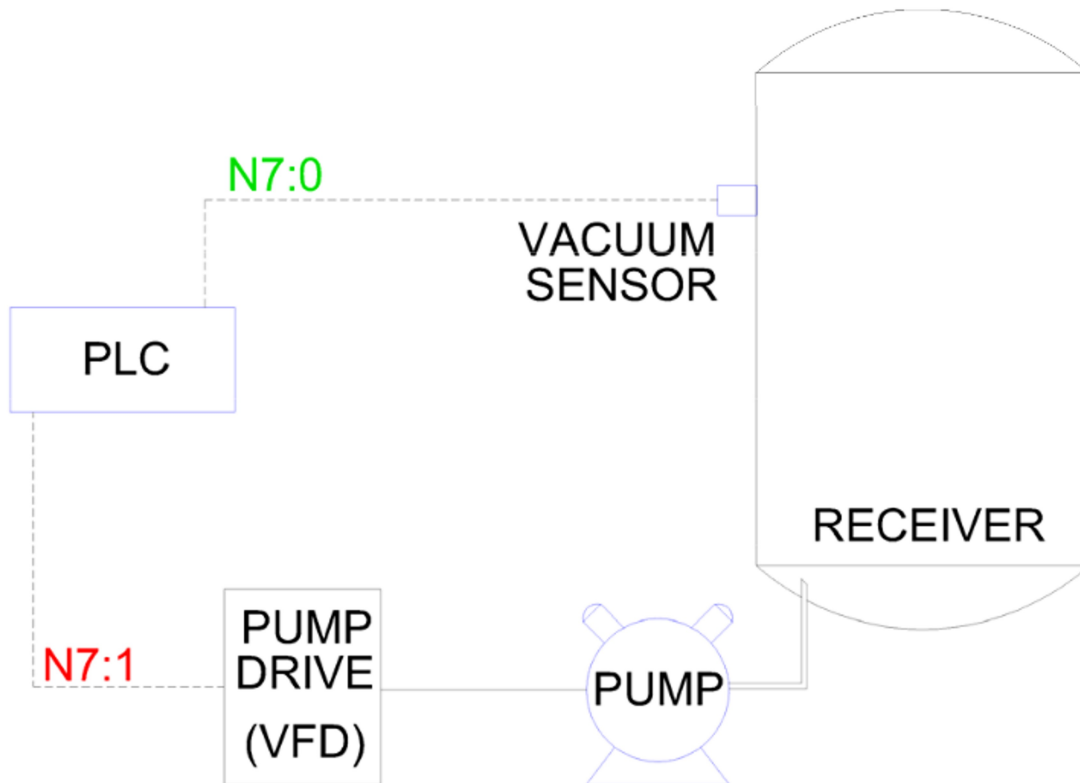# Project 8 PID Substitution Logic

Monday, 3 August 2020   11:21 PM

A vacuum must be maintained in this receiver tank. A pump, controlled by a variable frequency drive maintains the vacuum. A sensor provides us with feedback. Altogether we have a closed loop system. However, we are not allowed to use PID to control the system.

<div align="center">Details</div>

Vacuum sensor: 0 – 30 in/Hg (0 – 16383). Setpoint is 15. Lower in/Hg values means more vacuum.

We will compare the our measured vacuum with our setpoint once every 10 seconds.

If we are within 4% of the setpoint, then do nothing.

If we are between 4-15%, we add/subtract 20 from the pump speed (20%?)

Between 15–30%, make a 60% pump speed adjustment.

Greater than 30%, make a very large setpoint change.

So we have three of these values huh.

<div align="center">Plan</div>

I think instead I'll make a simulation. Probably use some a sine wave to simulate the change in sensor value. I'll then manually tweak the control values.

Should be straight forward.