Eclipse Ballooning Project

http://eclipse.montana.edu/

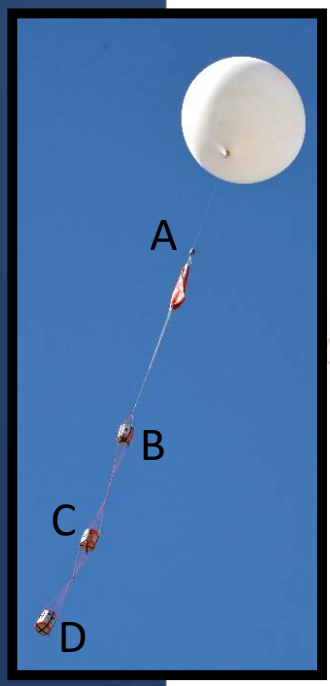
Students will conduct high altitude balloon (HAB) flights from over 30 locations across the 8/21/2017 total eclipse path, sending live video and images from near space to the NASA website. Video and images of a total eclipse from near space are fascinating and rare. It's never been done *live*, and certainly not in a network of coverage across a continent.

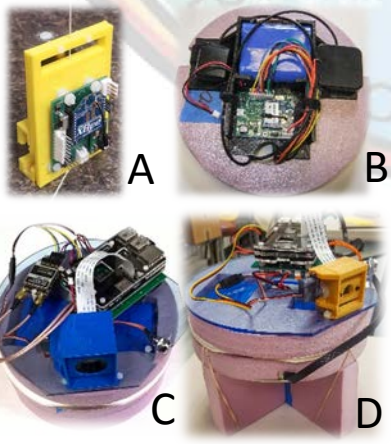
WHY:

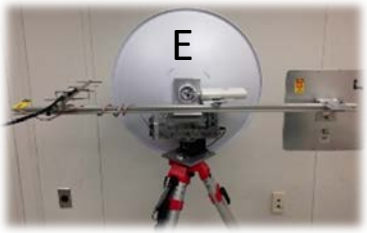
- ❖ **Public engagement. Total eclipses are rare and very impactful events. The continental US hasn't had a total eclipse since 1979. The Eclipse Ballooning Project is in a unique position to engage the public in an awe-inspiring and educational way, *right as the eclipse is happening*.**
- ❖ **Workforce development. This project presents an amazing hands-on learning opportunity for the hundreds of students who are participating.**
- ❖ **Partnerships. Several long lasting partnerships with other federal agencies and with industry have developed and will continue to mature.**

Major Project Milestones:

- ✓ **May 2016: Workshop dry run to build common payload**
- ✓ **July 2016: Workshop to build common payload**
- ❑ **Academic Year 2016: train, practice, test and brainstorm**
- ❑ **June 2017: Dry run with all participating teams**
- ❑ **August 21st, 2017: Eclipse**







About the Common Payload Systems

A – Cutdown: System which mechanically severs the line connecting the payload string to the balloon when commanded.

B – Tracking Payload: Housing an NAL Iridium satellite modem near real time tracking of the balloon and payload string is possible for both FAA and the ground station tracking.

C – Still Image Payload: Using a Raspberry Pi, Pi Camera and 900Mhz modem images can be sent to the ground station and commands/settings can be sent to and from the payload.

D – Video Payload: A Raspberry Pi and Pi Camera are to record and transmit an HD video feed to the ground station using a 5.8Ghz Ubiquiti modem.

E – Ground Station: While tracking the balloon during flight, the ground station gathers the near live HD video stream and uploads it to the internet. The ground station also allows users to receive images from and send commands to the still image payload.