

Group Fitness with G.FIT



Mike Rounding
Product Manager

History

- Fit1e
 - FIT2
- } Get data from consoles to watches and
leaderboard apps in group settings



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 - FIT2
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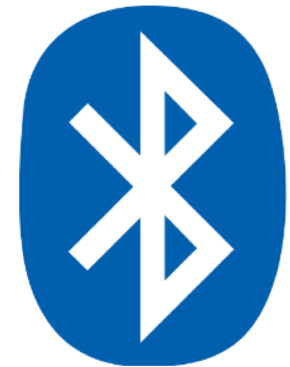


3rd Generation enabling wireless fitness equipment

G.FIT & Group Fitness Vision

Provide a turnkey dual-protocol
ANT+ certified / Bluetooth® low
energy (BLE) qualified solution for
wireless fitness equipment and
smart bike trainers

- 50+ devices in gyms
- Smart trainers and training apps



Overview

- History & vision
- Use Cases
 - Fitness Equipment
 - Smart Bike Trainers
- Wireless Standards
- Full Solution Overview
- Integration & Pairing Options
- Wrap-up





G.FIT Use Cases

Use Cases

JOE E ♥ 136 ▶ 186 72%	HEATHER A ♥ 160 ▶ 210 80%	JIM P ♥ 130 ▶ 180 73%	ALISON M ♥ 126 ▶ 156 66%	SAM R ♥ 172 ▶ 193 92%
CONNER I ♥ 142 ▶ 196 74%	KRIS G ♥ 135 ▶ 182 72%	PAUL E ♥ 124 ▶ 176 63%	DAGMAR D ♥ 137 ▶ 179 71%	WENDY B ♥ 123 ▶ 177 62%
SCOTT E ♥ 155 ▶ 186 72%	DANIEL K ♥ 160 ▶ 180 80%	JENNIFER T ♥ 130 ▶ 180 73%	BRIAN L ♥ 126 ▶ 156 66%	SUE J ♥ 172 ▶ 193 92%
JULIE C ♥ 130 ▶ 180 63%	PAUL W ♥ 136 ▶ 180 63%	MARK C ♥ 130 ▶ 180 73%	LORI H ♥ 145 ▶ 180 73%	KIM B ♥ 130 ▶ 180 73%

gfit

♥ 130
180W
25:02

ANT+

Bluetooth

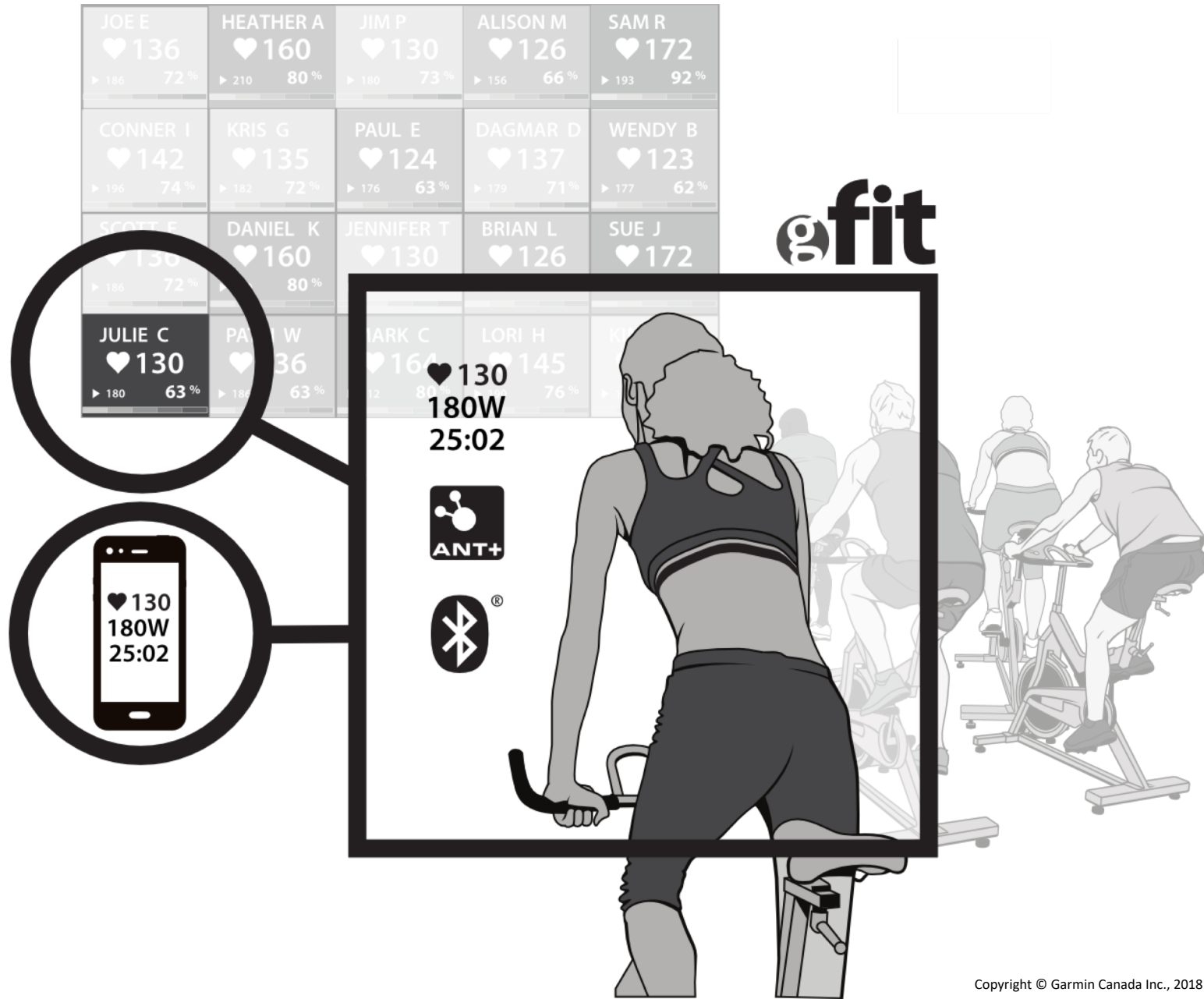
♥ 130
180W
25:02

♥ 130
180W
25:02



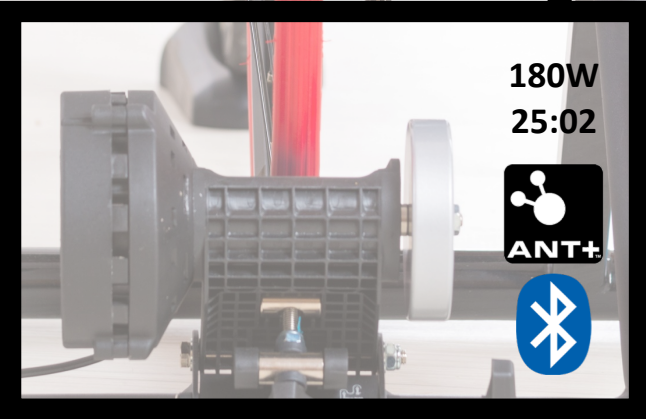
Fitness Use Case

- Fitness equipment in group settings
- ANT+ & Bluetooth® Support (broadcast-only)
 - ANT+ HR, FE-C
 - Bluetooth FTMS, HRS



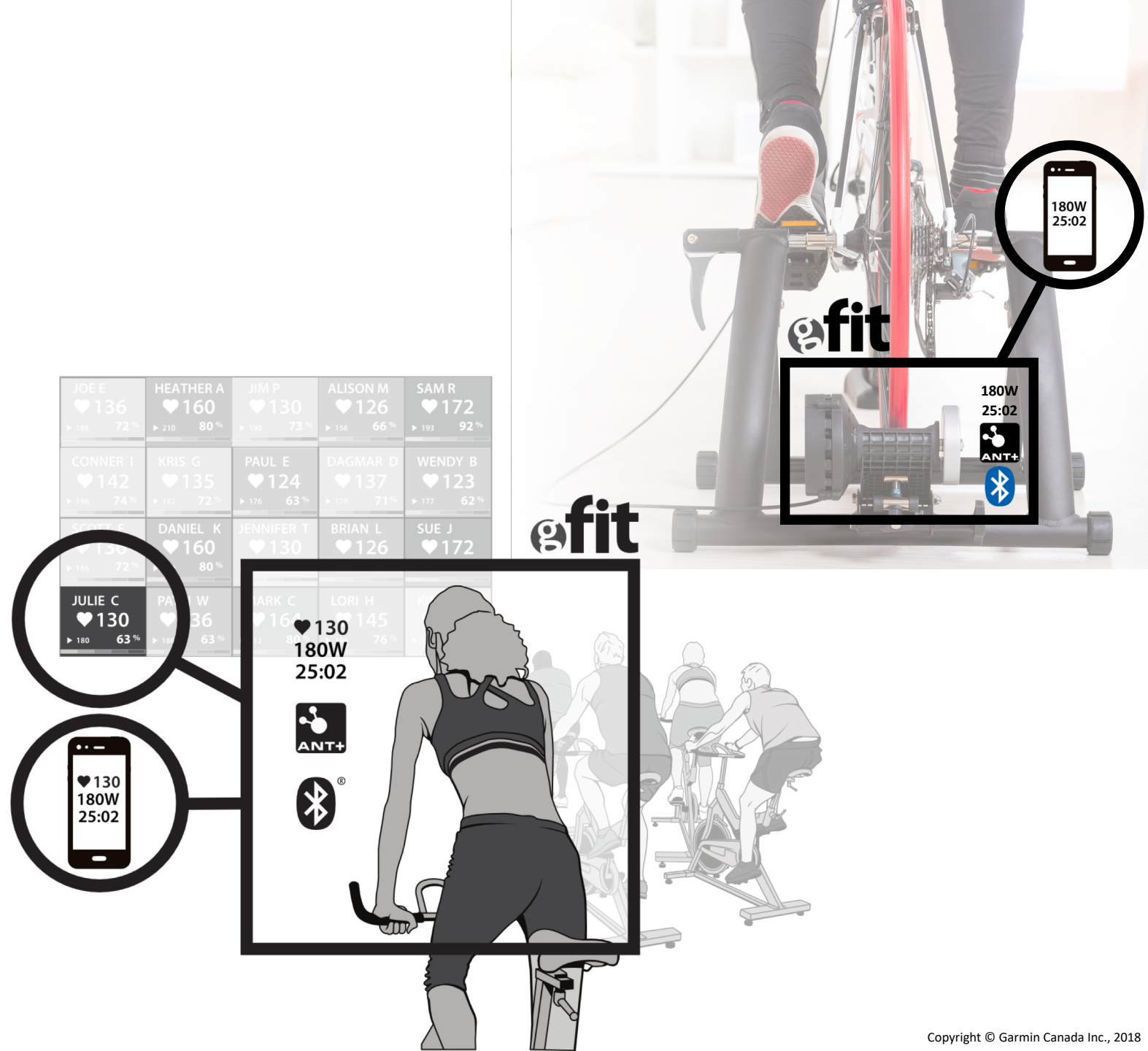
Trainer Use Case

- Dual protocol smart bike trainer applications
- ANT+ & Bluetooth® Support (with control)
 - ANT+ FE-C
 - Bluetooth FTMS
 - Dual-protocol HR for future applications



G.FIT Features

- High co-ex (50+ devices)
- Dual-protocol HR support
- Dual-protocol workout data broadcast
- Dual-protocol trainer control
- Leaderboard and personal device connections
- Future-proof via firmware updates
- ANT+ certified, Bluetooth® qualified
- Flexible Integrations



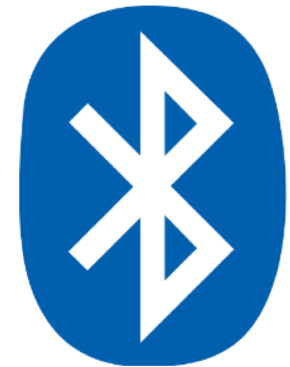


Wireless Standards

G.FIT Standards

Provide a turnkey dual-protocol
ANT+ certified / *Bluetooth*[®] low
energy (BLE) qualified solution for
wireless fitness equipment and
smart bike trainers

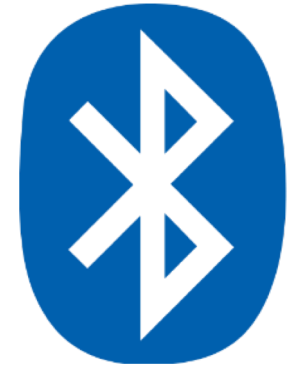
- 50+ devices in gyms
- Smart trainers and training apps



G.FIT Standards

Provide a **turnkey dual-protocol ANT+ certified / Bluetooth[®] low energy (BLE) qualified** solution for wireless fitness equipment and smart bike trainers

- 50+ devices in gyms
- Smart trainers and training apps



G.FIT Standards – certified & qualified



- FE broadcast for fitness equipment
- FE-C support for bike trainers
- HR pairing support



- FTMS broadcast for fitness equipment
- FTMS control point for bike trainers
- HR pairing and re-broadcast support

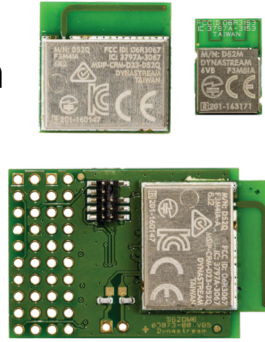


Solution Overview

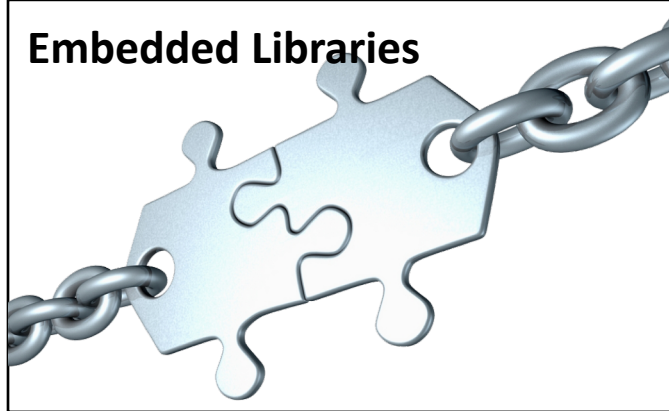
Solution Overview

Module Platform

- 2 form factors
- Development boards



Embedded Libraries



G.FIT SDK

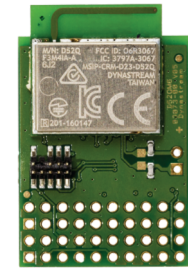
PC-Based Console Simulator



G.FIT Firmware Updater Tools



FE Controller Sample / Simulator Code



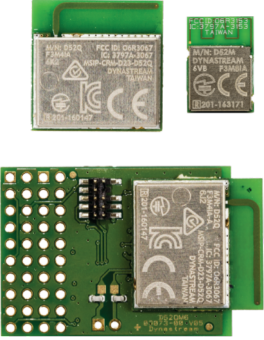
Sample Mobile Device Code

connect IQ™
powered by Garmin
iOS devices

Solution Overview - Modules

Module Platform

- 2 form factors
- Development boards



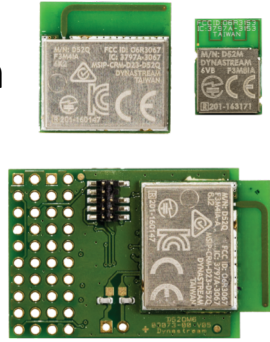
- Pre-loaded G.FIT Network Processor
- Serial interface
- Secure Wireless & Serial FW Updates
- 2 form factors:
 - 20x20mm
 - 9.8x14.0mm
- Development platform (G.FIT FW loads available)



Solution Overview - Modules

Module Platform

- 2 form factors
- Development boards



Models



D52QGM4IA
20x20x2.8mm module
Layout compatible with FIT2



D52MGFM8IA
14x9.8x2mm module
Small form-factor



D52QGM4IA-A
20x20mm module
Layout compatible with FIT2
On-Board Accelerometer

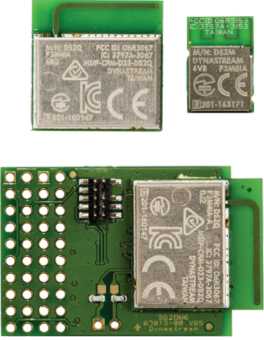


D52QSKM6IA-A
Development Module
On-Board Accelerometer

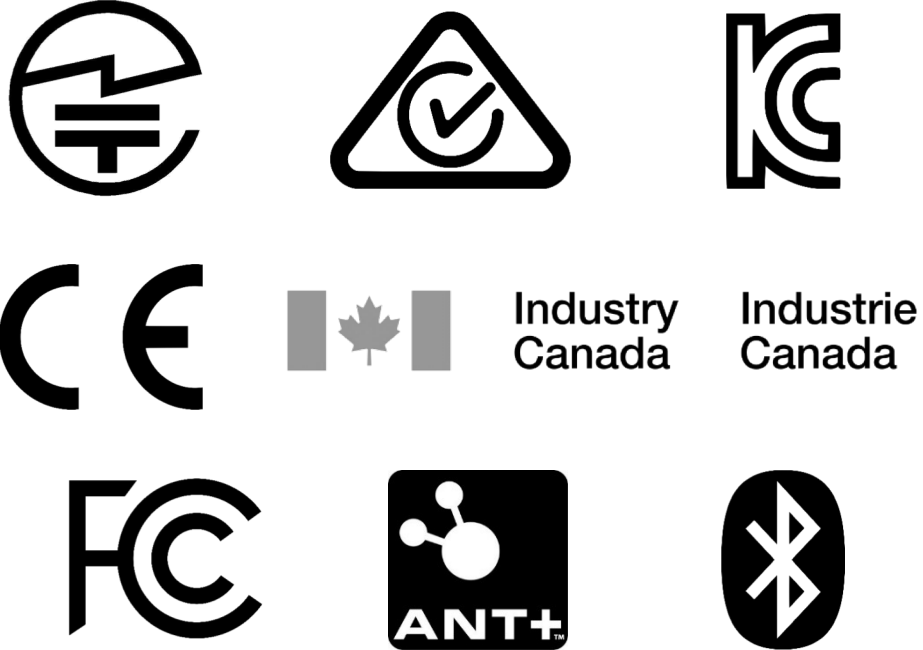
Solution Overview - Modules

Module Platform

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- Global Applicability
- Regulatory testing
- Standards

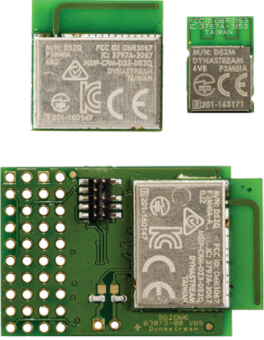


The right-hand box contains a grid of regulatory and standards logos. The first row includes a circular logo with a lightning bolt and 'T', a triangle with a checkmark, and a stylized 'KC' logo. The second row includes the 'CE' mark, the Canadian flag, and the text 'Industry Canada' in both English and French. The third row includes the 'FCC' mark, the 'ANT+' logo, and the Bluetooth logo.

Solution Overview – Embedded Libraries

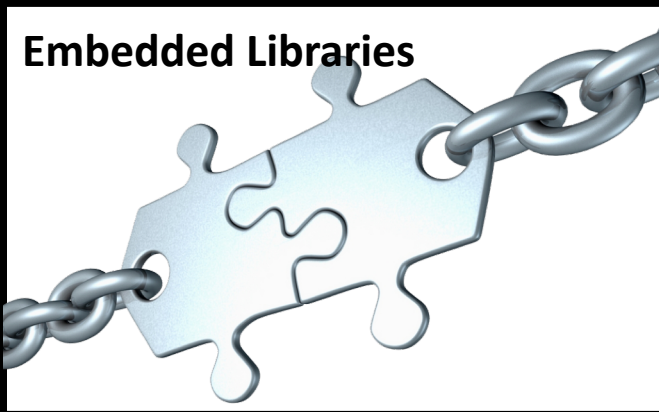
Module Platform

- 2 form factors
- Development boards



The image shows two small, rectangular module form factors at the top. Below them is a green printed circuit board (PCB) with a module installed in a carrier. The module has a gold-colored surface with various markings, including a triangle and the letters 'CE'.

Embedded Libraries



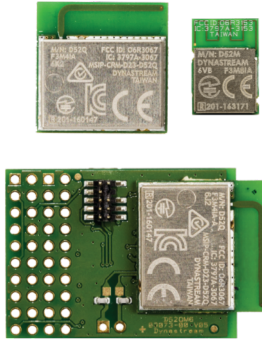
The image shows a 3D rendering of a light blue puzzle piece with a circular hole on one side. A silver metal chain link is attached to the hole, extending from the left side of the puzzle piece.

- G.FIT Libraries for Custom Firmware Development
- S332 ANT/BLE SoftDevice

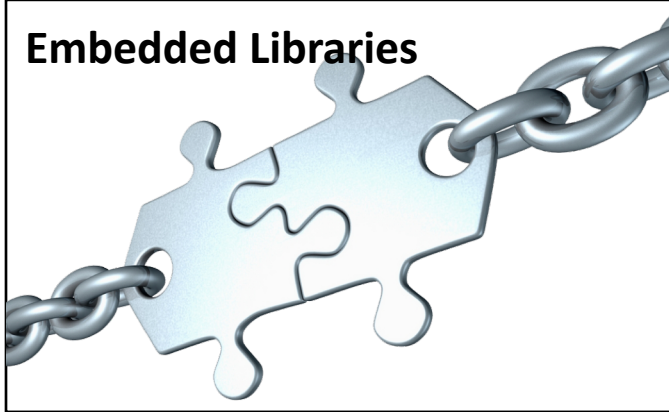
Solution Overview - Simulator

Module Platform

- 2 form factors
- Development boards



Embedded Libraries



PC-Based Console Simulator

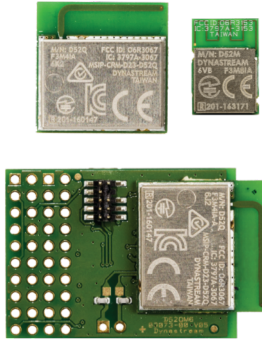


- Fitness Equipment Console Simulator
- Use with development boards to simulate console operation

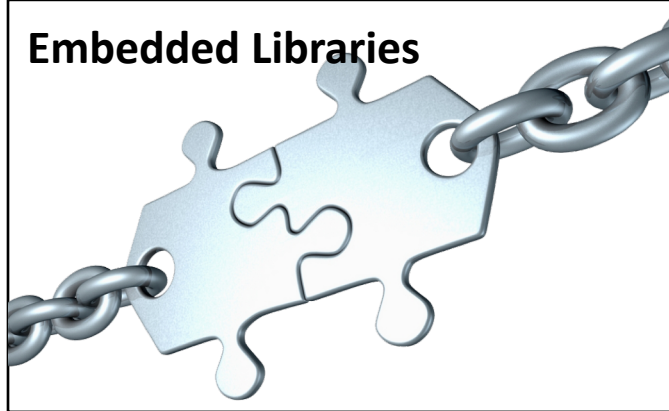
Solution Overview – Firmware Updater

Module Platform

- 2 form factors
- Development boards



Embedded Libraries



PC-Based Console Simulator



G.FIT Firmware Updater Tools

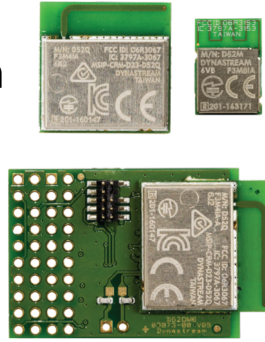


- Factory FW packages
- Dev board FW packages
- FW package generation tools

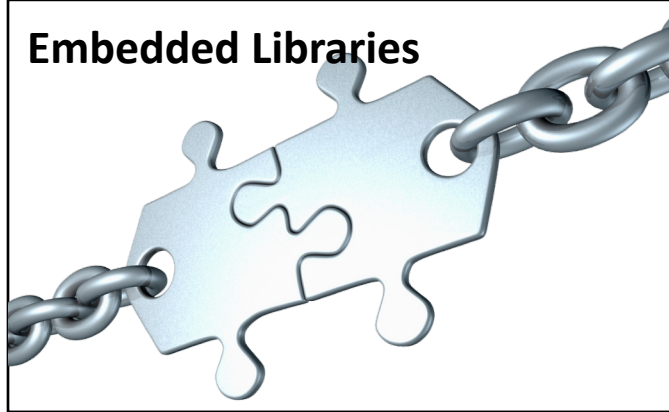
Solution Overview – Mobile Devices

Module Platform

- 2 form factors
- Development boards



Embedded Libraries



PC-Based Console Simulator



G.FIT Firmware Updater Tools



- Sample app code for iOS and Garmin Connect IQ
- Starting point for mobile / wearable experiences

Sample Mobile Device Code

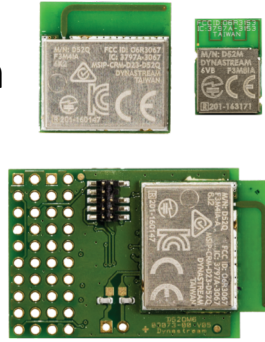
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Solution Overview

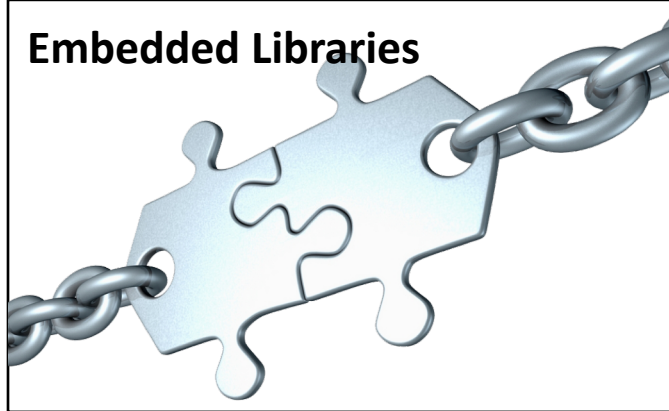
- Configurable FE sim code for dev boards
- Generate FE data to talk to consoles

Module Platform

- 2 form factors
- Development boards



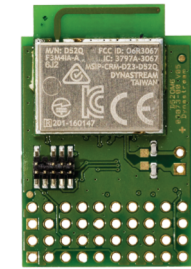
Embedded Libraries



PC-Based Console Simulator



FE Controller Sample / Simulator Code



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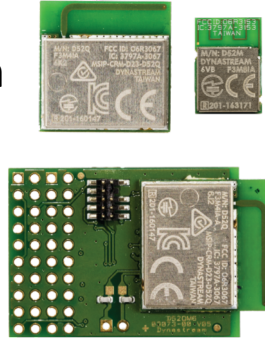
G.FIT Firmware Updater Tools



Solution Overview

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Embedded Libraries



G.FIT SDK

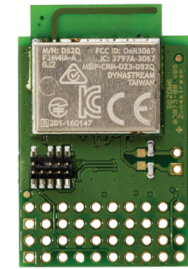
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Integration & Pairing Options

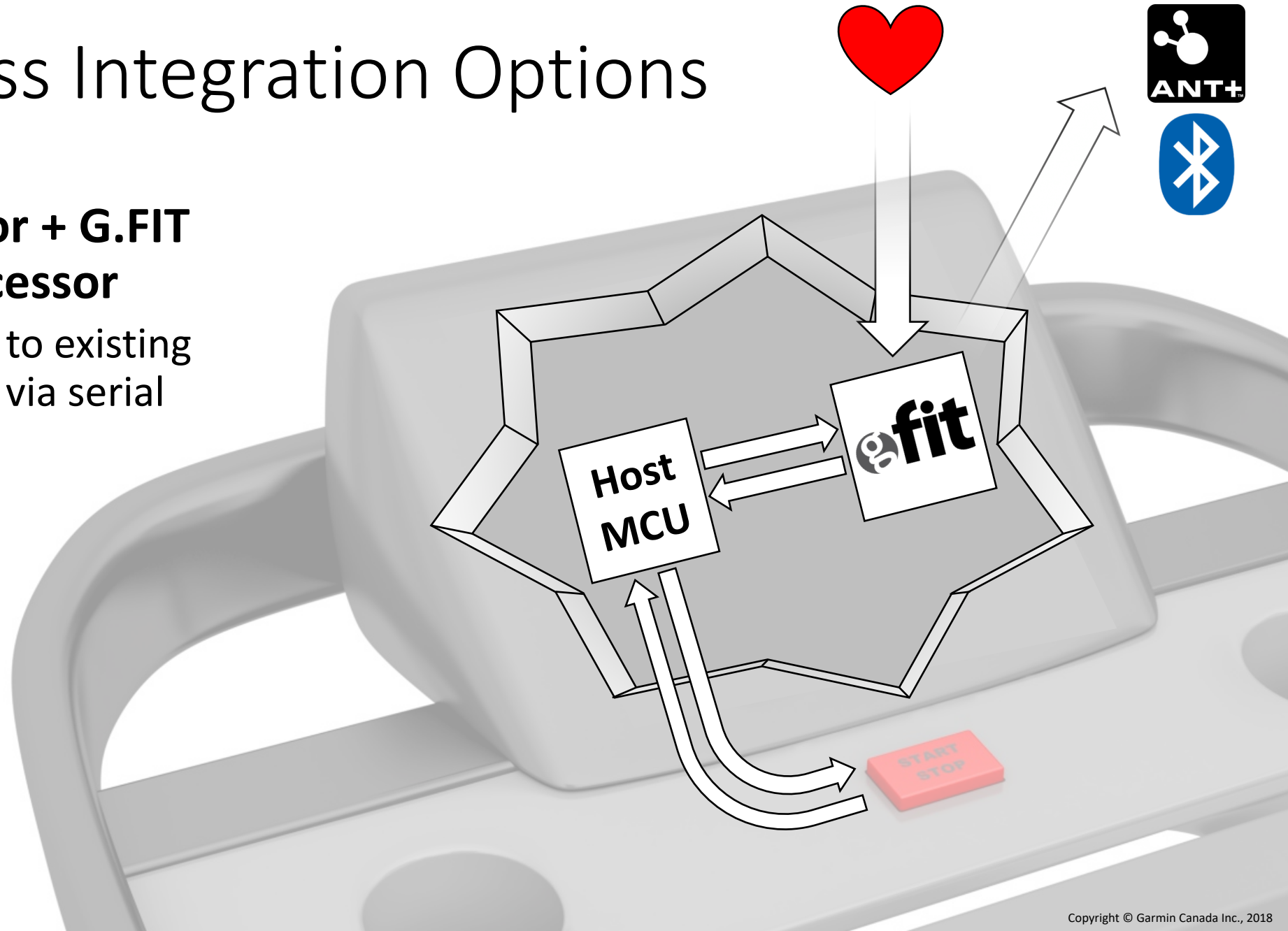
G.FIT Fitness Integration Options

- **Host Processor + G.FIT Network Processor**
- **Custom G.FIT SoC with G.FIT Network Functions**



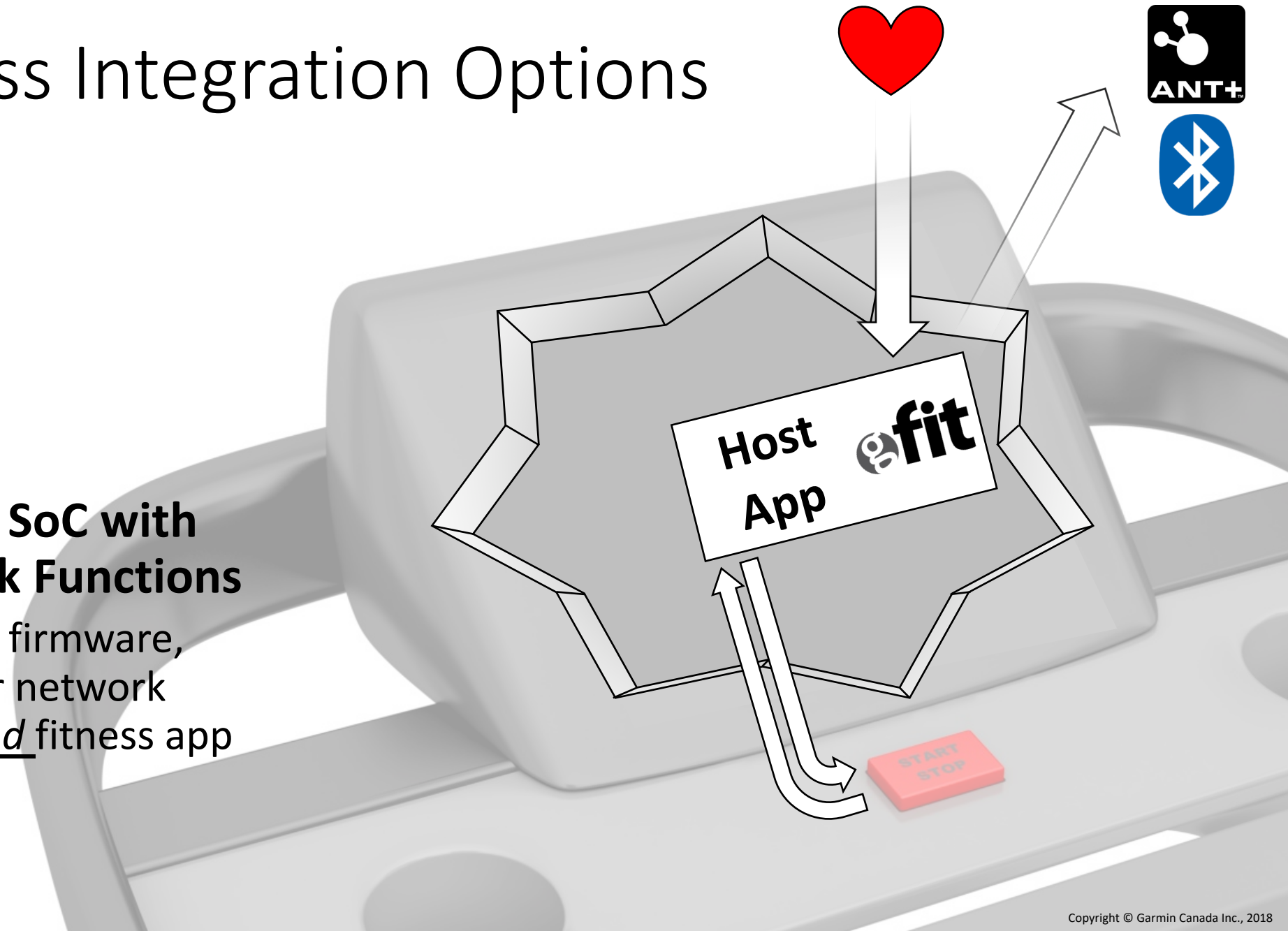
G.FIT Fitness Integration Options

- **Host Processor + G.FIT Network Processor**
 - Drop in, talk to existing architecture via serial interface



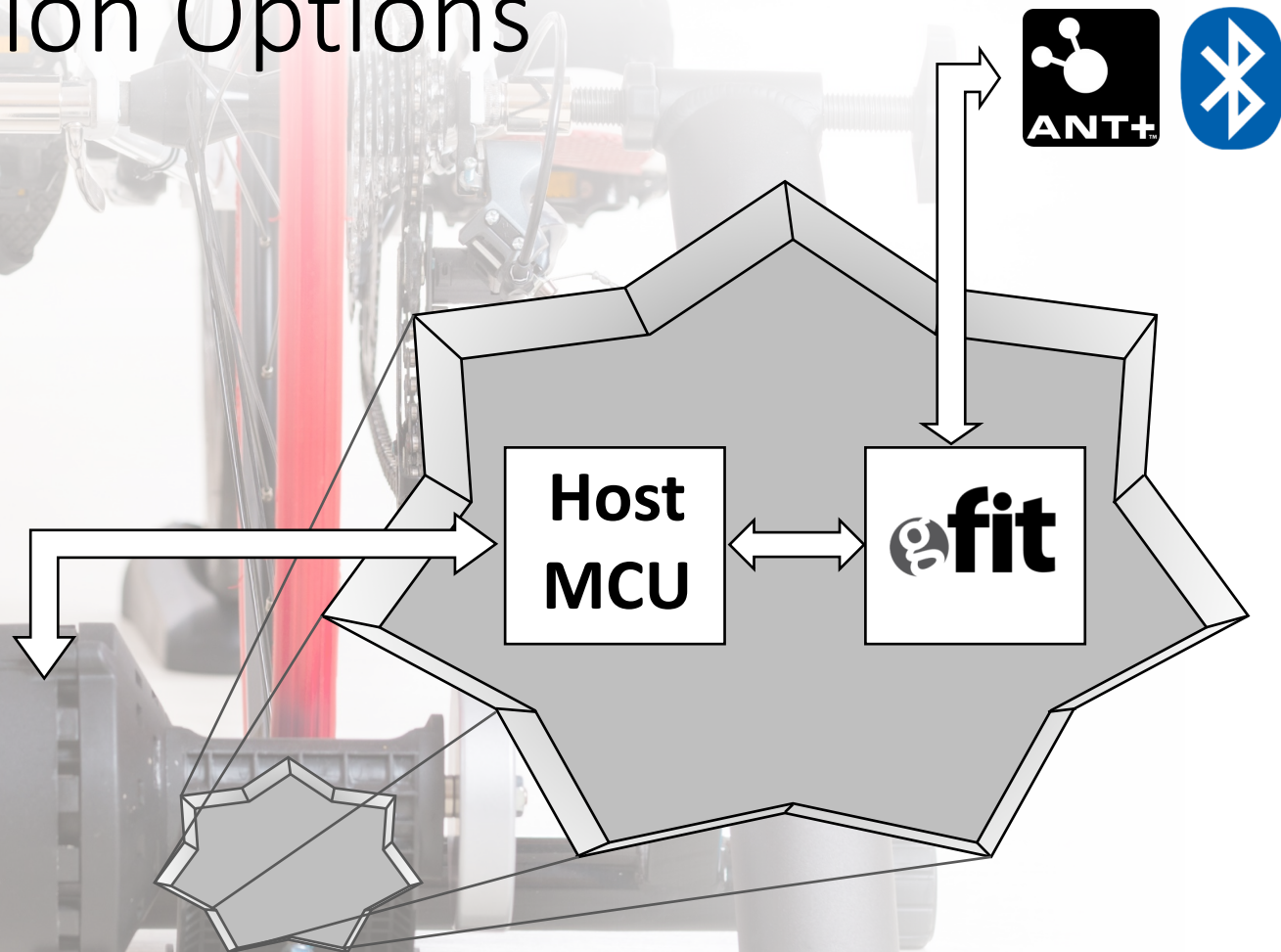
G.FIT Fitness Integration Options

- **Custom G.FIT SoC with G.FIT Network Functions**
 - Create G.FIT firmware, use G.FIT for network functions and fitness app



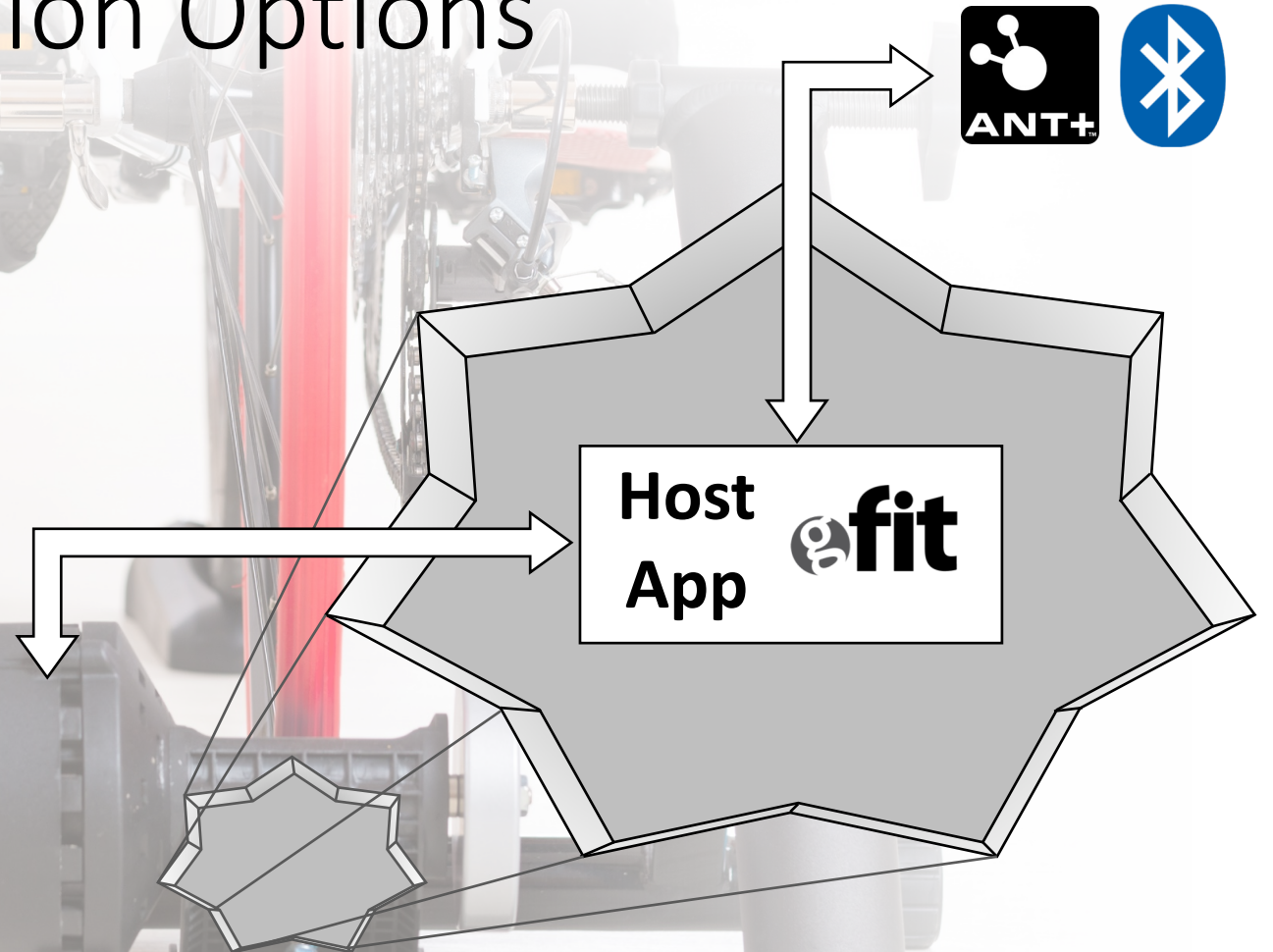
G.FIT Trainer Integration Options

- **Host Processor + G.FIT Network Processor**
 - Drop in, talk to existing architecture serially



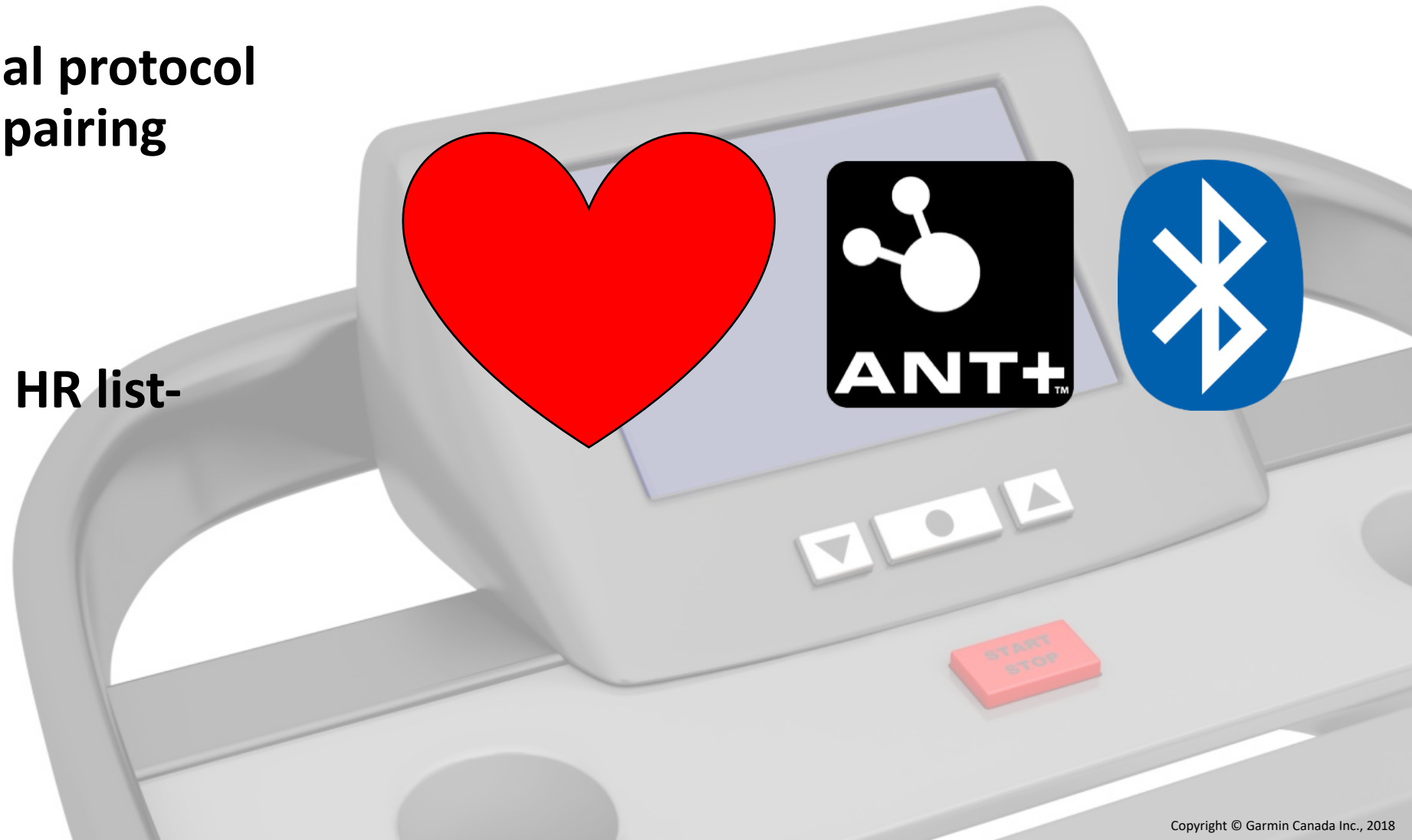
G.FIT Trainer Integration Options

- **Custom G.FIT SoC with G.FIT Network Functions**
 - Create G.FIT firmware, use G.FIT for network functions and trainer app



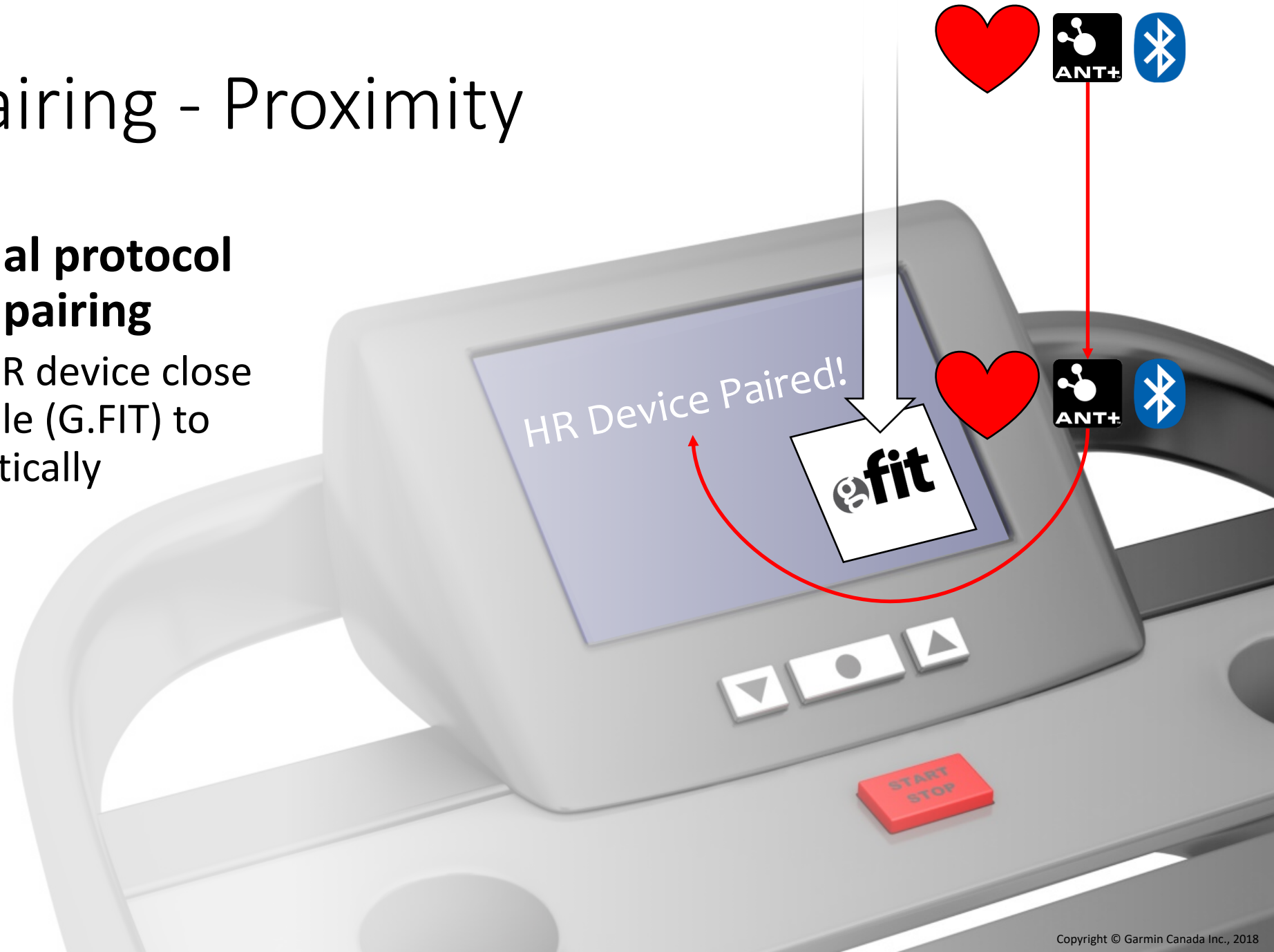
G.FIT HR Pairing - Proximity

- **Automatic dual protocol HR proximity pairing**
- **Dual protocol HR list-based pairing**



G.FIT HR Pairing - Proximity

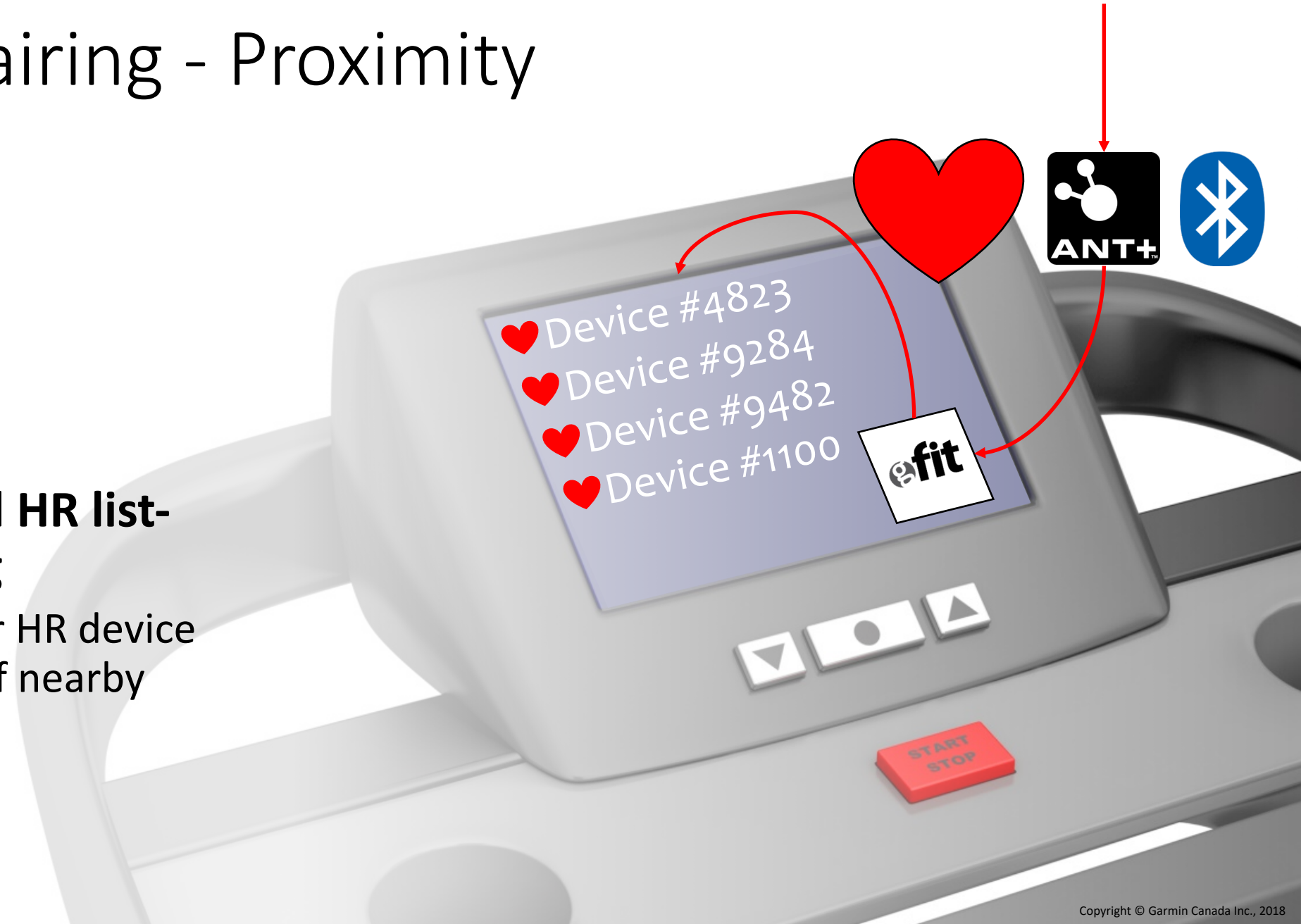
- **Automatic dual protocol HR proximity pairing**
 - Bring your HR device close to the console (G.FIT) to pair automatically



G.FIT HR Pairing - Proximity

- **Dual protocol HR list-based pairing**

- Choose your HR device from a list of nearby sensors



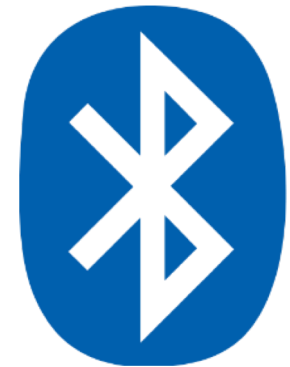


Wrap-up

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Recap

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- Use Cases
 - Fitness Equipment
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- Wireless Standards
- Full Solution Overview
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Thank You!

GARMIN[®]

