

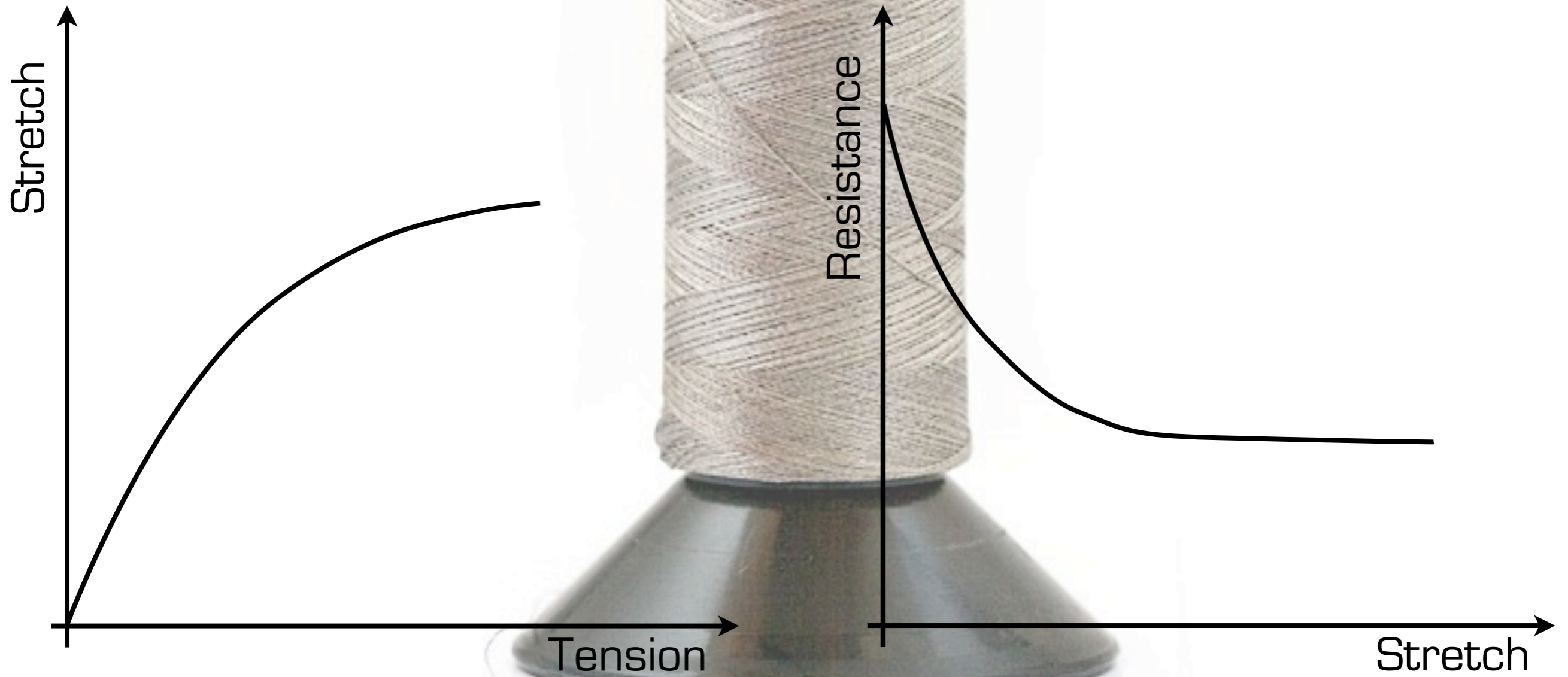
A spool of light brown, textured yarn on a black stand. The yarn is wound in a dense, slightly irregular pattern around a central black core. The stand is a simple, black, conical shape. The background is plain white.

# Characterization of Conductive Yarns

MAS.963 New Textiles Final Project Proposal

Ilan Moyer

# Measurement Goals: Resistance vs. Tension vs. Stretch





## Purpose

To characterize the electro-mechanical properties of yarns so that I can design the properties of braided yarns created using my Interweave CNC braiding machine.

# Computerized Stress/Strain Testing Machine



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# Digital Resistance Meter



# Modules

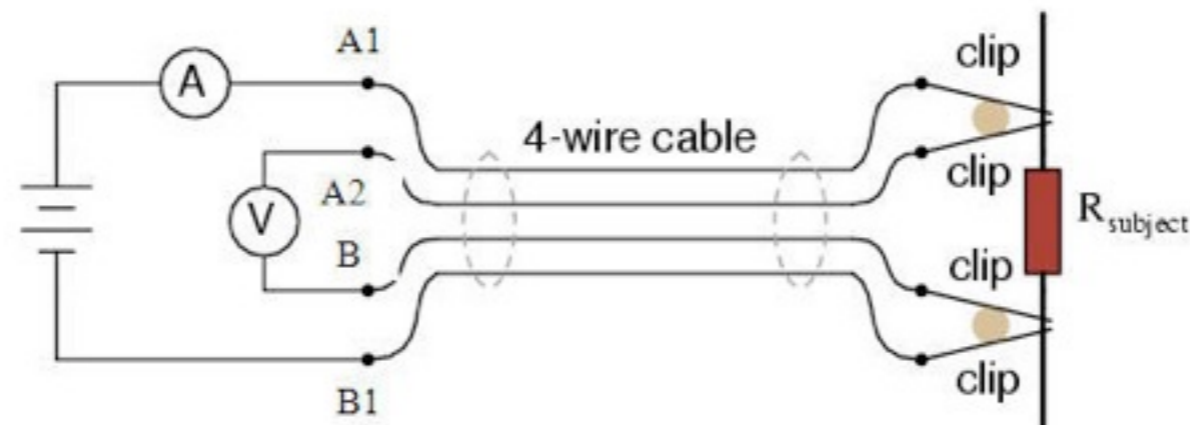
Load Cell



Linear Stage



## 4-Wire Ohmmeter

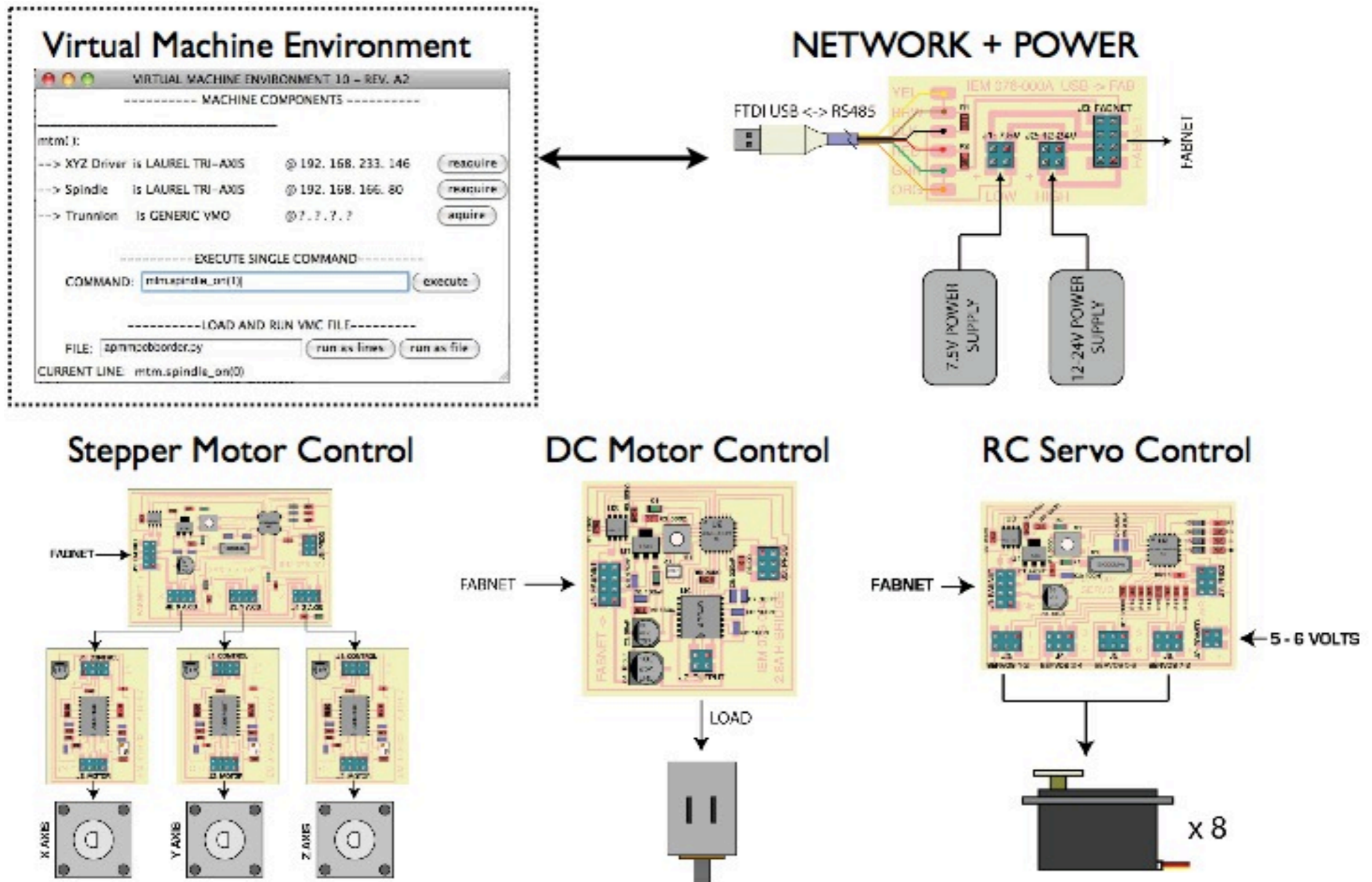


$$R_{\text{subject}} = \frac{\text{Voltmeter indication}}{\text{Ammeter indication}}$$

# Capabilities

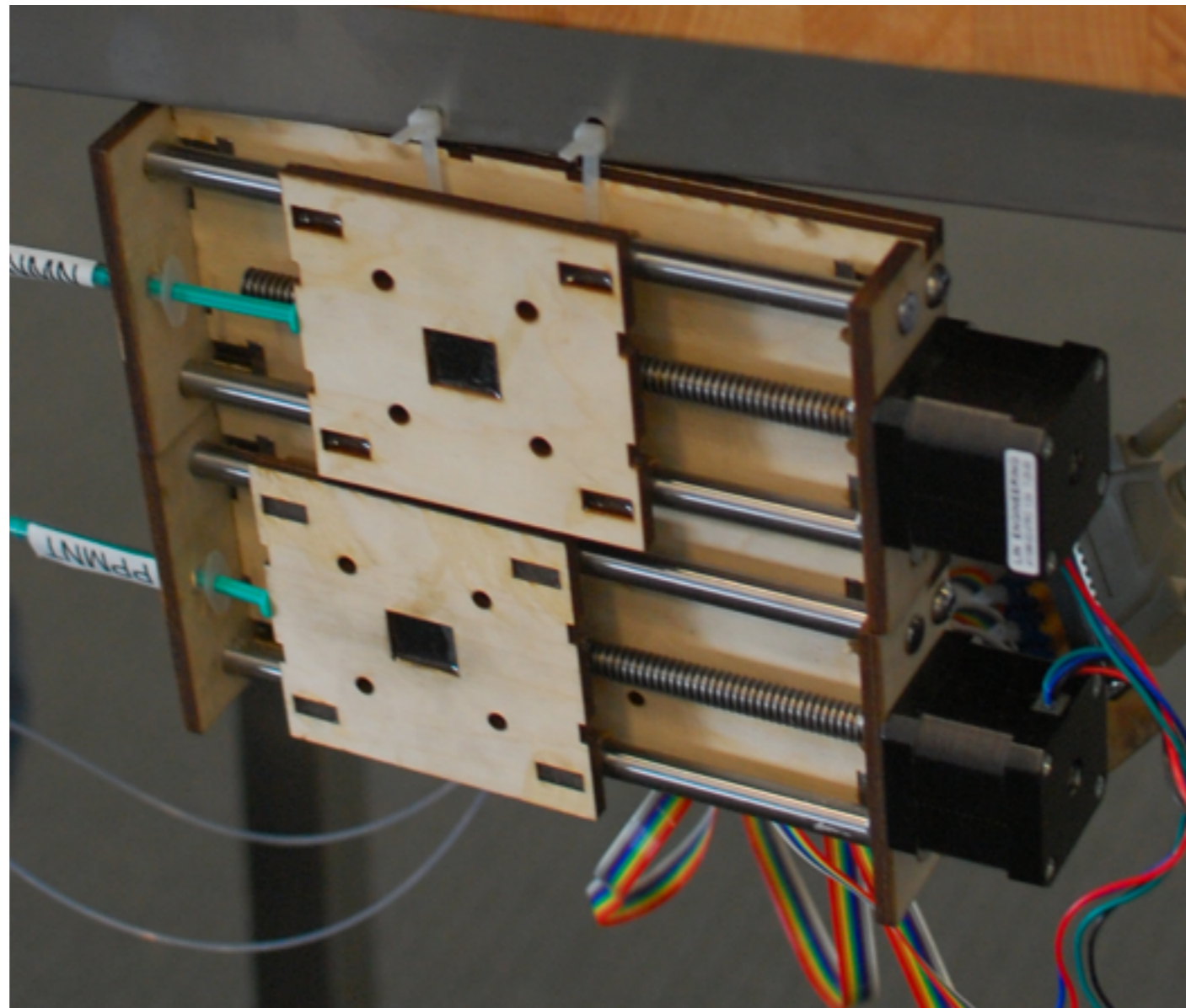
- Stretch-Tension Curves
- Stretch-Resistance Curves
- Hysteresis Measurements
- Repeatability Measurements
- Cyclic Testing of Properties

# Prior Work: Control System



“FABNET Machine Control System” by Ilan Moyer 2010

# Prior Work: Mechanics



“Tastes Like Rain” by David Carr 2010



# Early Prototype

made for the textile sensor assignment

