2.2.1 ANT+ Fitness Equipment - Control

ANT+ was developed and marketed by ANT Wireless. It is a sensor network technology that allows for communication between sensors and monitors, and is primarily used for activity tracking. The propriety nature of the ANT+ technology meaning that a specific ANT+ dongle is required for implementation makes this protocol less ideal for this project as it limits the accessibility of some possible future development and implementation.

The ANT+ FE-C protocol was developed specifically for smart training equipment from the ground up, and thus provides a good low energy solution to many manufacturers. The FE-C protocol is the only ANT+ protocol that is supported by the Zwift application at the time of writing. ANT+ hardware is required by both the device where Zwift is installed, as well as the training platform.

2.2.2 BLE for Fitness Devices

BLE is one of two standards for Bluetooth communication that has been developed and is maintained by Bluetooth Special Interest Group (BSIG).* The specific details of the technology and standard is discussed in Section 2.3. For the sake of Zwift requirements, this section will look at the specific protocol of the BLE specification that Zwift supports.

When Zwift was initially launched, all of the Bluetooth communication was performed using proprietary protocols provided by the manufacturers of trainers and training equipment as there has not yet been a standard protocol defined to specify Bluetooth communication of controllable sports equipment.

On 14 February 2017, BSIG adopted the FTMS protocol to the BLE Generic ATTribute Profile (GATT). Then, in late 2021 Zwift announced that they will be supporting FTMS in their latest update, and thus any new trainer that would like to interact with the Zwift platform would be required to follow the FTMS protocol as is discussed in Section 2.3. (Zwift Forums)

*Other standard being Bluetooth Basic Rate/Enhanced Data Rate (BR/EDR)