**Basic Outline of Project**

**Project Description**

This project involves the implementation of a feedback controller of a mechanical system. The position of a ping pong ball set on a beam will be controlled by a PID controller in a closed loop system. The position of the ping pong ball will be determined by an ultrasonic sensor connected to an Arduino Uno microcontroller. The controller will output through a three/four bar mechanism to stabilize the ping pong ball’s position using the actual ball position collected by the ultrasonic sensor. The setup will be linked to MATLAB and real-time graph would be generated and the response can be observed.

A screenshot of a cell phone

Description automatically generated

**Estimated Budget: $50**

* Arduino Uno Microcontroller: ~$0 (already owned)
* Ultrasonic Sensor: ~$10
* Servo Motor: ~$10
* Servo Motor Driver: ~$10
* Materials + fastener for beams & frame: ~$20