# Open Lab Run by Students for Students

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# Introduction

- Started in Fall 2011
- Two pronged approach
  - Machine Intelligence & Robotics Laboratory (MIRL)
  - Mercer Robotics Club (MRC)
- Interdisciplinary
- Project and Student driven

# Infrastructure

- Knowledge and expertise
- Rapid prototyping
  - Laser cutter
  - 3D printers
  - PCB milling
  - Machine shop
- FPGA/CPLD
- Sensors/Actuators
- Test equipment/Workstations
- Stable programming environments

# Mercer Robotics Club

- Social/Recruiting
- Facebook (http://www.facebook.com/groups/MercerRoboticsClub/)
- Internal Funding
- Project/student collaboration
- Service/Outreach

# Continuing and Synergistic Projects

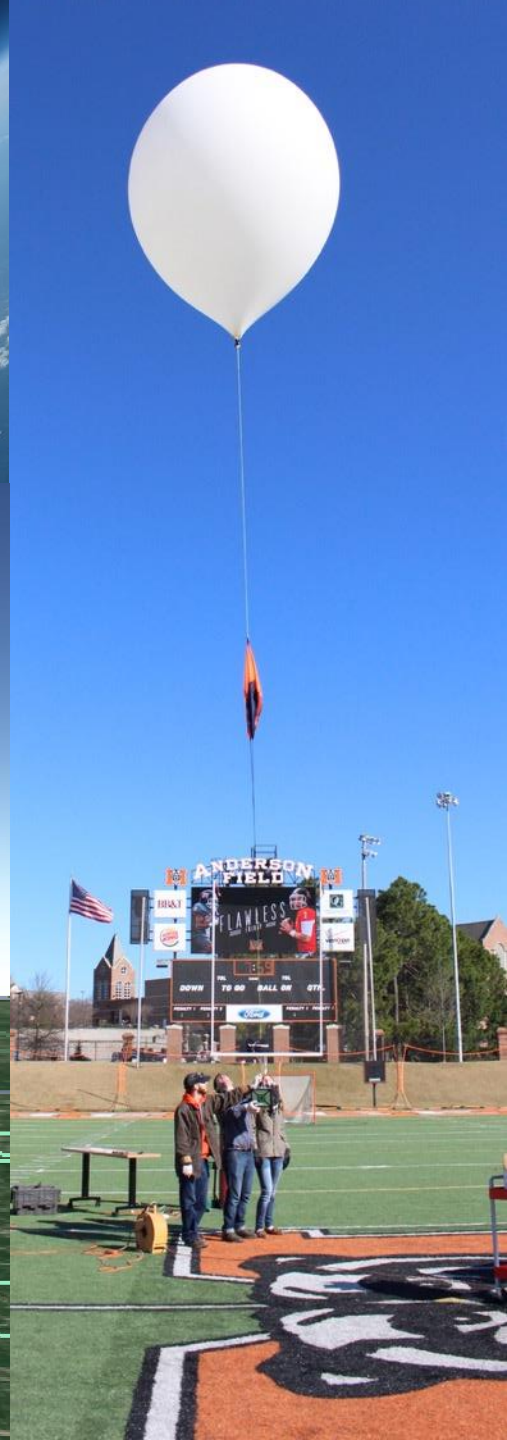
# Impact

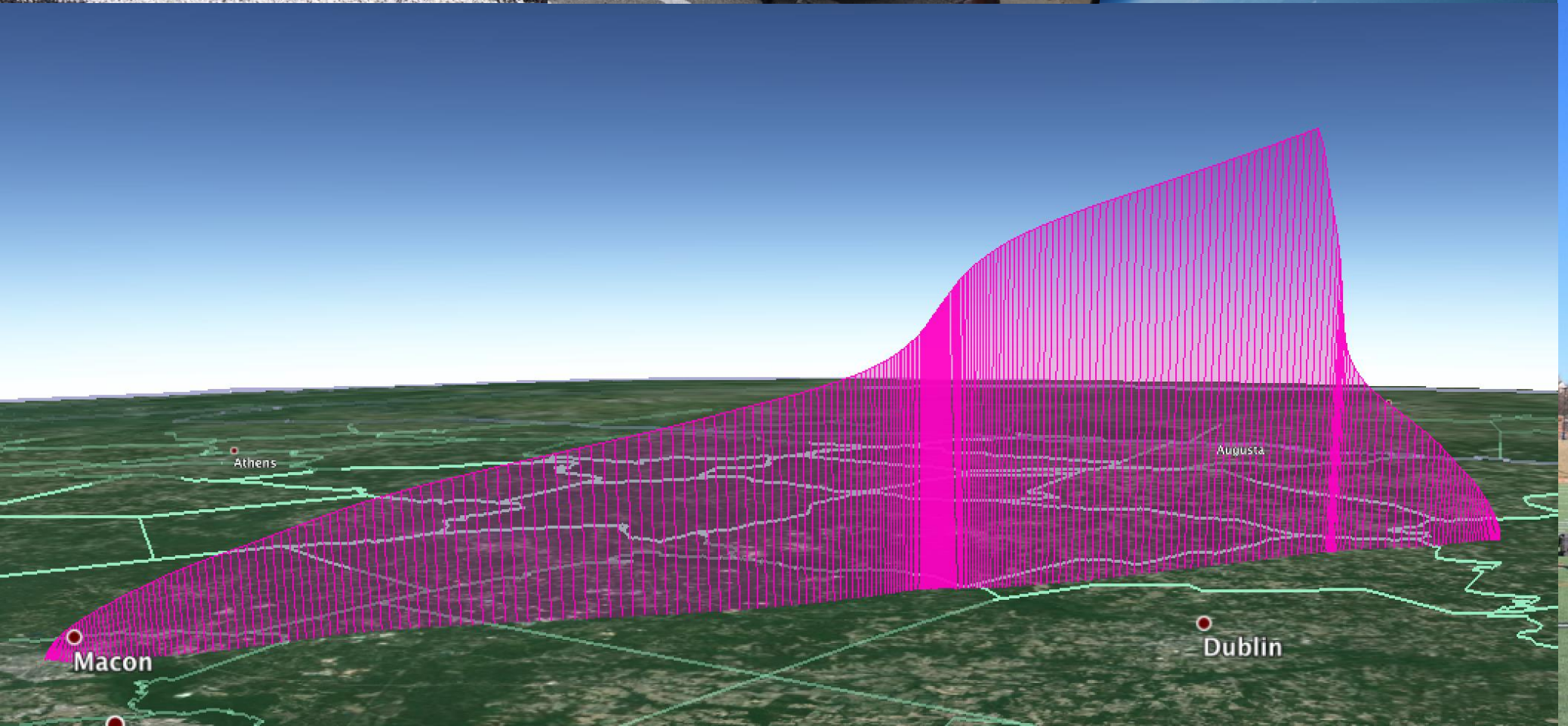
- 50+ active students
- Primarily undergraduate students
- 15+ active projects
- Various outreach activities
- Real world problems working directly with companies/entities
  - Georgia Narcotics
  - Surveying and volumetric

# Outreach

- First Robotics Workshops (Middle GA)
- Robotics workshops for K-12 teachers
- Development of Unmanned Aerial Systems pathway program
  - 6 FAA certified UAS pilots
  - Recognized by Lt. Governor Casey Cagel of GA
- Precision Agriculture applications for Robotics

# High Altitude Balloon Project


ANDERSON FIELD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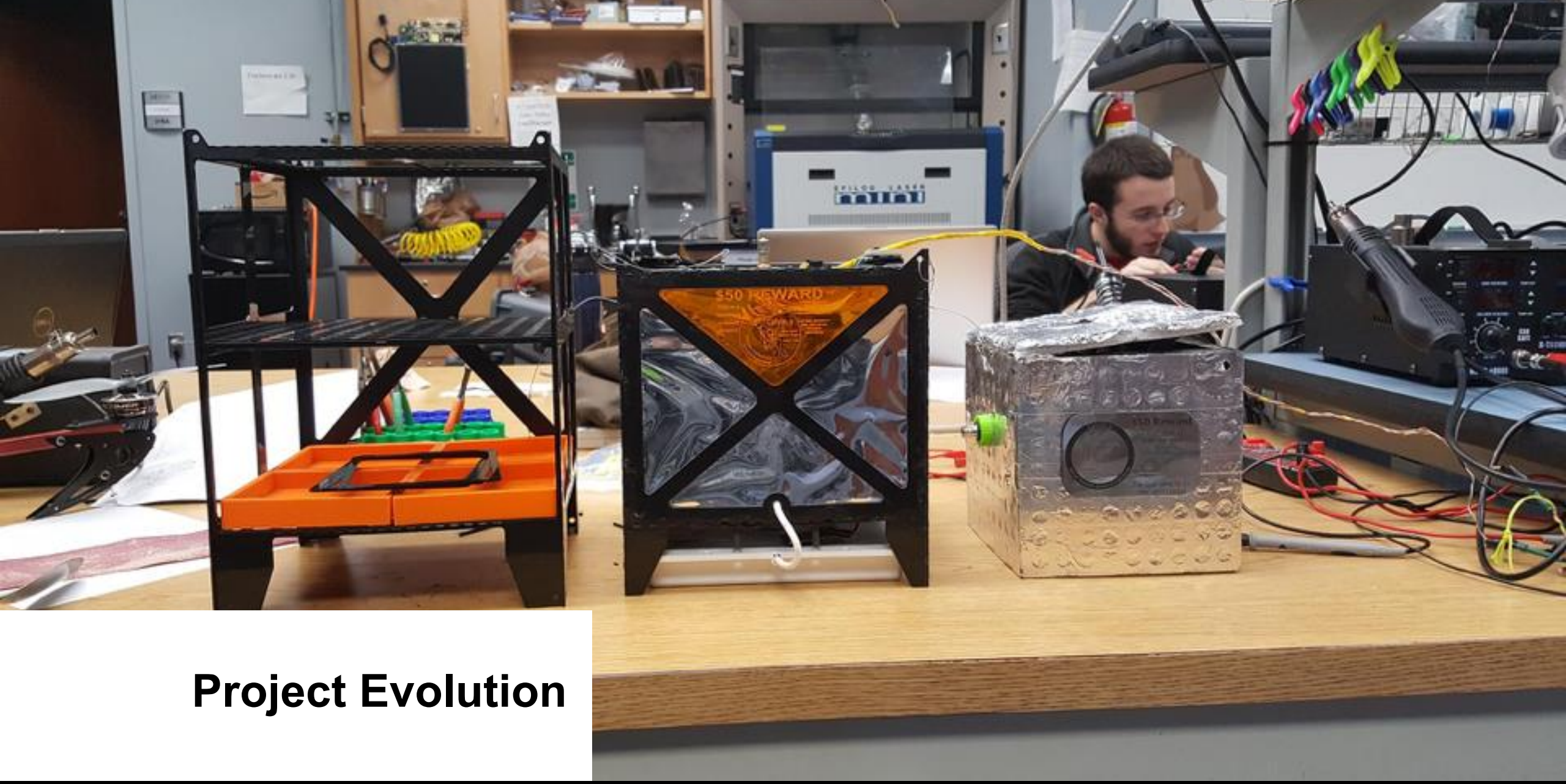
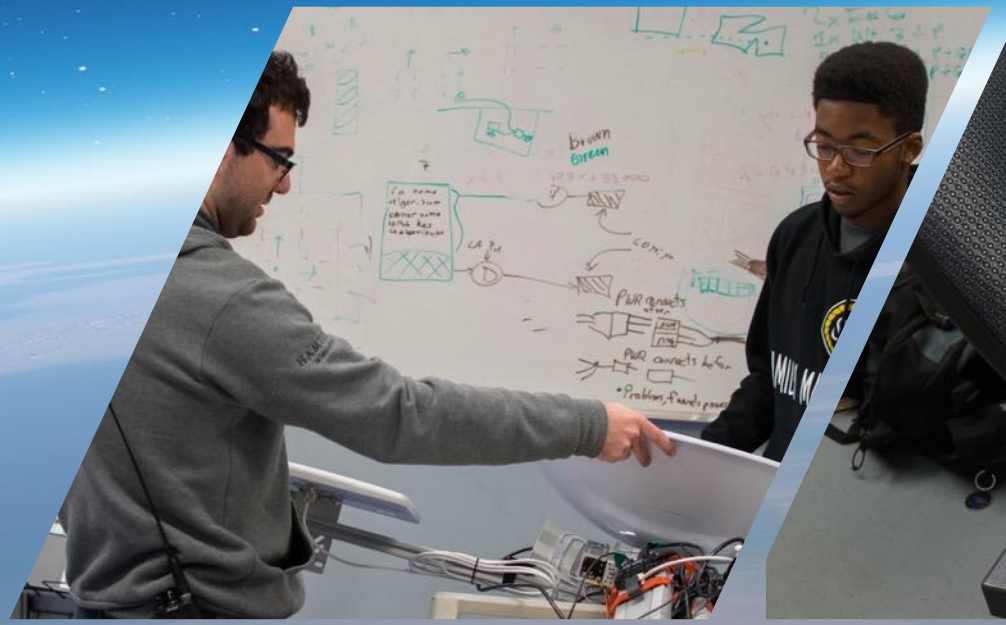
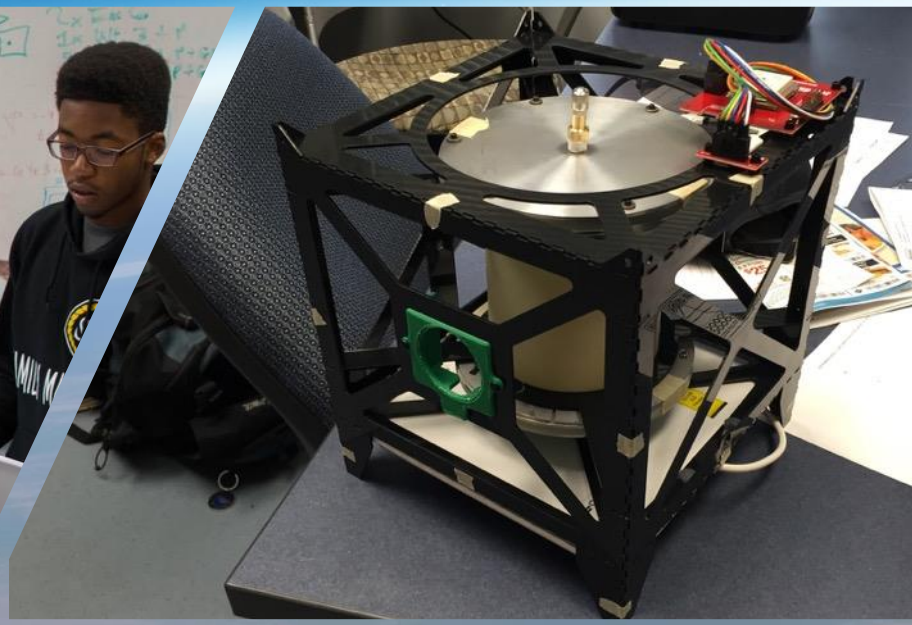


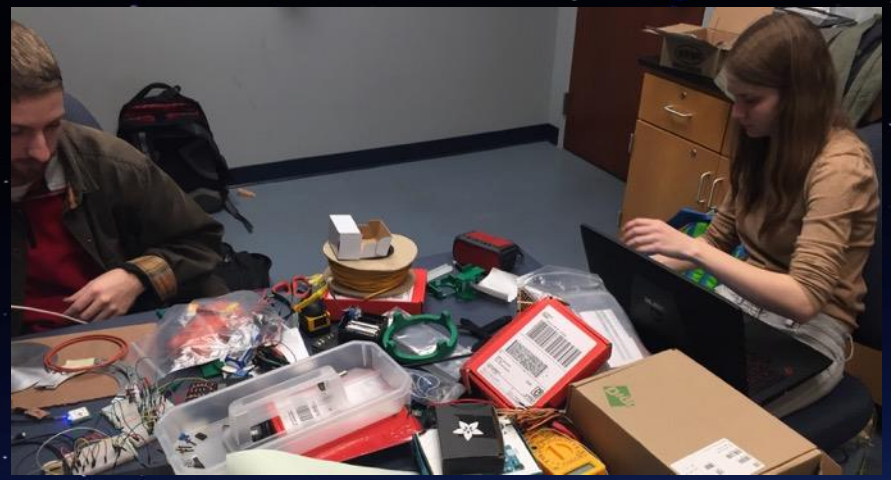

# Project Evolution

# Opportunities

- Student Engagement
- STEM Educational Outreach
- Scientific Research







# Student Engagement

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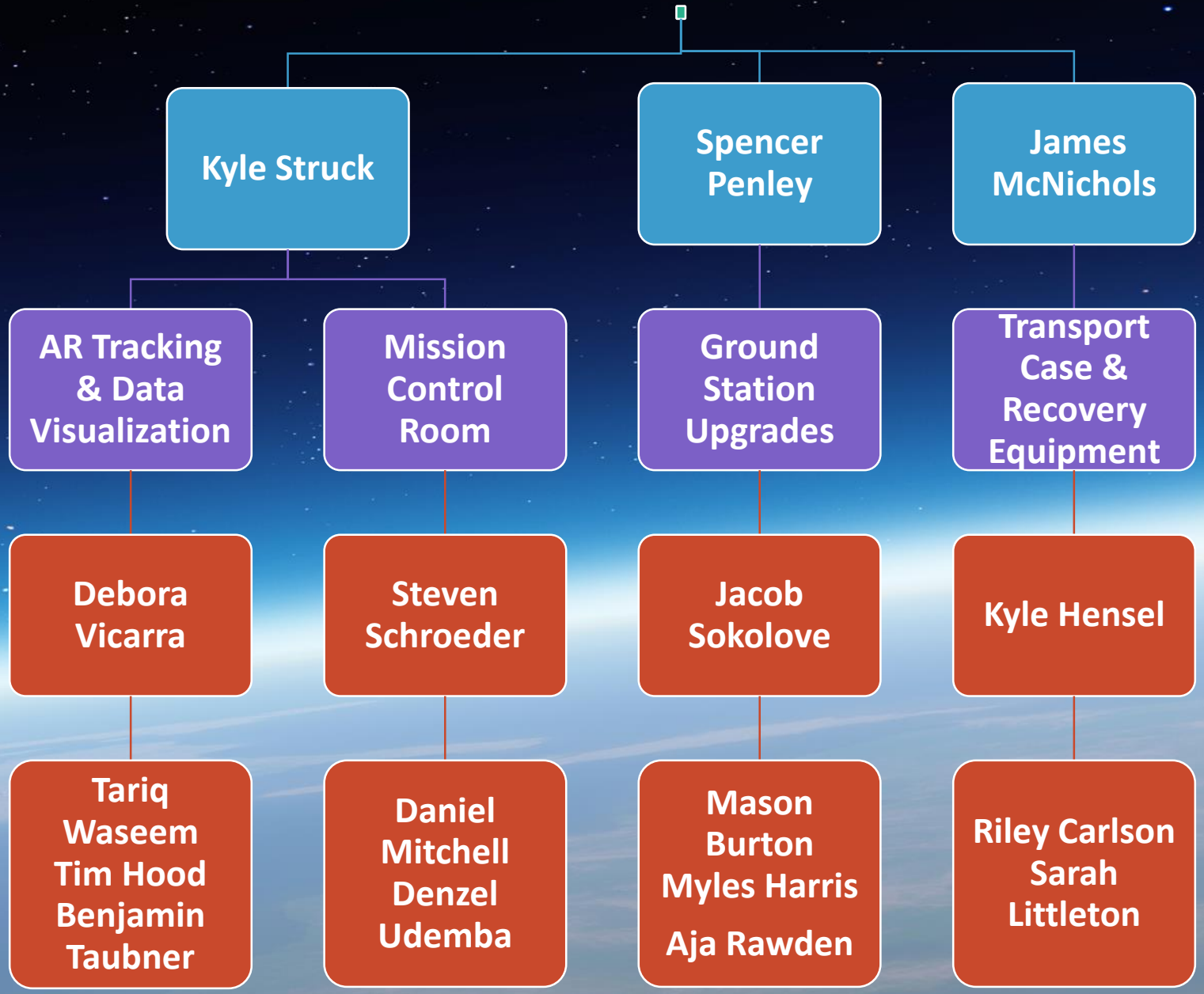
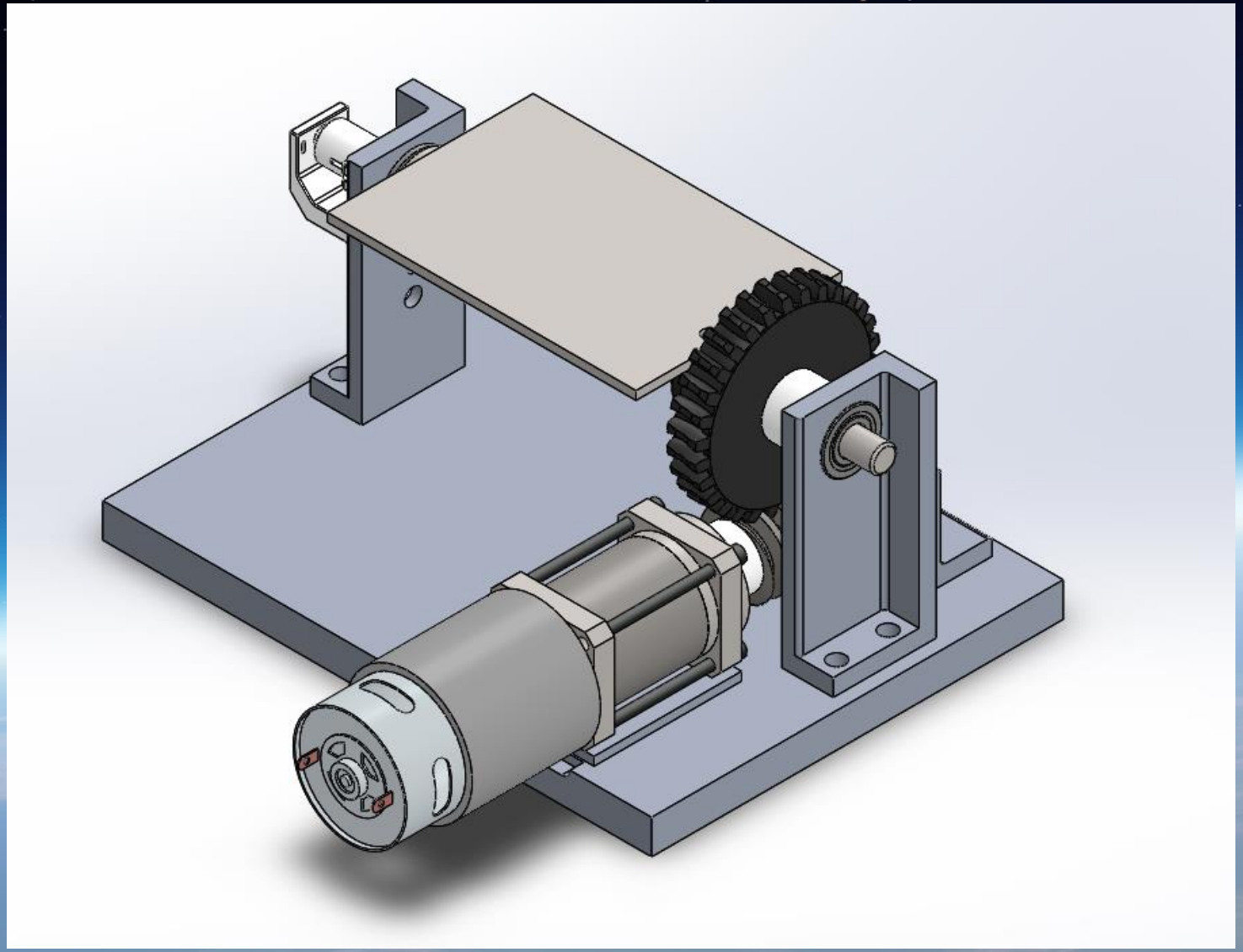


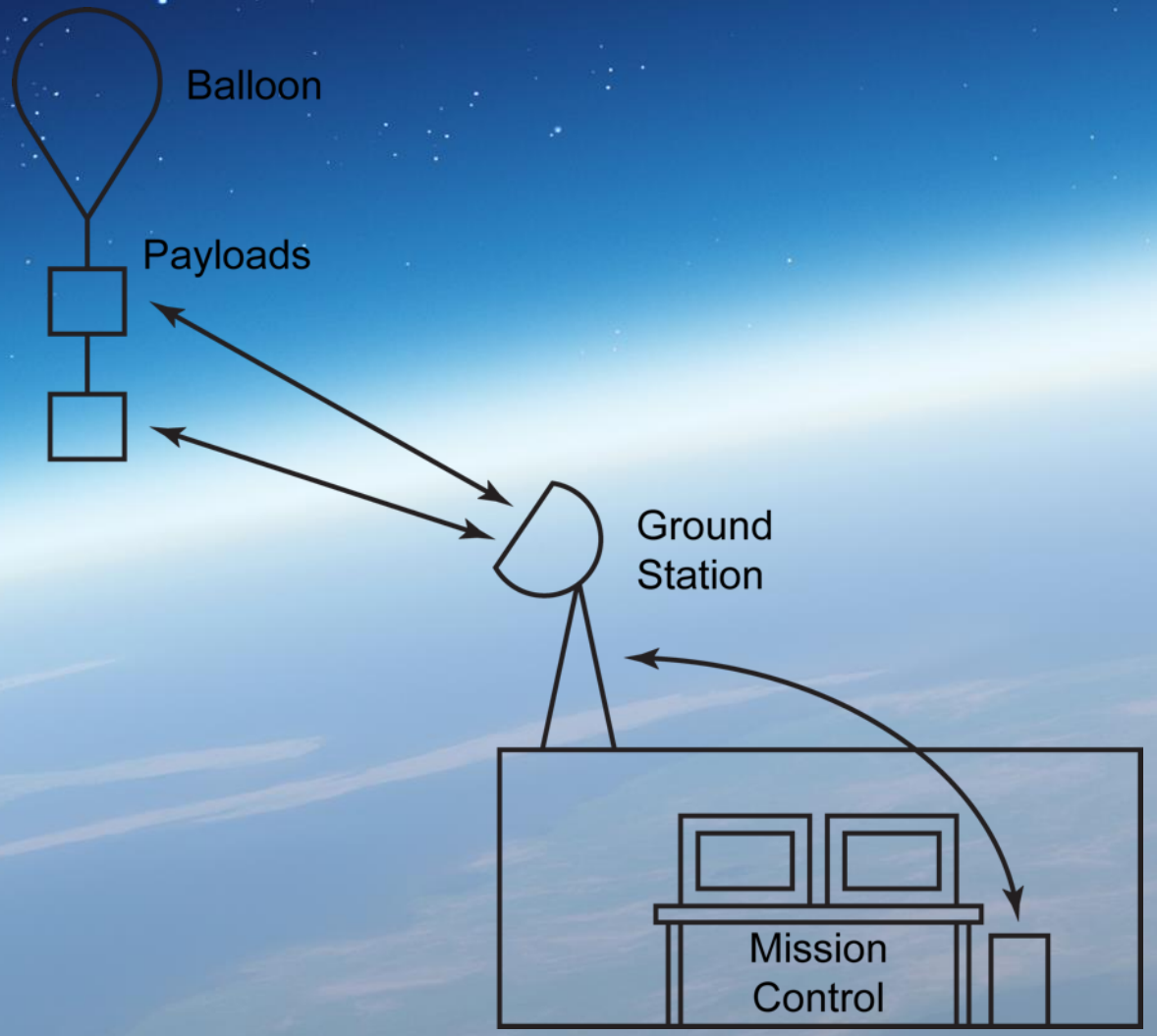
- Worm gear system to prevent back-driving
- 40+lb Load capacity
- Greater range of movement



# Educational Outreach

# Outreach

- Partnering with Kennedy Space Center to educate and inspire students in Putnam (March 23, 2017)
  - Denise Coleman (NASA KSC)
- Ballooning workshop for K-12 STEM teachers (April 6, 2017)
  - NASA Education and Museum of Aviation
- Working with students in K-12 to develop payload experiments for High Altitude Balloon




# Scientific Research

NASA Space Grant
8.21.2017
Eclipse Ballooning Project

# The Future

- Full Fledged Mission Control
- Live Telemetry downlink available to all payloads
- Increased STEM educational outreach