase*, *User Design Phase*, *Construction Phase,* and *Cutover Phase.* Each phase comprises its flow and process that executes RAD with a well-defined plan and strong project management to maximize its benefits. Fig. 2 shows the scene's part produced during the *User Design Phase*.

The RAD methodology implemented for the *LetsGoFit* project is a wise and promising decision. RAD is particularly suitable for projects like *LetsGoFit*, that require agility, frequent iterations, and a focus on user-centered design. Here is some feedback on the adoption of RAD for this project:

i. Speed and Flexibility:
RAD is known for its ability to accelerate development timelines. This scenario is crucial as the health and wellness industry is dynamic, and the faster you can get a functional product to market, the better. RAD's iterative approach allows for quick adjustments based on user feedback, ensuring that the app remains relevant and competitive.

ii. User-Centric Design:
RAD places a strong emphasis on involving end-users throughout the development process. For *LetsGoFit*, this means actively engaging health-conscious individuals and fitness enthusiasts to understand their needs, preferences, and pain points. This approach ensures that the app aligns closely with user expectations, increasing user satisfaction and retention.

iii. Adaptability to Changes:
Given the evolving nature of technology and user demands, RAD's flexibility is a valuable asset. It allows the development team to adapt to changing requirements, incorporate new features, and address emerging trends in health and fitness seamlessly.

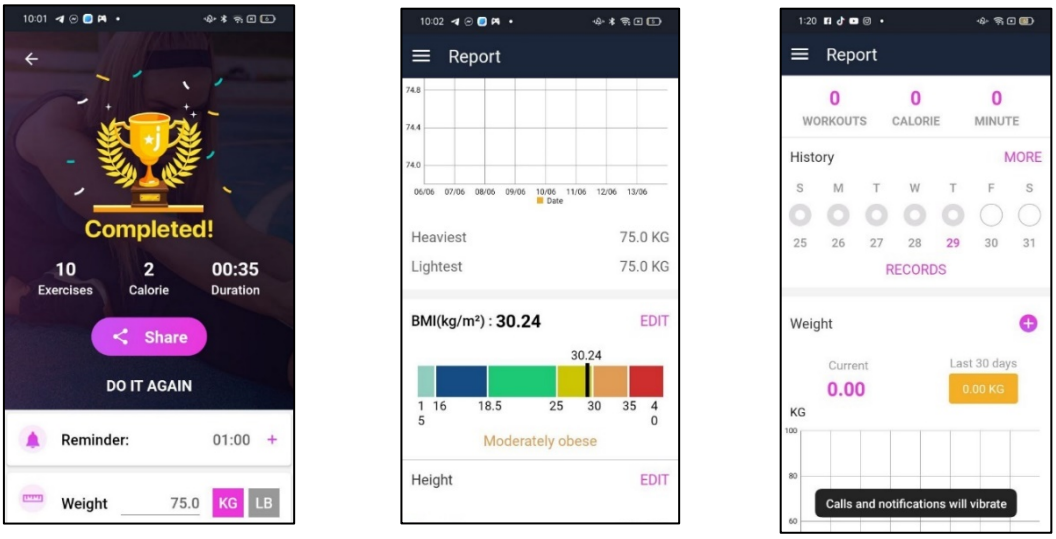

Fig. 2. Part of the user interface design in *LetsGoFit*

V. CONCLUSIONS

In conclusion, the *LetsGoFit* project represents an exciting and innovative endeavour in mobile health applications. By harnessing the power of the Rapid Application Development (RAD) methodology, we are poised to revolutionize the way individuals engage with their health and wellness. The significance of this project extends beyond its potential to impact individual lives; it can reshape our approach to well-being and promote a culture of health-consciousness.

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REFERENCES

[1] A. Khaldi, R. Bouzidi, and F. Nader, "Gamification of e-learning in higher education: a systematic literature review," *Smart Learning Environments*, vol. 10, no. 1, p. 10, 2023, doi: 10.1186/s40561-023-00227-z.

[2] J. Majuri, J. Koivisto, and J. Hamari, "Gamification of education and learning: A review of empirical literature," in *Proceedings of the 2nd international GamiFIN conference, GamiFIN 2018*, CEUR-WS, 2018.

[3] A. E. J. van Gaalen, J. Brouwer, J. Schönrock-Adema, T. Bouwkamp-Timmer, A. D. C. Jaarsma, and J. R. Georgiadis, "Gamification of health professions education: a systematic review," *Advances in Health Sciences Education*, vol. 26, no. 2, pp. 683–711, 2021, doi: 10.1007/s10459-020-10000-3.

[4] S. Al-Rayes *et al.*, "Gaming elements, applications, and challenges of gamification in healthcare," *Inform Med Unlocked*, vol. 31, p. 100974, 2022.

[5] A. E. J. van Gaalen, J. Brouwer, J. Schönrock-Adema, T. Bouwkamp-Timmer, A. D. C. Jaarsma, and J. R. Georgiadis, "Gamification of health professions education: a systematic review," *Advances in Health Sciences Education*, vol. 26, no. 2, pp. 683–711, 2021.

[6] I. A. Ramadhani, A. Asrul, and N. Nurteteng, "The Use of Rapid Application Development (RAD) Method in New Students Registration Information System: Case Study in Education University of Muhammadiyah (UNIMUDA) Sorong," 2021.

[7] G. W. Sasmito, D. S. Wibowo, and D. Dairoh, "Implementation of rapid application development method in the development of geographic information systems of industrial centers," *Journal of information and communication convergence engineering*, vol. 18, no. 3, pp. 194–200, 2020.

[8] P. Beynon-Davies, C. Carne, H. Mackay, and D. Tudhope, "Rapid application development (RAD): an empirical review," *European Journal of Information Systems*, vol. 8, no. 3, pp. 211–223, 1999.

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