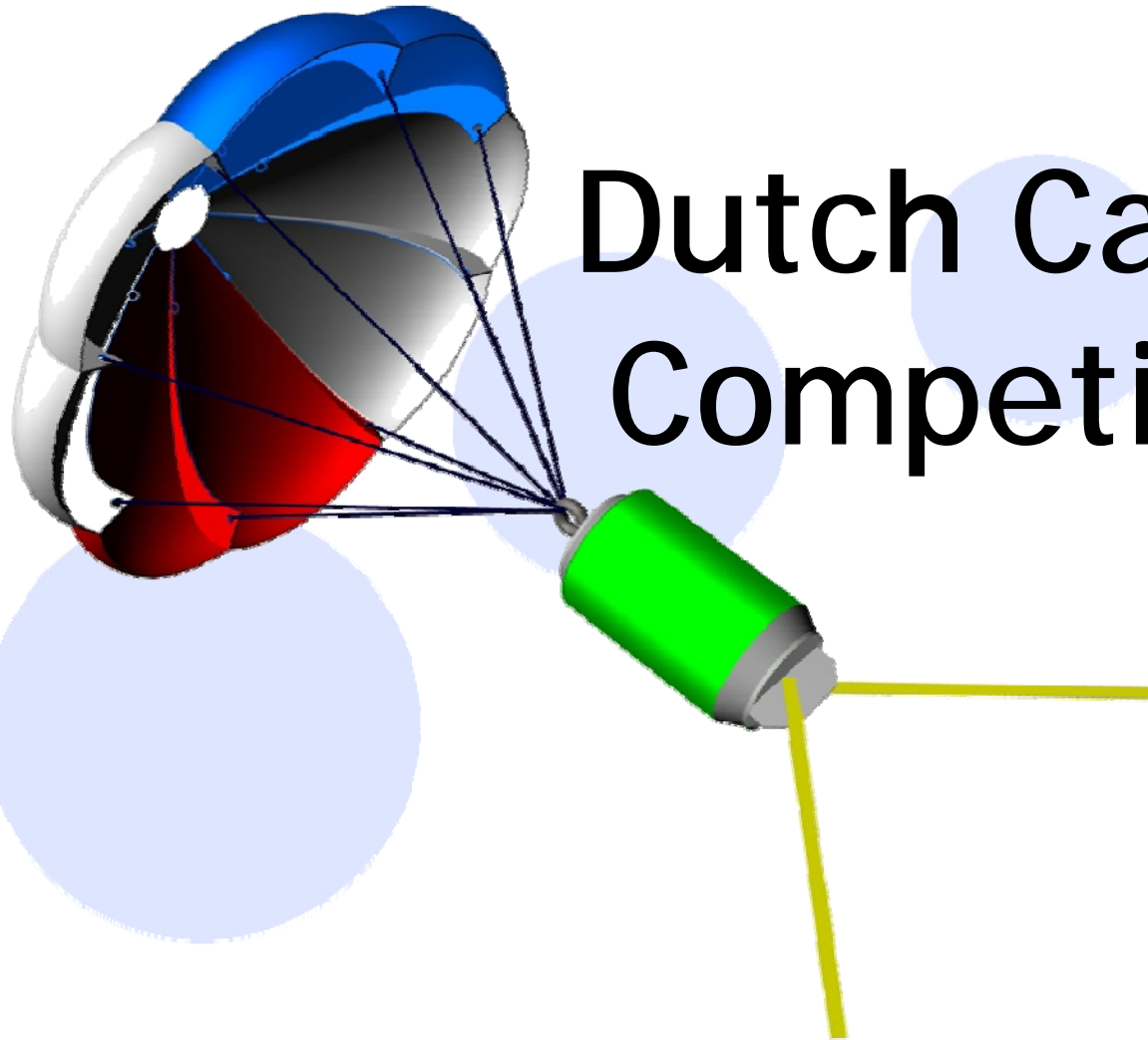


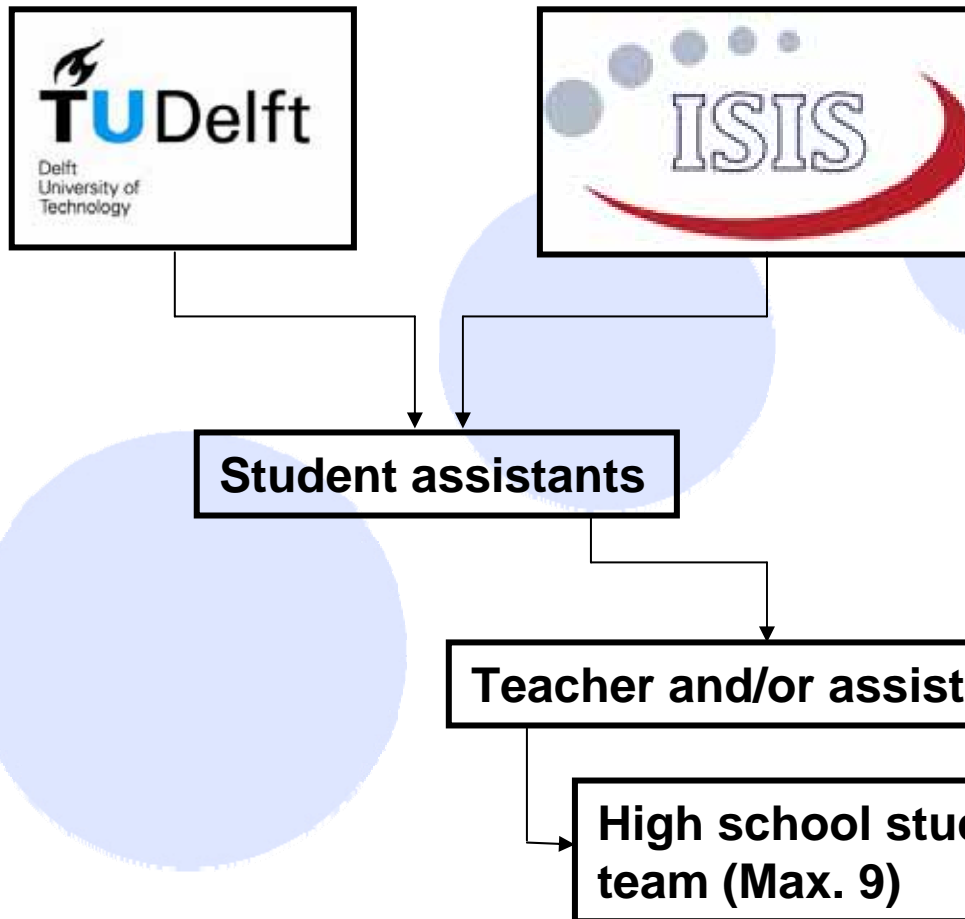
# Dutch CanSat Competition



# Overview

- Organisation
- Goal of the competition
- General overview
- The CanSat
- Activities
- Launch
- Some examples / impressions
- Past and future

# Organisation



## Main sponsors:

TU Delft faculties of  
Electrical engineering and  
aerospace engineering



Netherlands

Space

Office

# Competition Goals

- For us:
  - To make high-school students enthusiastic about technology and to raise their awareness of the importance of technology
  - To persuade them to choose a technical study, preferably at the TU Delft
- For the participants
  - To build a 'satellite' with a unique mission in a 33 cl. soda can.

# General overview

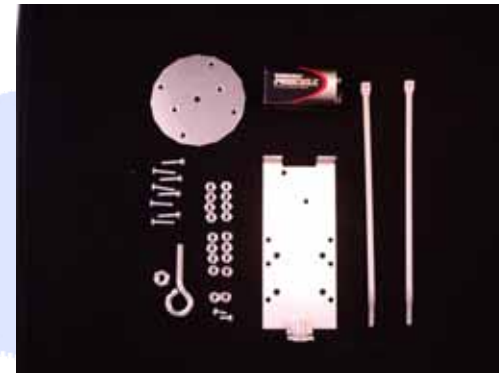
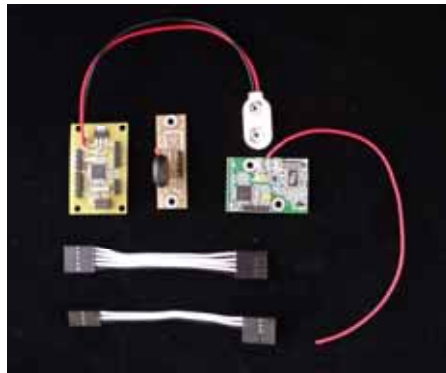
- Competition will go into 4<sup>th</sup> year:
  - 2006/2007: 6 teams
  - 2007/2008: 45 teams
  - 2008/2009: 20 teams
  - 2009/2010: 40 teams

Interest in the competition is generally higher than we can accommodate, so we have to make a selection out of the applications

# General overview

- Schools from all over the Netherlands participate:
  - Admission for 5<sup>th</sup> year VWO high school students (some exceptions allowed)
  - Teachers apply on invitation and rally a team
  - Students almost always use the competition for their "PWS" or education profile report, a major deliverable for high school students

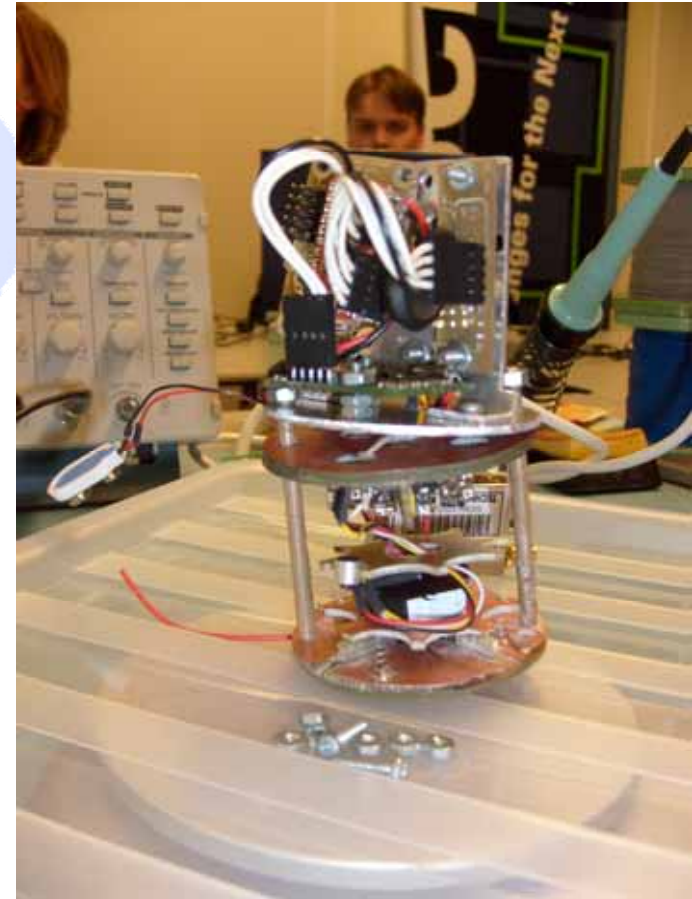
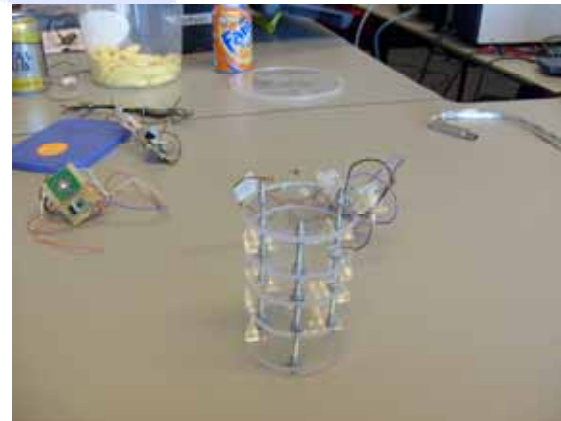
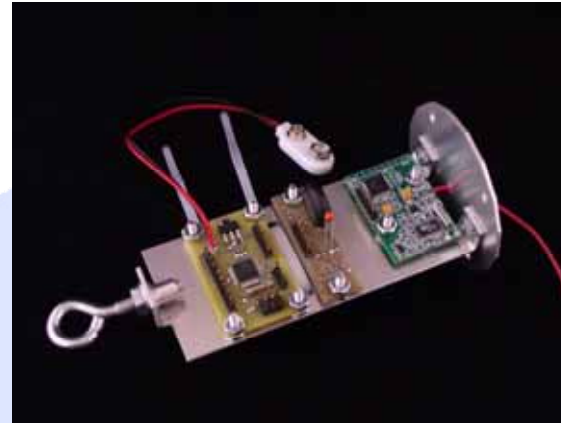
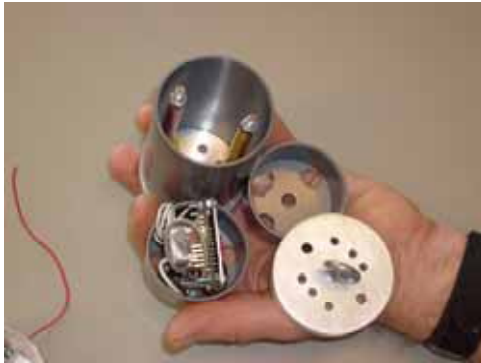
# The CanSat



**What do the students do:**

- Put kit together
- Program primary mission (temp. & press. sensor)
- Calibrate temperature sensor
- Think of their own secondary mission
- Build & program the secondary mission (and modify the cansat accordingly, if necessary)

# The CanSat





# The CanSat

- Rules of the competition:
  - Primary mission is obligatory (calculation of altitude with pressure and temperature)
  - Secondary mission can be anything the students see as interesting
  - No use of flammable or hazardous materials
  - Weight of the CanSat: 370 gr. (no more, no less)
  - Must be maximally the size and shape of a cylinder with same diameter and height of a soda can
  - Schools can spend a maximum of 500 Euros on H/W
  - For both semi and final; maximum flight time of 90 seconds (parachute requirement)

# Activities

- Competition is made up from several activities:
  - Introductory day for teachers
  - Kick-off
  - Workshops
  - Visits to the schools
  - CanSat testing
  - Semi-final
  - Launch day (final)
  - Award ceremony
  - November wk 45
  - November wk 47
  - Februari wk 5-7
  - March wk 10-13
  - May wk 18-20
  - May wk 22
  - June wk 24
  - June wk 26

# Activities

- Introductory day for teachers & Kick-off:
  - Introduce teachers and students to the competition (rules, timeschedule)
  - Explain the working of the CanSat
  - Hand out CanSat kits and manuals

# Activities

- Workshops
  - Give basic soldering instructions
  - Students have to design a couple of simple electronic circuits and build them
  - Integration with CanSat and programming

# Activities

- Visiting schools
  - Opportunity to motivate students
  - Give feedback
  - Improve / build relation between TU Delft and school
  - Promote competition

# Activities

- Testing days
  - Students prove their CanSat is functional
  - CanSat complies with the rules (370 gr., volume according to standard can & parachute right size etc.)

# Activities

- Semi-final
  - Will determine which CanSats will be launched
  - "launch" from sky-lift (70 m.)

# Activities

- Launchday / final
  - Finalists are launched in CanSat launcher
  - Remaining CanSats are launched from sky-lift again, or dropped by RC helicopter
  - Launch location: ASK 't Harde, Veluwe



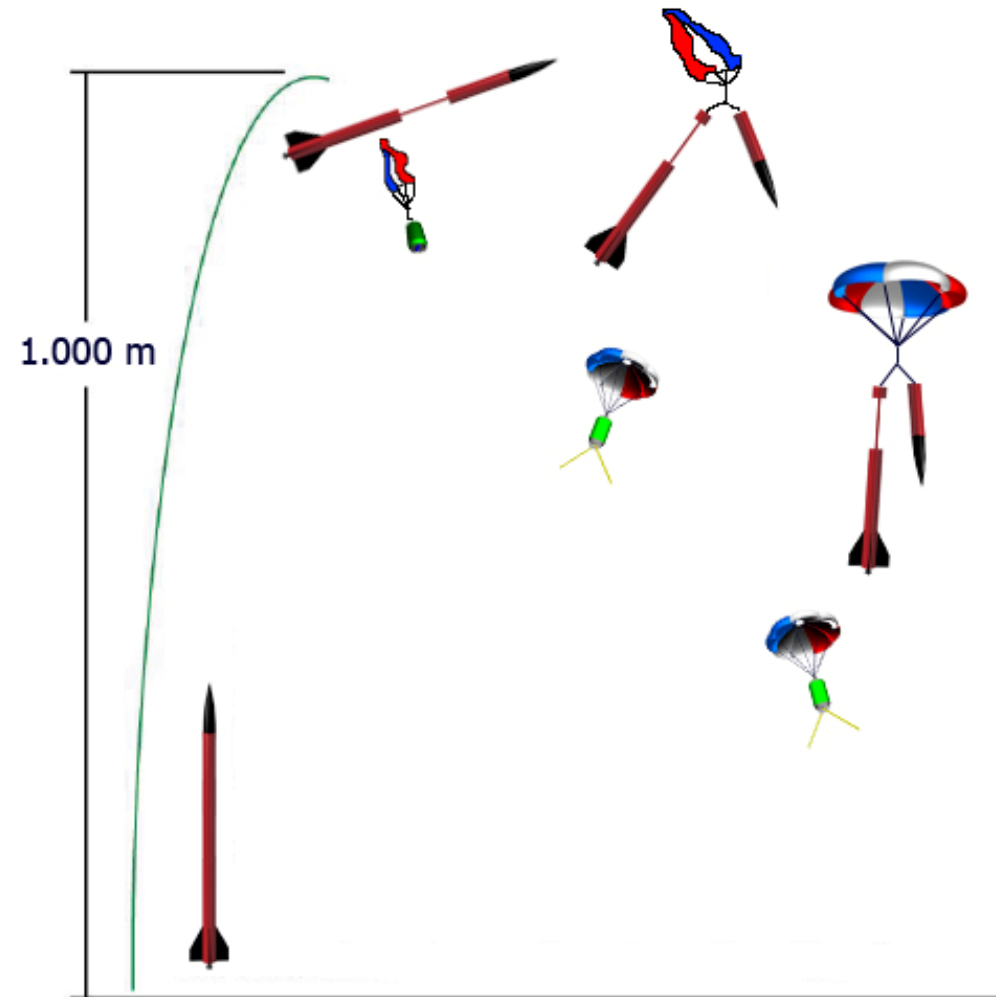
# Activities

- Award ceremony



# Launch

- CanSat launchers (CSL) built & operated by Delft Aerospace Rocket Engineering: DARE
- Newest version can carry & deploy 6 CanSats at a time. (used to be 2)
- Launch terrain is a military artillery range: ASK 't Harde
- NAVRO is involved in safety procedures



# Impressions



# Impressions



# Impressions



# Impressions



## So far...

- Dutch CanSat competition has had a positive effect on the number of 1<sup>st</sup> year students at the TU Delft
- Both high school students and teachers value the educational experience
- Competition will go into 4<sup>th</sup> year and is now very well known and popular among Dutch schools

# Future...

- More schools?
- More teams get to launch?
- Specific format functions very well, but some details remain to be perfected