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Project Group 8

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PID Balance Bar

Final Project

# Project Objective

Provide a visual aid to show what a PID controller does and how it operates using three constants for the proportional, integral, and differential components of the controller. Allow to control these constants while the project is running to see the effects each constant has.

# Summary

Overall, this project will be created physically with 3D printed parts and some plywood to construct the “balancing beam” and platform it will sit on. The 3D printed parts will consist of hinges and bases for the wooden components to be attached to.

For control, we will be using an Arduino MKR1000 interfaced with a custom designed printed circuit board which contains a second order lowpass filter and voltage divider circuit to process the signal coming from the infrared sensor. Additionally, there will be a connection to Bluetooth to control values of the PID constants through the application to show their effects.

Additional Goals given time and ability:

* Output data to thing speak
* Output data to a web server hosted by a secondary Arduino
* Allow class to connect to our hosted webserver and see data output or even control the variables themselves