Spring Midterm 1 Presentation

HANScycle: Reciprocating Lever Transmission

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Introduction

- Project Goal:
  - Use last year's progress to build a working HANScycle prototype using the Reciprocating Lever Transmission
- Constraints:
  - Bicycle must be designed for 26" wheels
  - Bicycle must fit into a 26"x26"x10" storage box
  - Utilize crank arms no longer than 12" with arc no greater than 100º
  - Utilize existing prototype
- Budget: $2,000

Main Objectives

- Remodel existing Reciprocating Lever Transmission (RLT) prototype

- Test prototype for comparison data:
  - Various crank arm lengths
  - Torque, Power, Cadence, Speed

  -Compare values with Traditional bicycle

Reverse Engineering

- Components that failed last semester
  - RLT brackets flexed under load
  - Crank arm fastener holes did not line up
  - Crank arm keys began to shear
  - RLT shaft misaligned
- Components that failed this semester
  - Needle bearing broke
  - Shearing of bolts

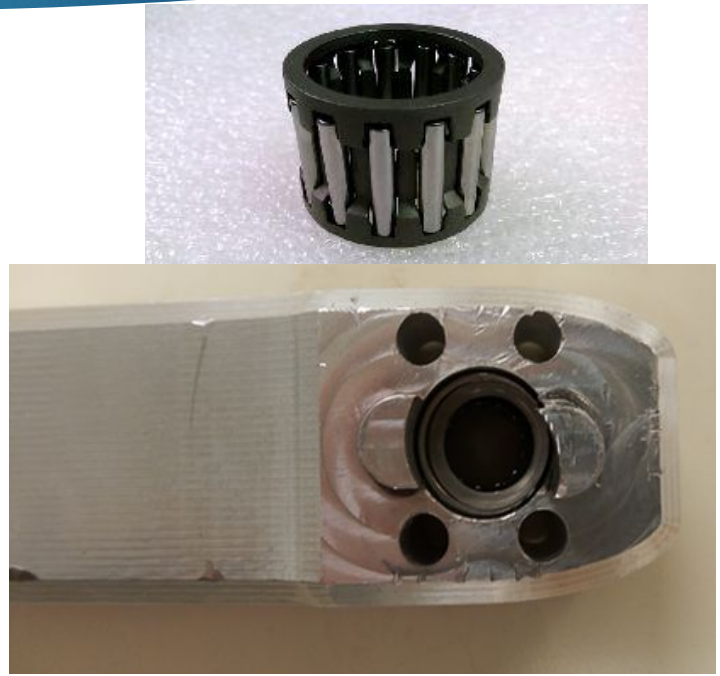

Figure 3: Failed Components

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