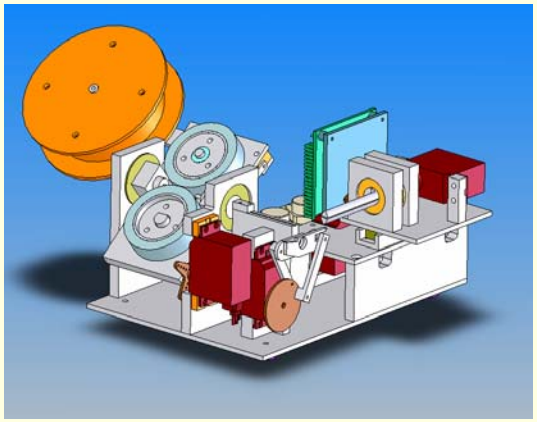
Derek Wright

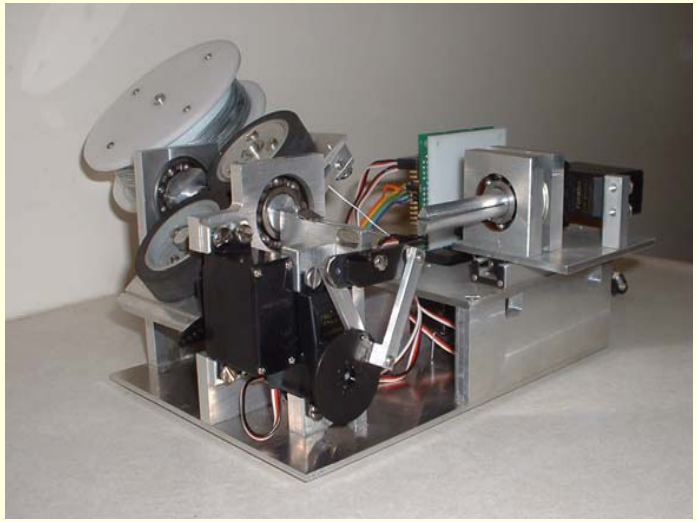
Portfolio

Table of Contents

Component Fabrication Automation

- Generated a fabrication methodology for the manufacture of project component for BYU research
- Built and tested proof-of-concept machine
- Designed and built machine to manufacture component
- Programmed PLC (OOPic) to control machine servo and stepper motor processes

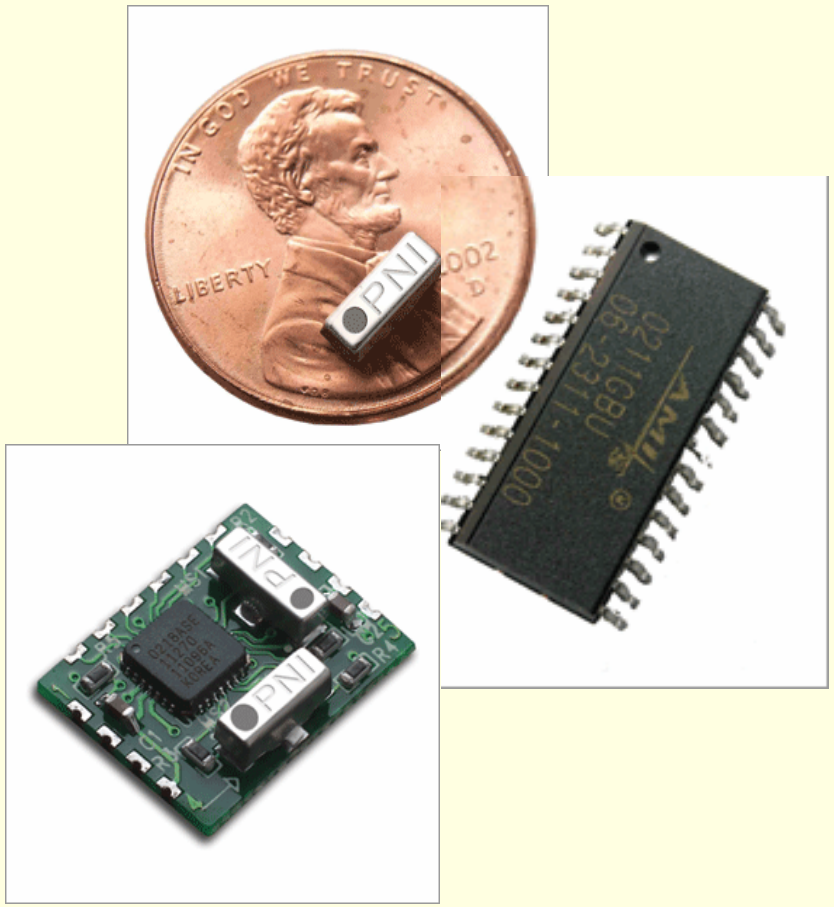




Back to Table of Contents

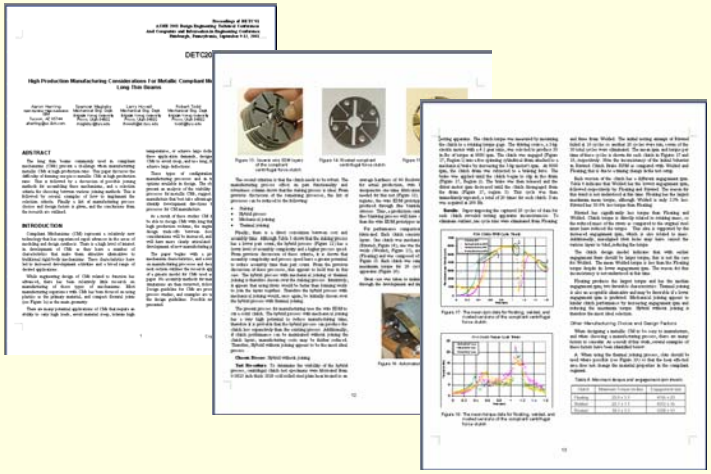
Research Assistant, Multiple Agent Intelligent Coordination and Control Lab, BYU EE Dept., 8/03

- Researched, designed, and built a three-axis micro-magnetometer to incorporate into a UAV control system
- Learned Eagle software in order to design the magnetometer circuit board
- Aided in interfacing magnetometer with the UAV PLC (rabbit semiconductor RCM 3100)



Pictures from: http://www.precisionnav.com/family?nodeId=c1c

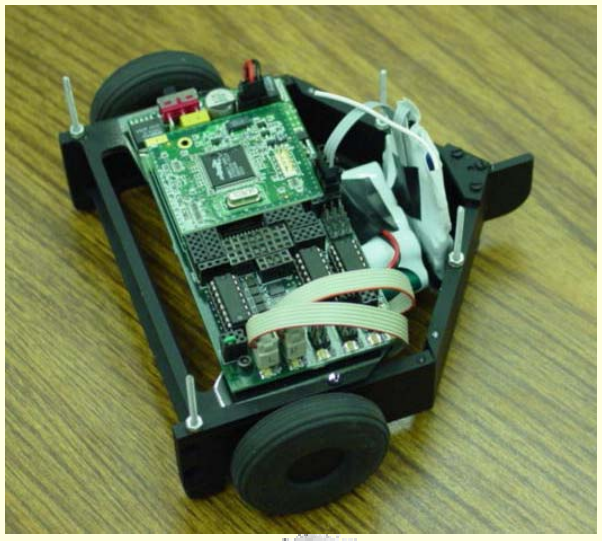
Compliant Clutch Testing Machine, BYU Office of Research and Creative Activities Grant, 1/03-8/03

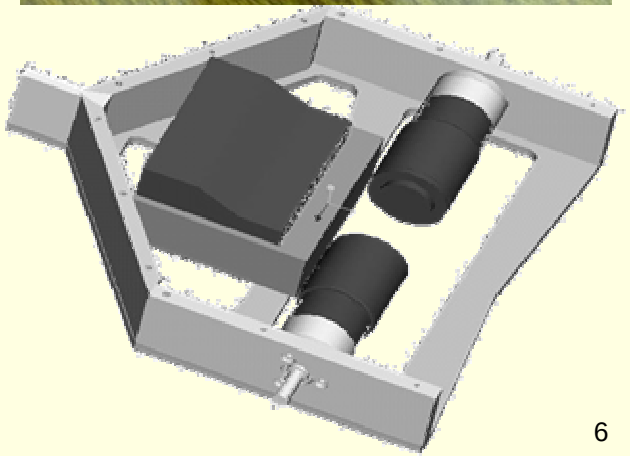


- Conceived and developed a semi-automated clutch testing machine
- Designed a process-specific torqueometer
- Programmed a PLC (Handy Board) to control process using closed loop feedback control from tachometers and torqueometer sensors
- Captured data using LabView and then analyzed data in Excel
- Co-authoring a journal paper

Robot Soccer, Senior Project, BYU EE Dept., 9/02-4/03

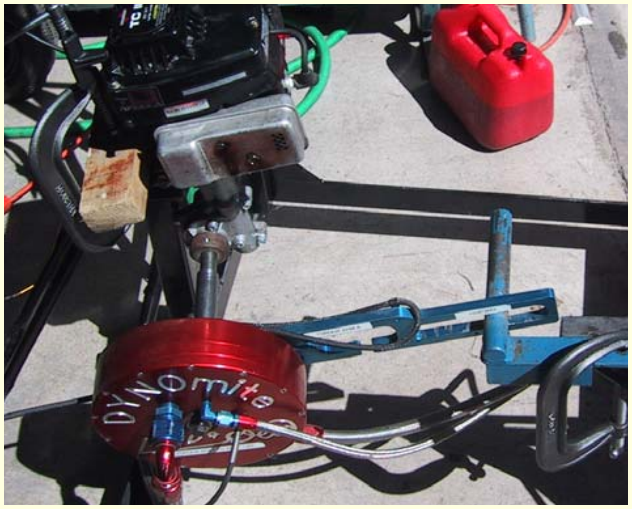
- Solid modeled design in Pro/Engineer 2001i, programmed 3-axis CNC mill to fabricate complicated geometries, and built prototypes
- Generated and tested solenoid and flash capacitor kicking mechanism
- Assisted in development of Artificial Intelligence ideology consisting of multiplying a weight matrix by an action matrix
- Programmed (in C language) an initial PID vision-based closed loop feedback control of robot motion

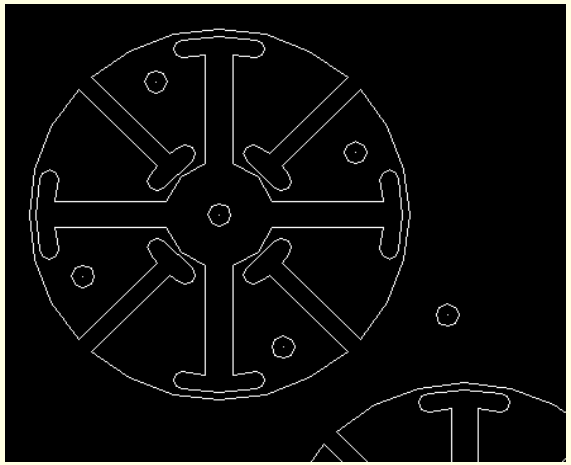




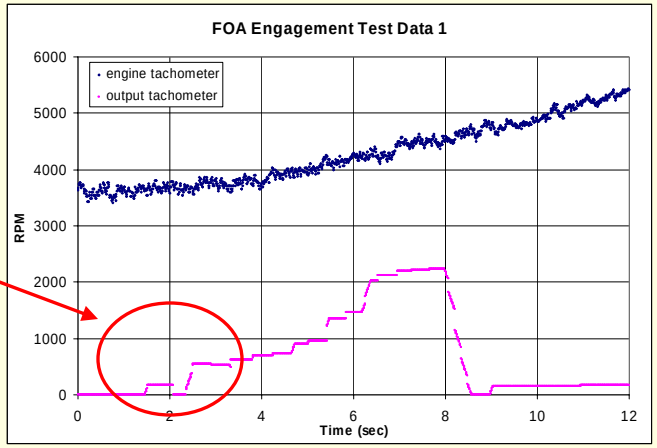
Research Assistant, Compliant Mechanisms Research Group, BYU ME Dept., 4/02-6/03

- Solid modeled and fabricated proof-of-concept prototypes of compliant prosthetic knees
- Designed and tested a novel compliant centrifugal force clutch design
- Created a data acquisition platform for measuring critical performance characteristics produced by a compliant centrifugal force clutch





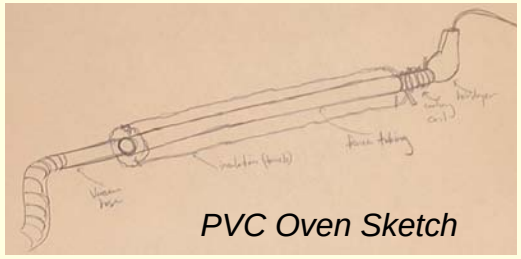
Engagement



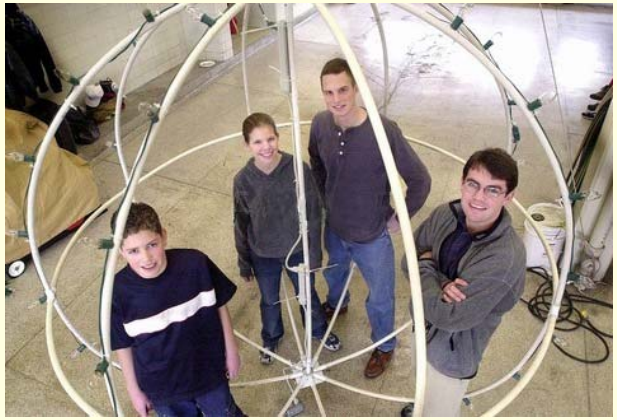
Back to Table of Contents

“Ball of Light” Design Project, Volunteer Project Leader, Provo City Fire Department, Provo, UT, 11/01-12/01

- Coordinated with the Provo fire department in revamping a light-covered PVC ball structure for the city’s New Year’s Celebration
- Led team of four in concept generation and concept selection for new ball structure
- Invented and built a project-specific oven using available materials to heat long segments of PVC piping
- Generated a process to correctly form the piping



PVC Oven Sketch



Daily Herald
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"Nothing could be more exciting for us than an engineering challenge," said Derek Wright,

Article From:
http://archive.harktheherald.com/archive_detail.php?archiveFile=./pubfiles/prv/archive/2001/December/30/LocalCity/77661.xml&start=0&numPer=20&keyword=Derek+Wright&sectionSearch=&begindate=12%2F22%2F2001&enddate=12%2F31%2F2001&authorSearch=&IncludeStories=1&pubsection=&page=&IncludePages=1&IncludeImages=1&mode=allwords&archive_pubname=The+Daily+Herald%0A%09%09%09

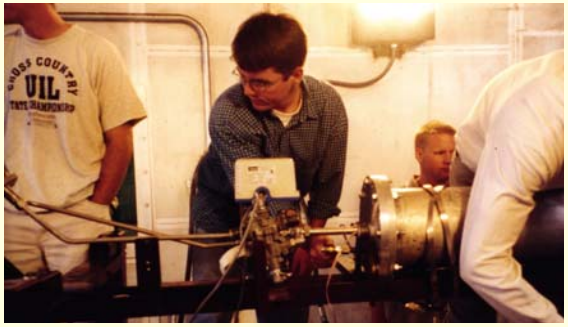
Engineering Intern, UTC Hamilton Sundstrand, San Diego, CA, 6/01-9/01

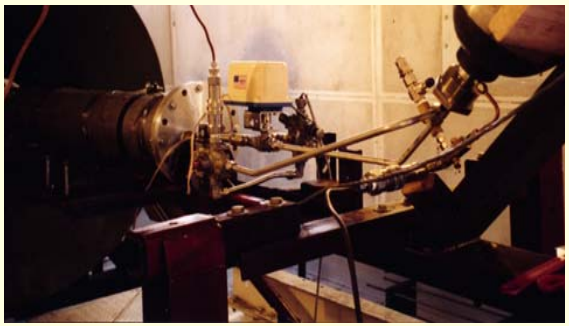
- Performed and analyzed experiments to determine tank evacuation effectiveness
- Observed and assisted in test cell procedures of a gas turbine engine design
- Programmed VB6 GUI interfaces to simplify in-house use of FORTRAN code
- Learned to use company specific software to improve customer relations

Picture from: http://www.hs-powersystems.com/index.htm

Back to Table of Contents

UNITY IV Rocket Project, Oxidizer Team, Volunteer, BYU ME Dept., 9/00-12/01





- Solid modeled an NO_2 electronic valve actuation setup for a hybrid rocket and incorporated the design into an existing model assembly
- Developed and built, using available resources, a test stand for oxidizer tank evacuation and nozzle testing
- Aided in creating the pre-launch NO_2 tank filling procedure

Engineering Intern, Kvaerner International, E&C Division, San Ramon, CA, 6/00-12/00

- Interpreted flow chart drawings and managed an Excel process flow spreadsheet
- Verified flow chart accuracy
- Learned 2-D and 3-D MicroStation in order to quicken drawing correction time for manager
- Learned to manipulate an Oracle database to aid manager in finding and updating design components

Picture from: http://www.kvaerner.com/Internet/IndustriesAndServices/Metals/Nonferrous/Project/AmericanSodaProject.htm

Back to Table of Contents