

Bang, Whoosh, Silence

by Larry Bryant

A hundred pairs of eyes, not all human, track a wispy contrail into the broiling blue Texas sky on the 11th of June. On a "little" Cross Plains ranch 40 miles from Abilene, the final competition for CanSat 2011 is underway. With sponsorship from Ball Aerospace Corporation, the Naval Research Laboratory (NRL), the Jet Propulsion Laboratory (JPL), Goddard Space Flight Center (GSFC), and others, the American Astronautical Society (AAS) and American Institute of Technology (AIAA) host an annual student design-build-launch competition for space-related topics for teams of future rocket engineers and scientists. This year the teams built canister satellites (CanSat) that would return a large (it is in Texas) hen's egg intact to earth from an altitude of 1000 meters. Given a set of requirements, the teams designed their vehicle, and presented to review boards at Preliminary Design Reviews (PDR) and Critical Design Reviews (CDR). Then they built, tested, integrated, and headed for West Texas.

Once in place at the launch site, hosted by the Tripoli Rocketry Association, teams did final communications checks, slipped their CanSats into a rocket tube, and launched. Soaring into the azure sky the rocket nose cone separates at apogee, and the CanSat slides out deploying its first parachute. As it drifts down through 500 meters altitude, the canister separates into carrier and lander and deploys the lander parachute. The carrier floats down continuing to transmit altitude, GPS, and temperature data to the team's ground station. The lander records its altitude and temperature measurements as it descends depositing its poultry payload on the dry prairie grass. That was the plan. Unfortunately for several, the effects of wind, failed solder joints, battery depletions, short circuits, and tangled shroud lines had to be included in Sunday's Post Flight Review presentation.

The winner of the competition was the Turkish team "Hezarfen" from Istanbul Technical University (ITU). They recovered their CanSat - both the carrier and lander. They also had the most innovative method of protecting their egg...bread dough made on the spot at the launch site. Stories



of egg and toast for breakfast afterward are just rumors. Their prize for first place was \$2,500. The other winners and prizes were:

- 2nd: Virginia Tech (VT), Team Rocket - \$1,500
- 3rd: International Institute of Information Technology (IIIT), India, Team Gaganyaan - \$1,000
- 4th: The University of Alabama in Huntsville (UAH), Team Jetfire - \$750
- 5th: University of California San Diego (UCSD) - \$500

The Education Subcommittee of the Space Operations and Support Technical Committee (SOSTC) has long been an active leader in this effort. Mark Walker, subcommittee chair, led the SOSTC effort and was joined by Larry Bryant in judging PDRs, CDRs, and the final launch competition. This was a great experience with this year's top two teams separated by only 0.33%. It is amazing to see the results and interact with these future rocket engineers and scientists. If you are interested in supporting CanSat 2012, contact Mark at mwalker@integ.com and check it out on the web at <http://www.cansatcompetition.com/Main.html>.