



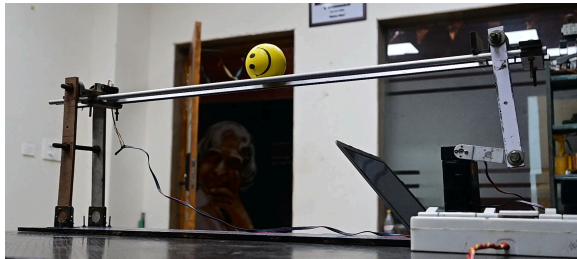
PID Seesaw - A Take on Control Systems

by Robotics Society

Abstract:

The aim of this project was to understand the basic key concepts of a PID controller. The PID algorithm stands very important in the realm of automation. With this one can get a general understanding of the working principle behind control systems.

The idea of building this came while working on self balancing robots. This acts as a similar interpretation of such a system.



Approach:

The key factor behind such a system would be accuracy and responsiveness. We went for two different designs, one after the other, the later being a cleaner and planned version. The goal was to balance a ball on a railing at a particular position just by reading its instantaneous position.

Design:

The ver1.0 design has been described in the [video](#) attached. The ver2.0 has also been shown along with the CAD Model and drawing sheet.

Applications:

This device can be used as a beginner learning kit for introduction to PID controllers.

This well demonstrates the behaviour of the system under different values of proportional, integral and differential parameters.

Future Aspects/Goals:

The next steps would be to

- . Further Improve the accuracy and responsiveness of the system.
- . Development of a User interface for real-time tuning of parameters.
- . Addition of more sensors and higher torque actuators for better feedback.
- . Converting it into a DIY kit by use of standard components as a package.

Other Approaches:

Some more such devices can be built working on the same principle such as

- Self-Balancing Robots
- Inverted Pendulum
- Motor Speed Controllers
- Thermostats

Project By:

Version 1.0 - Avinash Barick, Shanti Sworup Biswal, Subham Mishra, Soumyajit Pattnaik

Version 2.0 (ongoing) - Gantyada Vasudev, Milan Meher, Saswatee Satpathy, Ambika Prasad Dora

[🔗 Demonstration Video](#)

[🔗 Pictures & Videos](#)

