

Project 6: Rate Gyros and Damping Control

Questions?

Project 5

- Demos by Friday
- Catme surveys by Tuesday

Project 6

1. Add a rate gyro sensor
2. Software:
 - Access function: `read_rotation_rate()`
 - Control: `derivative_control()`
 - Interrupt service routine: use exactly as we provide
 - Main:
 - Hover for 30 seconds while resisting rotation
 - Use the template that we provide
3. Layout: balance hovercraft
4. Testing

Damping Control

In order to resist rotation, we will drive the left/right fans to produce torque in the opposite direction as rotational motion

- Positive rotation: drive right fan proportional to rotation rate
- Negative rotation: drive the left fan

See specification for implementation details

Notes

- This project is more involved than previous projects
 - You can't start the day before the deadline and complete on time
- Implement and test components incrementally

Next Time

Proportional-derivative control