

Road Testing

In order to determine if the designed prototype is effective in measuring power output on performance road bicycles, road testing will be the next phase of the project development. Road testing will be



performed with a product currently on the market as a reference in order to compare accuracy.

Overall, the progress made is promising, as the successful development of a method that can be applied to all performance road bicycles without requiring the removal of expensive performance parts has been completed.



IPRO

324

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Power Measurement for Performance Bicycles

IPRO 324

The Big Picture

Athletes are always looking to better themselves in performance, whether professionals or amateurs. Devices designed to aid athletes in training can be a huge help in measuring progress. This is especially true for cyclists. Devices have been created in several forms to allow for cyclists to measure power output during training sessions. However, these devices can be expensive, costing upwards of \$1000 per unit and can require the replacement of expensive performance components on bicycles. Accuracy can also be poor on such models, with 5% accuracy being common. IPRO 324 aims to solve these problems by developing a prototype for power measurement on performance road bicycles that is affordable, universally applicable to bicycles without requiring the removal of expensive parts, and more accurate than models currently on the market.

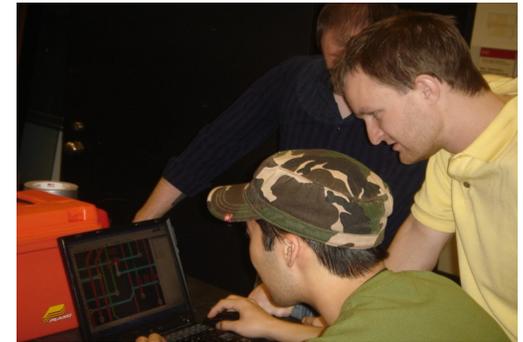
Mechanical Testing

In order to design this product, IPRO 324 has utilized mechanical testing methods to determine the power output of bicycle riders. By measuring the strain on a bicycle crankset, coefficients for various materials can be determined to provide for accurate conversions to power output.



Electrical Circuit Design

In order to provide power output readings to riders, a circuit has been developed that can convert the measurements of strain gauges into power readings using coefficients determined in mechanical testing methods.



Mounting Design

To meet the requirement of developing a device compatible with all bicycles, a ring-shaped mounting unit has been designed. This prototype will not require the removal of expensive components of any performance bicycle, such as the crankset.

