WebbWorks Bicycle Frame Fatigue Testing Device

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Acknowledgements

• Project Sponsor – Phil Webb
• Faculty Sponsor – Dr. Joseph Schroeder
• Bimba Manufacturing – Jon Evans
• Computer Programmer – Joe Melsha
Sponsor Background

- WebbWorks LLC – Greenville, SC
- Manufactured in Thailand
The Problem

• Carbon fiber bike frames
• Need for a bicycle pedaling fatigue device
• Eliminate cost of outsourcing
Team Structure & Responsibilities

• Bart Hoxworth – involved in the design of the frame, dynamic analysis of the proposed system, construction of the frame, and compliance to the codes and standards.

• Nick Paquet – involved in the development of the schedule, maintaining the budget, research of current solutions, and review of team submittals.

• Colin Sheehan – involved in the design of the pneumatic system, programming of the control system, team organization, and the primary communicator with our sponsor.
Fabrication

Sliding adjustable collars

Support shaft
Fabrication
Fabrication
Arduino

Functions:

• Test
  • Initiate Test
  • Pause Test

• Cycle count
  • ####### Cycles

• Loads
  • Right Load: ######N
  • Left Load: ######N
Initiate Test
Operation
Future Design Suggestions