Design and Development of a Sensor Payload for Low-Altitude Rocket Deployment

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Project Overview
This sensor payload design featured:
• Autonomous descent and separation from rocket deployment at 650 meters.
• Contra-rotation descent control system of science vehicle.
• Fin stabilization of payload body.
• Collection of a broad range of sensory data.
• Transmission of telemetry to team-developed ground station.
• Designed for CanSat 2015 Competition.

Outcomes
The major subsystems of the project were developed, tested, and integrated into their respective roles of the payload by 6/13/2015, the competition flight day. Of over 60 teams to start competition, this design placed 11th internationally. Team members plan to continue improving designs for a future launch.

Impacts
Students learned about:
• Mechanical System Prototyping
• Autorotation descent control
• Integrated Circuits Design
• MCU Programming in C
• Composites and Prototyping
• Control Systems

Conclusion
This project served as an excellent challenge for engineering students, teaching them the design process – from mission concept realization through flight day. Projects teaching students real-world application of integrated systems are invaluable to the future of the American aerospace industry.

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**CAD renderings developed by Will Hill, Mechanical Lead**