



# 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.



# UAH

THE UNIVERSITY OF  
ALABAMA IN HUNTSVILLE

- 120+ members
- 10 different degree programs
- 4 different labs
- 8 project teams
- 46 ballooning missions
- \$50,000 annual budget

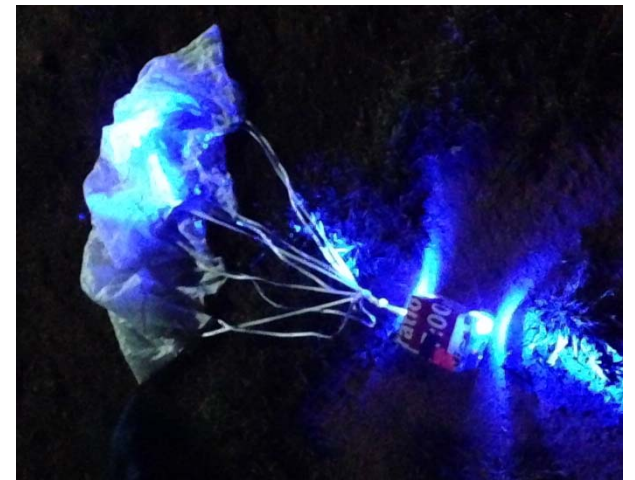


CanSat (Top) and  
Battle of the  
Rockets (Left)  
Competition Teams

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

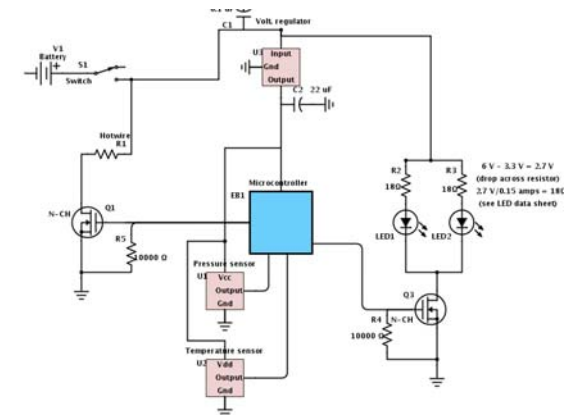


# The One Month Project



# 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



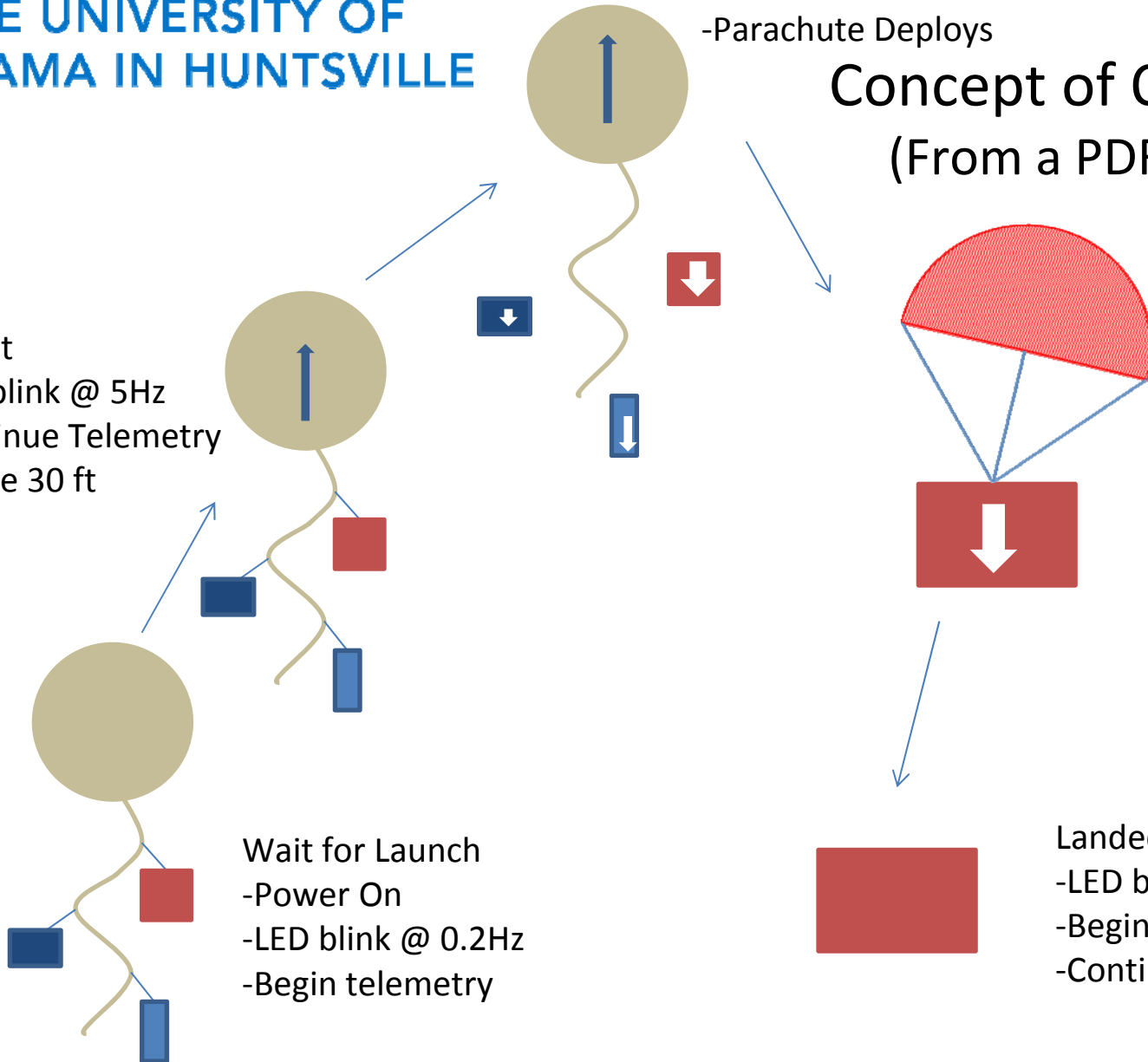
- Release
- LED blink @ 10Hz
  - Continue Telemetry
  - Between 600-700 ft
  - Parachute Deploys

## Concept of Operations (From a PDR in 2015)

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

- Wait for Launch
- Power On
  - LED blink @ 0.2Hz
  - Begin telemetry

- 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.

