MECHATRONIC PROJECT 478:
EXECUTIVE SUMMARY

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Title of Project
Development of an Affordable Zwift Enabled Smart Bicycle Trainer
Objectives
• Design and build an inexpensive bicycle trainer with controllable resistance • Design and implement software for connecting and interfacing with Zwift • Test and calibrate the resistance and connectivity of the trainer
What is current practice and what are its limitations?
• Commercial smart trainers that are compatible with Zwift are very expensive and thus inaccessible to many consumers • Accessories such as training tyres and additional cassettes also add to the costs of many available trainers
What is new in this project?
The project will develop a focused product, that will be inexpensive, simple and intuitive to use and easy to maintain
If the project is successful, how will it make a difference?
The developed trainer will make the Zwift training experience more accessible and affordable to a wider range of consumers. The trainer will also not need many accessories to use, and will be usable by many different types of bicycles
What are the risks to the project being a success? Why is it expected to be successful?
• Connectivity with Zwift: There is a risk that Zwift will require proprietary software in order to connect hardware to the platform • Supply and manufacturing of components. There is a global shortage of components and manufacturing may be expensive and time consuming
What contributions have other students made?
• There are various different examples of non-smart trainers on the market, which will serve as examples of what technologies work with similar products • There are some examples of developed BLE connectivity, as well as some libraries to enable the use of python in the development process