FITNESS CYCLE CHALLENGE

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A project report submitted in partial fulfillment of the requirements for the award of the degree of Diploma of Electrical Engineering (Electronics / Telecommunications / Instrumentations / Computer)

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"I declare that this report entitled "*FITNESS CYCLE CHALLENGE*" is the result of my own group research except as cited in the references. The report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree."

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ABSTRACT

Fitness Cycle Challenge uses the similar concept of *indoor bicycle trainer* which a bicycle is modified into indoor cycle equipment with the aid of special stand. The stands have several types respectively according to its application. One of them includes load that can count the rpm of the cycle. However, a new modification and specification has been added to *Fitness Cycle Challenge* Project that involves entertainment and fitness concept. Instead of just using load, *Fitness Cycle Challenge* uses dynamo to charge the main circuit that control the operation of the game system. This project is based on three main objectives; to help people stay fit while having fun, to promote green technology, and to introduce new improvement to virtual entertainment gadgets. Using IR sensor, the speed of the bicycle is measured and calculated by a microcontroller called Arduino Fio to be transmitted to a laptop or monitor via wireless. The wireless communication is done via a pair of X-Bee Pro modules. Furthermore, the readings gain by the Arduino Fio can be monitored and used for another application for various interfacing action. In other words, the parameters can also be used in virtual games. By the involvement of a coin sensor system, the project became more interesting as it practices arcade concept in which income can be generated in a way of having fun, staying fit and green. Further improvement in hardware design and software application can be applied for future development.

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