Avionics Introduction Session

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What are avionics?

- Avionics are the brains of the rocket
- Avionics on BSLI encompasses
  - Flight Computers
  - Cameras
  - Electronics Bays
  - Data Collection
  - Telemetry
What Do Avionics Members Do?

• Program and Hook up Flight Computers
• Collect Data from the Rocket
  • Flight Computers
  • Other Data Collection Projects
• Design and Build Electronics Bay
• Onboard Camera Assembly and Video Data Collection
• Create and Solder Arming and Power Circuits
What are avionics? – Programmable Flight Computers

- Marsa 54L and Stratologger CF
- Programmed to Detonate Main and Drogue Chute Ejection Charges at Specified Altitudes
- Collects Temperature, Battery Voltage, and Altitude Data
What are avionics? – Cameras

- Must protrude from “air frame”
- Battery life is a frequent issue
- Important for team marketing

Definitions:
- Air Frame: the outer structural components of the rocket
What are avionics? – Electronics Bay

- Houses Electrical Components in the Rocket
  - Batteries
  - Data Collecting Devices
  - Computers
- Design
  - High Strength
  - Low Weight
  - Easy Access to Components and Wires
What are avionics? – Data Collection

- Data collection can be very technically challenging
- Fast data collection in very noisy environments is often necessary
What did we do last year

• Designed electronics bays
• Work on proving custom flight computer platform
• Implemented several unique sensors
10k Improvements

- Consolidation of Camera and Flight Computer Power Circuits
- Improve Electronics Bay Strength and Accessibility
- Improve Safety When Disarming the Rocket
- Real Time Data?
30k Improvements

• Focus on making last years designs smaller and more user friendly
• Will include...
  • Custom Telemetry System
  • COTS Telemetry System
  • Flight Computers
  • Integrated Sensors
  • LiPo Batteries

Definitions:
• **LiPo**: Lithium Polymer, a type of high current, rechargeable battery
• **COTS**: Commercial off the shelf
• **Telemetry**: A system which relays information from the rocket to the ground
Questions?