Remote Diagnosis of Equipment Failures
A Design for Dynapac Rotating Company

1. Introduction

- Dynapac Rotating Company is the industry leader in the design and manufacture of high quality motion products for the sign and display industry.
- The president of Dynapac Rotating approached me last summer with a problem he had, and asked me if I would design a solution for my senior project.

2. The Problem

- When a Dynapac customer has an issue with a rotating unit the only solution is to fly a technician on site to diagnose and try to fix the unit.
- This could be a potential waste of money; the issue is that the technician doesn’t know what parts to bring or if it is complex or simple issue.
- Remote diagnostic would save cost and time, and would make the whole process much less of a haste for the customer.

3. Concept of Operations

- Use a Raspberry Pi to interface to existing equipment and provide diagnostic tools from across the internet.
- Diagnostic Tools:
  - Ability to stream video across the internet.
  - A reading of an analogue value from an encoder used in the Dynapac System.
  - The ability to remotely send commands while maintaining old method of sending commands used by the customer.

4. The Equipment

- Raspberry Pi
- Relay Board
- ADC
- Webcams
- Wiring Diagram

5. The Website (User Interface)

- Password Protection
- Commands
- Home Page
- Camera
- Feedback
- Everything asked for by the customer is functional. Video can stream across the internet, feedback information can be obtained, and commands can be sent.
- This project was a complete success as a proof of concept. The next steps forward are to upgrade to the Raspberry Pi 3, so the webcams run better. Also to put together a more compact design, and pick parts with a higher reliability. Finally to get the system working with a mobile internet connection.

6. Final Results

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