

ABSTRACT

People believe that exercise has many benefits for health and immunity. WHO (World Health Organization) recommends all adults aged 18-64 years to exercise. According to the Central Agency, in 2021 27.14 percent of the population aged 5 years and over will do sports. Static bicycles are widely used in ergometer activities by paying attention to frequency, duration, and intensity to refer to fitness benchmarks.

In this study, a monitoring system based on the Website and the Internet of Things (IoT) was built using a static bicycle called Healthy Bike to unify sports activities such as speed, average speed, mileage duration, RPM, cadence, and calories burned. This tool aims to monitor the development of sports activities of static bicycle users and a means of presumption to monitor public health by uniting all users based on the Body Mass Index (BMI) graph of a community group with media sites equipped with gamification techniques with elements used in the form of points, levels, leaderboard, badge. Researchers also tested system performance in the form of QoS measurements.

The results of functionality testing, all the features contained in the static bicycle monitoring website can be accessed by users and admins. The results of gamification testing for websites are carried out subjectively using QoE with an index value of 4.67 or equivalent to Very Good. The results of the Quality of Service (QoS) test on the latency test are 0.17707 s when charged by 100 users, 0.19187 s when charged to 200 users, 0.22386 s when charged to 300 users, equal to 0.27434 s when charged to 400 user, of 0.36882 s when charged by 500 users. Whereas in the throughput test it was 9.8 kbps when charged to 100 users, 8.0 kbps when charged to 200 users, 7.3 kbps when charged to 300 users, 6.7 kbps when charged to 400 users, and 5.2 kbps when charged 500 users.

Keywords: Static Bike, Gamification, Internet of Things, Public Health