

This has given rise to online virtual training platforms such as Zwift, that aim to fill the gap connecting indoor cycling and the excitement of competitive cycling. Zwift is an interactive racing and training platform that allows cyclists to see immediate feedback as they pedal their training bike in the form of a personal, in-game avatar. The platform also allows users to socialize and compete with other users in real-time training rides or races. This adds the excitement and social aspect that is needed for indoor cycling to appeal to a wider range of people in modern times.

In order to use the Zwift platform, you need a compatible trainer or training device in order to send riding information to Zwift and to receive feedback that will adjust the riding experience based on the virtual circumstances in order to simulate a realistic riding experience. These trainers are very expensive and thus not very accessible to many consumers. This project aims to demonstrate the development, design and testing of an inexpensive smart bicycle trainer that is compatible with the Zwift platform.

The project, conducted by Mr D.C. Eksteen as part of Mechatronic Project 475 for the Department of Mechanical and Mechatronic Engineering at Stellenbosch University, stems from a proposal by Dr G. Venter, who oversaw the project under his guiding supervision.