Title: Spring Rate Test Machine
Description: This is a device that will test a compression coil spring and determine the spring rate. The device will include a digital display (possibly touch screen) to provide real-time feedback of the data. Also to have choice of SD card recording of raw data or saving data to a wireless network location. Displacement of the spring may be done manually via a hand-operated hydraulic pump (i.e. bottle jack) or using an electric powered mechanism, the latter only if schedule and budget permits. Displacement sensor and load cell will be supplied.
Scope will include:
1. Analysis of project requirements and flow down to functional allocations
2. Design of machine frame, sensor mounting, and display mounting
3. Design of test specimen fixture(s)
4. Electrical design for power supply and interface to control microprocessor
5. Software architecture and code necessary to perform spring rate calculations
6. Software code necessary to interface with digital display
7. Fabrication of one (1) functional prototype