TO: Prof. Pierre-Emmanuel Gaillardon, Course Instructor
FROM: David Venegas
DATE: March 26th, 2024
SUBJECT: Pre-Lab 07 (PID Motor Controller)

1. **What is the basic difference between an open and closed-loop control system?**

Control systems can be either open-loop or closed-loop in design. Open-loop systems apply a process or algorithm to directly generate their output state from their inputs; they have no method of measuring the actual effect of their actions. Closed-loop control systems use their own output as a secondary input and calculate a course of action depending on the error between the desired and current state. This process is called feedback.

2. **What does the acronym "PID" stand for?**

Proportional, integral, and derivative.

3. **When does proportional control lose effectiveness?**

Proportional control provides rapid correction when the error signal is large but loses effectiveness as the plant output nears the setpoint. Additionally, proportional control has a limitation that cannot not adjust if the error persists through the initial action.

4. **Did you watch the intro videos?**

Yes!