TEG Cycling Sleeve

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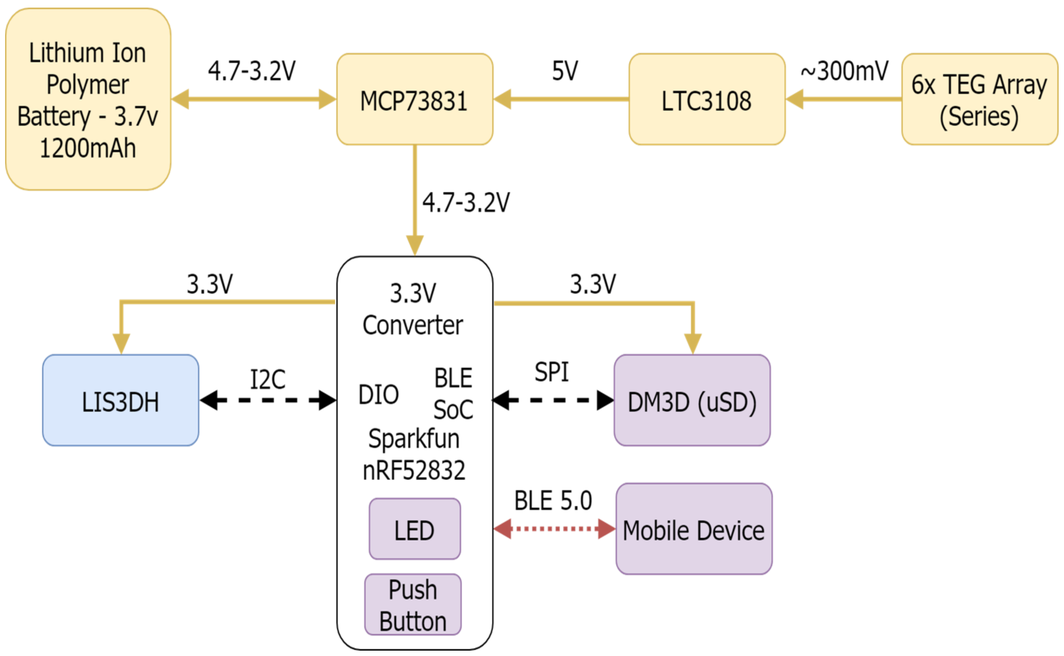
Problem Statement

Develop a self-powered, wearable cycling monitor for the leg that tracks a cyclist's cadence and ride time in a more environmentally friendly manner

Product Requirements

- Power device with sustainable energy source
- Calculate cadence and ride time
- Store two hours of data locally

System Architecture



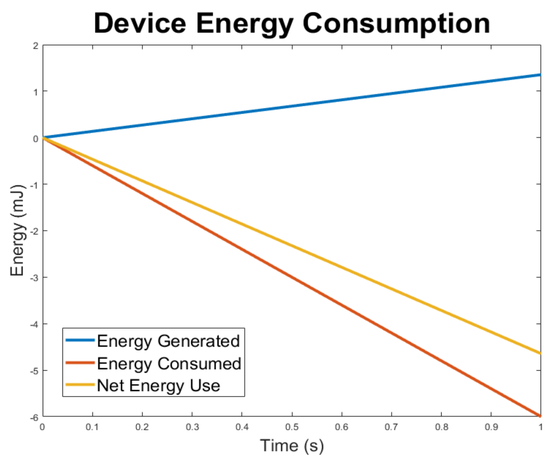
Technical Accomplishments

- Characterized TEG Power Generation
- Designed low power PCB with a focus on power efficiency
- Developed data gathering and processing algorithms

Lessons Learned

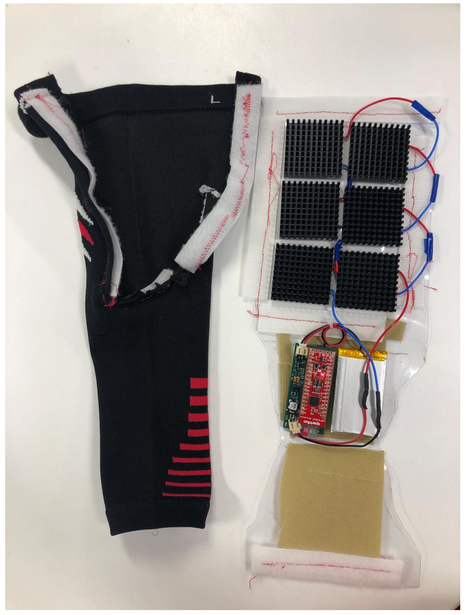
- Understanding of development for ultra-low power applications
- Value of detail-oriented design
- Importance of verifying system operation via exhaustive testing

Power Analysis



- Avg. Power Generated: 1.355 mW
- Avg. Power Consumed: ~6 mW
- Extra Battery Life: 58.3 Hrs.

Final Prototype



Mobile App