12/31 Rocket Minutes

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Contents

1 Firmware

What boards are we gonna use?

- STM Board

Sensors:

- IMUs for each stage
- Barometer
- Telemetry system using some webapp
  - Using LoRa board for tracking our distance
- GPS Module
- Multiple Gyroscopes
  - Use kalman filtering

  - Digital compass

Modeling + Simulation:

- OpenRocket
  - Asks for model parameters

Motors:

- Using "Advanced" Control theory to control the servos

Requirements:

- ignite a motor
- 2 servos
- pop ejection charge to deploy parachute
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Misc.

- Write our code so that we can test it on local machines
- SD Card to store data from each launch
- Quaternion shit
- "intelligent" event based programming
  - faulty motor detection, etc.

2 Motors

2.1 V1

For propulsion:

- Use EDF instead of a motor
  - Better for software testing

For the TVC:

- Use servos for the control system
  - Austin has 2 precision servos

2.1.1 TODO TVC Version 1

2.2 Final Versions

For final version using F/G class rocket motors

- Apogee F10
- Aerotech G12

3 Main Rocket Design

- Gimbal design for rocket motor:
  - $\text{gimbal}_{\text{image}}$
  - If we choose gimbal design, need steel/ceramic when we shift to rocket motors instead of EDF (shit melts)
- Weight capped to $<$ 3lbs
  - For official stuff, $<$ 3lbs to be a legal rocket
  - Most TVCs are 700g or less
- Long burn time (10 seconds)
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