Avionics and RockSim
FNL Workshop
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Agenda

• Avionics
  • Common Failures
  • Switch Types

• (RockSim/OpenRocket)
  • Common Simulation Errors
  • Example
Avionics: Common Failures

• Switch failure
• Not knowing how to program altimeter
• Shoddy wiring, connections crossed, incorrect wire gauge
• Not testing altimeter (not knowing its defective)
• Hardware failures (G-forces move/disconnect battery, pull wire)
• Blocking altimeter’s baro sensor (not using standoffs)
Avionics: Switch Types

- Key Switch
- Screw Switch

Source: https://aeroconsystems.com/cart/switches/
Avionics: Switch Types

• Rotary Switch

• Magnetic Switch

Source: https://aeroconsystems.com/cart/switches/
Avionics: Switch Types

• Twist & Tape
  • No switch used
  • Feed switch wires out through vent hole
  • On pad, twist & tape them together to arm avionics
  • Stuff wires back through vent hole
Simulations: Common Errors

- Rail guide length incorrect
- Mass overrides are unknowingly on
- Parachute deployment (flight events) configured incorrectly
- Not accounting for:
  - All weight and components
  - Rail button
  - Surface finish
- Not understanding that simulations have a margin of error in them
  - Weight, thrust, drag, stability effects on performance
Simulation Programs

• RockSim vs. OpenRocket
  • Since FNL have gone virtual for the time being, OpenRocket (free) seems to be more feasible for all team members to use

• OpenRocket Example