UAH’s Space Hardware Club
Freshmen One Month Project

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What is Space Hardware Club?

SHC is a student led organization that designs, builds, tests, and flies high altitude balloons, satellites, high powered rocketry, and more.
• 120+ members
• 10 different degree programs
• 4 different labs
• 8 project teams
• 46 ballooning missions
• $50,000 annual budget

Left: Student Engineers meet to design payloads. Right: Launching a Balloon Payload at UAH’s Shelby Center for Science and Technology

CanSat (Top) and Battle of the Rockets (Left) Competition Teams
THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

The One Month Project
Project Conception

• Need for Training Tool to Introduce New Members to the Club
  – Introduce Club Project and Leadership Structure
    • Hardware Ordering Process
    • Team Dynamics
  – Introduce Club Technology Capabilities
    • Electrical Design
    • Embedded System Programming
    • 3D Printing/Manufacturing Capabilities
  – Introduce the Engineering Design Process
Wait for Launch
- Power On
- LED blink @ 0.2Hz
- Begin telemetry

Ascent
- LED blink @ 5Hz
- Continue Telemetry
- Above 30 ft

Release
- LED blink @ 10Hz
- Continue Telemetry
- Between 600-700 ft
- Parachute Deploys

Concept of Operations
(From a PDR in 2015)

Descent
- LED blink @ 10Hz
- Continue Telemetry
- >15 ft rate

Landed
- LED blink @ 0.25 Hz
- Begin audible beacon
- Continue Telemetry
One Month 2015

- Over 120 Participants: From Start to Finish
- 24 teams of 5 Students
- 20 Teams to the Flight Line
- Over 250+ participants over 3 years
SHC Prepares Students for Industry

• Hands-on experience with a project from CONOPS to PFR, year after year
• Students present at conferences, write proposals, and create budgets
• Club members approach a problem from a systems engineering approach, making them well rounded engineers
• Members learn professional skills such as team communication, leadership, documentation, time management, and project scheduling.