IPRO 324: Power Measurement of Performance Bicycles

iitorque

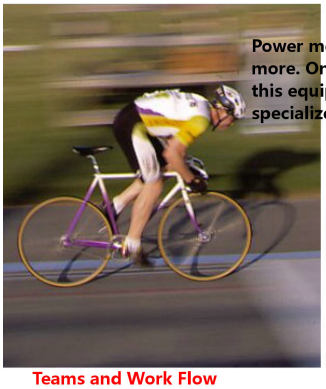
No Strain No Gain

Problem:

In the realm of competivtive cycling, measuring the power that a cyclist outputs is a necessity for effective training. However, existing equipment for this purpose is extremely expensive and requires a new crankset.

Benefits

Lower costs and being able to use current equipment will make power meters more accessible for cyclists.



Background

Power meters exist in the market but cost $1000 or more. On top of such prices, the measurements from this equipment are innaccurate and require specialized cranksets.

Objectives

-Establish communication between the the circuit board and Gamin unit using the ANT+ chip
-Design new universal housing unit
-Develop a high level interface for the software and install a port for future upgrades

Project History

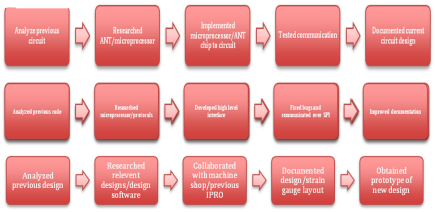
-Determined power calculations from crank set and method of applying strain gauges to a crank set
-Transmit power data collection to place on printed circuit board
-Began writing the code for power calculations and communication with ANT+ devices
-Utilized development software to establish communication with PC for simulated data transmission

Teams and Work Flow

Electrical
- -James Lee
- -Jerry Wisniewski

Computer Science
- -Mike Fabian
- -Preston Andrews
- -Mike Dvorscak

Mechanical
- -Libby Frebes



Future Tasks

-Establish communication with Garmin unit
-Create compact circuits
-Further improve housing design for universal use
-Develop a way to harness power output to remove the use of batteries in the circuit

Acknowledgements

Kai Hansen in Machine Shop