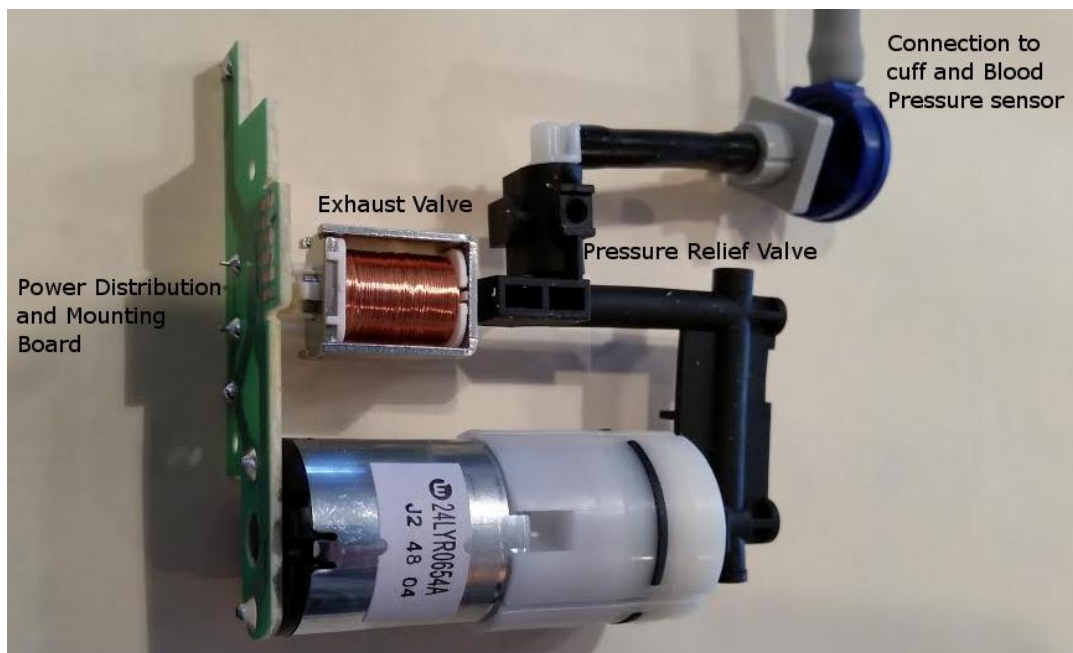


# Engineering Design Sheet

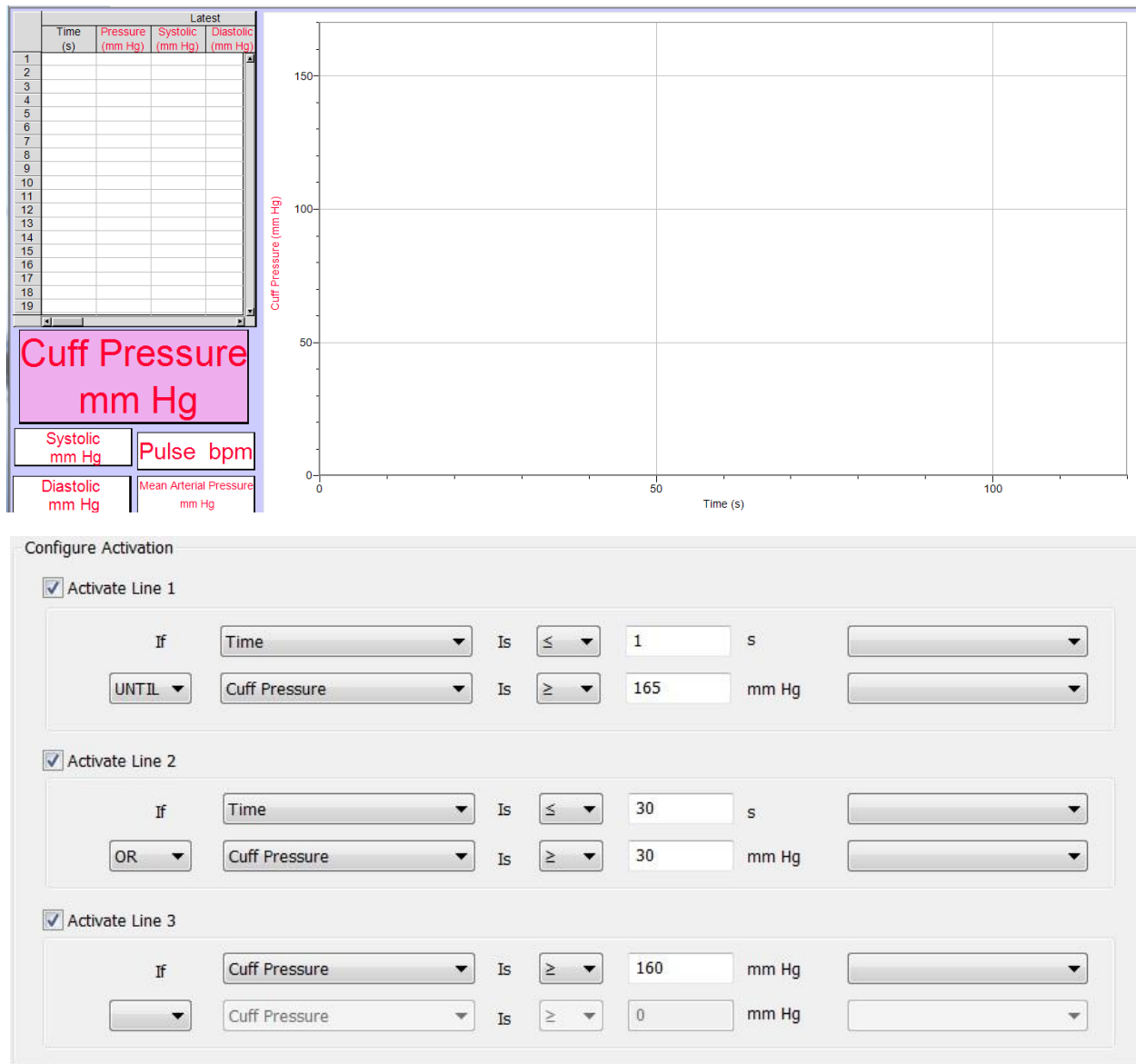
Project Code Name: <i>SphygmoMan</i>	Team Members: <i>Lisa, Annette</i>
<b>Design Objective</b>	<i>We need to make an automatic system to collect blood pressure data for R &amp; D</i>
<b>Design Requirements and Constraints</b>	<p><i>Our device should...</i></p> <ul style="list-style-type: none"> <li><i>• Make a complete cycle automatically</i></li> <li><i>• Have large display of cuff pressure vs time</i></li> <li><i>• Have a large live cuff pressure reading</i></li> <li><i>• Not inflate the cuff above 165 mm Hg (Safety)</i></li> <li><i>• Auto deflate if power fails</i></li> <li><i>• Rapidly deflate at end of measurement</i></li> <li><i>• Signal at point of maximum inflation</i></li> </ul>
<b>Process Map</b> (Work Flow Diagram)	<pre> graph TD     Start([Start]) --&gt; TurnOnPump[Turn on air pump]     TurnOnPump --&gt; CloseExhaust[Close Exhaust Valve]     CloseExhaust --&gt; MeasureCuff1[Measure Cuff Pressure]     MeasureCuff1 --&gt; Decision1{Pressure &gt; 165 mm Hg?}     Decision1 -- Yes --&gt; Signal[Signal]     Signal --&gt; TurnOffPump[Turn off pump]     TurnOffPump --&gt; MeasureCuff2[Measure Cuff Pressure]     MeasureCuff2 --&gt; Decision2{Pressure &lt; 30 mm Hg?}     Decision2 -- Yes --&gt; OpenExhaust[Open Exhaust Valve]     OpenExhaust --&gt; Decision1     Decision2 -- No --&gt; Decision1     Decision1 -- No --&gt; TurnOnPump   </pre>

<b>Ideas and Sketches</b>	<p><i>Big display of Cuff pressure v/s time in Logger Pro</i></p> <p><i>Outputs</i></p> <ul style="list-style-type: none"> <li>• <i>Air Pump (DCU line 1)</i></li> <li>• <i>Exhaust Valve (DCU line 2)</i></li> </ul> <p><i>Indicator</i></p> <ul style="list-style-type: none"> <li>• <i>Max inflation point reached = LED or Buzzer (DCU line 3)</i></li> </ul> <p><i>Components mounted on board on table top so subject can sit down.</i></p>
<b>Test Log</b> (Include what did not work and how you changed it)	<ul style="list-style-type: none"> <li>• <i>Buzzer bothered subject, changed to LED</i></li> <li>• <i>Had to adjust limits for indicator to make signal brief but noticeable.</i></li> <li>• <i>Connected pump backwards, cuff did not inflate</i></li> <li>• <i>Unplugging DCU power supply, cuff deflated automatically</i></li> </ul>
<b>Final Design</b> (Include screenshot of Logger Pro Digital Out dialog box and pictures, as necessary)	<p><i>See pictures below</i></p>



### Hardware Set Up:

- DCU Line 1 - Air pump
- DCU Line 2 - Exhaust Valve
- DCU Line 3 - Green LED and resistor



*Logger Pro window and Digital Out dialog box*