



The first UNISAT (University Satellite) was created by the GAUSS Group of Astrodynamics of the School of Aerospace Engineering (Scuola di Ingegneria Aerospaziale) of the University of Rome (Università degli Studi Roma "La Sapienza"), composed by University professors, researchers and students of the School and the faculty of Aerospace Engineering.

GAUSS Group was led by Professor Filippo Graziani, teaching Astrodynamics at University "La Sapienza", also member of the International Astronautical Academy (IAA), devoted to the research of orbital mechanics and attitude control subjects, with prior experience also with the San Marco Program, Sirio and ITALSAT satellites and the The thered System on the Space Shuttle. The Group started growing, widening its activities and gaining experience in the Space Systems field, combining theoretical and "hands-on" approaches. UNISAT Program consists of a series of artificial microsatellites for Space education representing a great change in the small satellite sector.

Characteristics

- ☒ First European University Satellite
- ☒ Part of the first Cluster Launch with the DNEPR
- ☒ Shape of an octagonal prism, with size 15 x 25 cm and a weight of 12kg
- ☒ Modular microsatellite hosting scientific payloads: sensors for debris, magnetometer and camera
- ☒ Power subsystems: Solar cells – NiMh Batteries (both experiments)
- ☒ Telecommunications: UHF uplink and VHF downlink, communicating with the ground station
- ☒ OBC: a distributed computing system
- ☒ Low cost: reduced dimensions, short time to be launched, use of COTS subsystems.

Mission Objectives

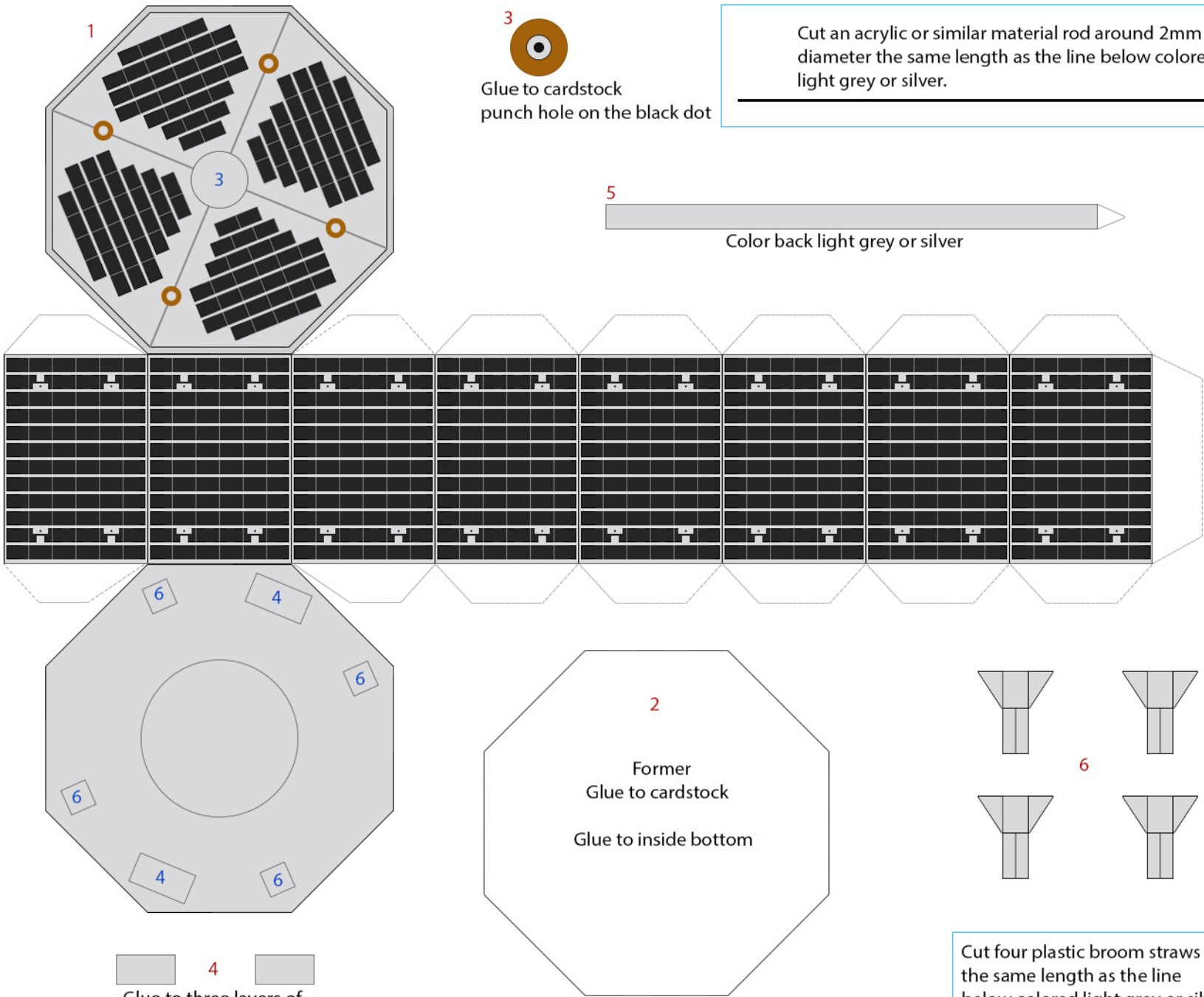
- ☒ Space education and applied research: providing training to students (of aerospace engineering but not only) through a direct and qualifying involvement and increase their scientific achievements (preparation of thesis and papers, learning by doing)
- ☒ Testing technology in Space environment: the innovation is that small payloads can be placed in orbit
- ☒ Enhance Academic and Industry cooperation.

The Launch

UniSat spacecraft was successfully launched the 26 September 2000 from the Cosmodrome of Baikonur (Kazakhstan) onboard the DNEPR Launch Vehicle operated by the Company ISC Kosmotras, together with other 4 microsatellites (MegSat of Italy, TiungSat1 of Malaysia, SaudiSat-1 and 1B of the Saudi Institute for Space Research).

UniSat was injected on a circular orbit at 650 km of height and 65° of inclination.

The launch of UniSat is the first of a successful series and made "La Sapienza" the first Italian University and one of the first in the world to have launched in Space a satellite managed by students. Hence, Microsatellites culture made its way and the concept that microsat missions can be preparatory to more complicated ones started taking roots.



1

3

Glue to cardstock
punch hole on the black dot

Cut an acrylic or similar material rod around 2mm
diameter the same length as the line below colored
light grey or silver.

5

Color back light grey or silver

6

4

6

6

4

6

2

Former
Glue to cardstock
Glue to inside bottom

6

  4
Glue to three layers of
cardstock, colore edges
light grey

Cut four plastic broom straws
the same length as the line
below colored light grey or silver