UNISEC-TURKIYE (UZTED) 2023 Activities

Prof.Dr. Alim Rustem Aslan, UZTED Coordinator, UNISEC Global PoC and StC Member
Manager, Space Systems Design and Test Laboratory
Istanbul Technical University, Faculty of Aeronautics and Astronautics,
Istanbul, Turkey
aslanr@itu.edu.tr

CHAPTERS

UNISEC GLOBAL
University Space Engineering Consortium

UNISEC TURKIYE
University Space Engineering Consortium

UNISEC EUROPE
University Space Engineering Consortium

Established as a legal society

23 Members from

13 Universities (7 Public + 6 Private)

G. Assembly 19.09.2021

18.01.2023

Some Activities 2022-2023

- UZTED Meetings
- 11th NSAT and 8th UNISEC GLOBAL MEETING 2022
- Model Satellite training for regional students
- Space talks to Secondary schools (Space week)
- IAC2023 attandence
- Egypt Hurghada Model Satellite WS, 10 December 2022
- Burkina Faso Model Satellite training, 26-30 Dec. 2022
- AZERCOSMOS CUBESAT Training Jan-Feb 2023
- SHARJAHSAT1 launch (Jan 2023) and operations (S band GS placement)
- 3rd ICESCO Meeting and CanSat WS, August 2023 (Prof. Nakasuka KN)
- NLotusat Student 1U CubeSat Project
- PAUSAT1 Project - nat-int company involvements
- TUA RAFS Project
- METU involved CubeSat Projects
- 14 Dec CubeSat Vision Meeting!!!


The 11th
Nano-Satellite Symposium
The 8th
UNISEC-Global Meeting
October 17-21, 2022
Istanbul Technical University, Istanbul, Türkiye
Nano-Satellite Symposium
The 8th Mission Idea Contest for Multiple Satellites
UNISEC GLOBAL
Oct. 17-18, 2022
11th Nano-Satellite Symposium
nanosat11th@itu.edu.tr
Oct. 19, 2022
8th Mission Idea Contest
spacemic.net
Oct. 20-21, 2022
8th UNISEC-Global Meeting
unisec-global.org
In collaboration with
International Academy of Astronautics (IAA)
Co-hosted by
UNISEC TURKEY
University Space Engineering Consortium
İTÜ
UNISEC-Global Office, c/o UNISEC
Central Yayoi 2F, 2-3-2, Yayoi, Bunkyo
Tokyo 113-0032, Japan
UNISEC GLOBAL
University Space Engineering Consortium
Tel: +81-3-5800-6645 Fax: +81-3-6826-3988
Email: secretariat@unisec-global.org
URL: unisec-global.org


İTÜ

İSTANBUL BAROSU HAVACILIK ve UZAY HUKUKU KOMİSYONU

UZAY TEKNOLOJİLERİNDEKİ GELİŞMELER

14:00 : *Uzayda Madencilik Faaliyetleri*
Av. Nazlı Can
İstanbul Barosu Havacılık ve Uzay Hukuku Komisyonu Başkanı

14:30 : *Uzay Atıkları*
Egemen Demirer
(Havacılık ve Uzay Hukuku Komisyonu Üyesi)

15:00 : *Askeri Uzay Faaliyetleri*
Prof. Dr. Fuat İnce

15:30: *Ay Projesi: Ay'dan Dünya'ya Geri Dönüşteki Zorluklar*
Prof. Dr. Hüsnü Arsev Eraslan

16:00: **Prof. Dr. Fuat İnce ve Prof. Dr. Hüsnü Arsev Eraslan**
İle Sohbet

18 ARALIK 2022, Saat: 14:00
İstanbul Barosu Kültür Merkezi


International Center for Remote Sensing of Environment
isprs
GEO
ISTANBUL TECHNICAL UNIVERSITY
cnes
CSIRO
esa
TUA
Turkish Space Agency
39th International Symposium on Remote Sensing of Environment
"From Human Needs to SDGs"
24–28 April 2023
Rixos Hotels – Sungate, Antalya, Türkiye
ISRSE39 2023 Antalya
Last 5 Days for Early-bird Registration
18 January 2023
Antalya


The future is in the skies.
K. Atatürk
RAST'23
10TH INTERNATIONAL CONFERENCE ON RECENT
ADVANCES IN AIR AND SPACE TECHNOLOGIES
JUNE 7-9, 2023
İSTANBUL / TÜRKİYE
www.rast.org.tr

METU Aerospace Engineering Department

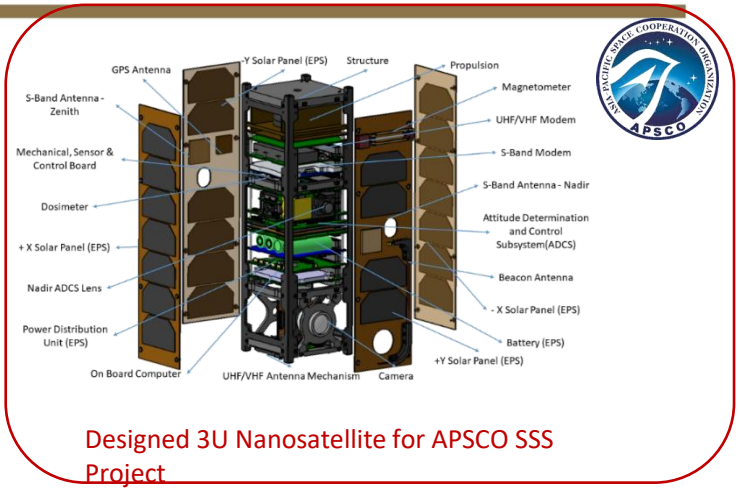
- Founded in 1981 (as aeronautical eng)
- More than 600 students (BS + MS + PhD)
- Fully Accredited by ABET
- Space related undergraduate courses
  - Introduction to Aerospace Engineering (1st year)
  - Space Vehicle Design (4th year)
  - Spacecraft Dynamics (4th year)
  - Introduction to Rocket Technology (4th year)
  - Inertial Navigation Systems (4th year)
  - Introduction to Space Sciences (Graduate)
  - Applied Orbital Mechanics (Graduate)
- Close collaboration with the Aerospace Companies and also the research institutes in Ankara.
  - Candidate Engineering for 4th year undergrad students.
  - Summer training programs

METU | FACULTY OF ENGINEERING
AEROSPACE ENGINEERING DEPARTMENT

METU

Past Activities

- Students are actively involving in USA CanSat (since 2014) and Teknofest Model Satellite competitions.
- APSCO Student Small Satellite (SSS) Project
  - 2nd Summer Camp was held in METU in 2018 for 1 month with attendees from several countries.
  - In collaboration with TUBITAK Space Technologies Research Institute, a 3U Nanosatellite was developed. 22 students involved in the design and development process.
- Collaboration in Space themed EU Research Projects
  - AstroNet I-II, The Astrodynamics Network (modeling and attitude control of flexible spacecraft, formation flying using low thrust propulsion, and space inspection and autonomy)
  - DeOrbit Sail, De Orbiting Satellites Using Solar Sails
- **7th Mission Idea Contest Winner**
  - PARS: Precursor Asteroid Remote Survey Mission
  - After the success we appeared in several media/social media platforms, including the national radio channel TRT.

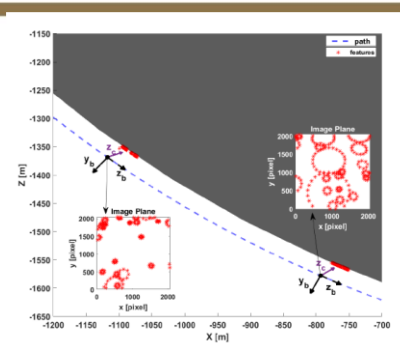


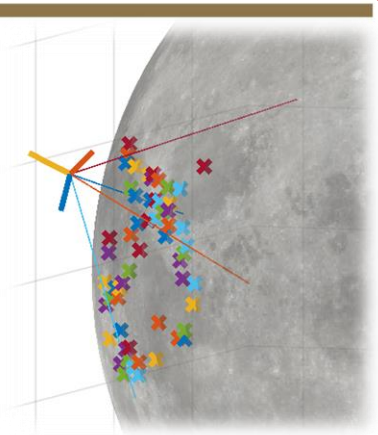
Designed 3U Nanosatellite for APSCO SSS Project

METU

Present Activities

- METU Autonomous Space Vehicles Lab
  - Forming our own lab.
  - Working in collaboration with other departments such as METU EE.
- Students taking part in activities by
  - TUBITAK Space (Lunar program)
  - Private companies (Plan-S, Hello Space)
- APSCO Cubesat Projects
  - An engineering model for a 3U cubesat for disaster monitoring (METUCube) is currently being developed.
  - A joint cubesat constellation project is under preparation.
- International / national research projects
  - Space situational awareness
  - Fault tolerant ADCS design and development
  - Visual navigation algorithms for interplanetary missions
- Outreach activities
  - Space workshop for junior high school students
  - Science talks





Research outcomes for visual navigation aid for a lunar lander

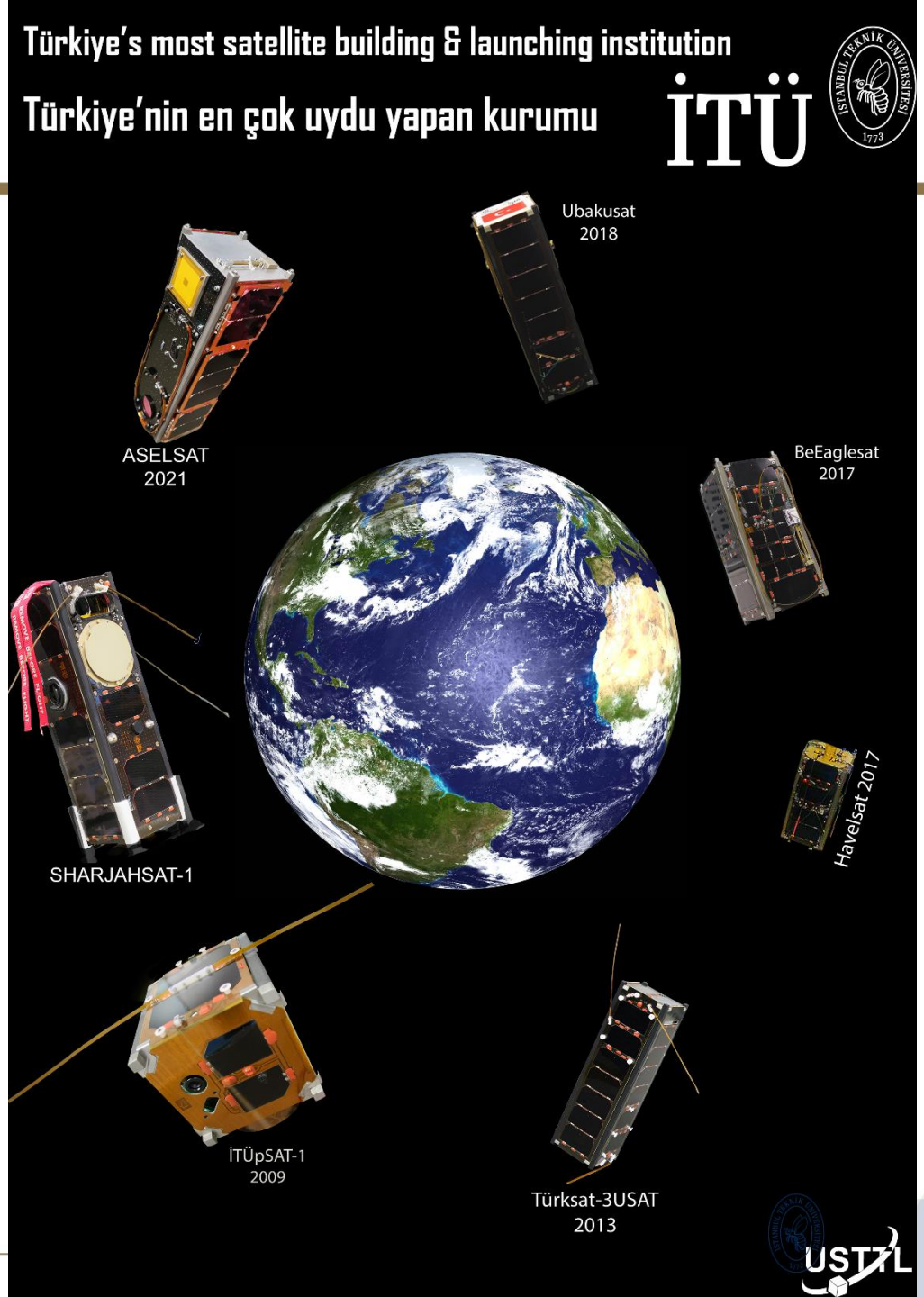
Students contributed to the development of pocketqube satellites by Hello Space

Kids designing their cubesat missions and preparing paper mock-ups

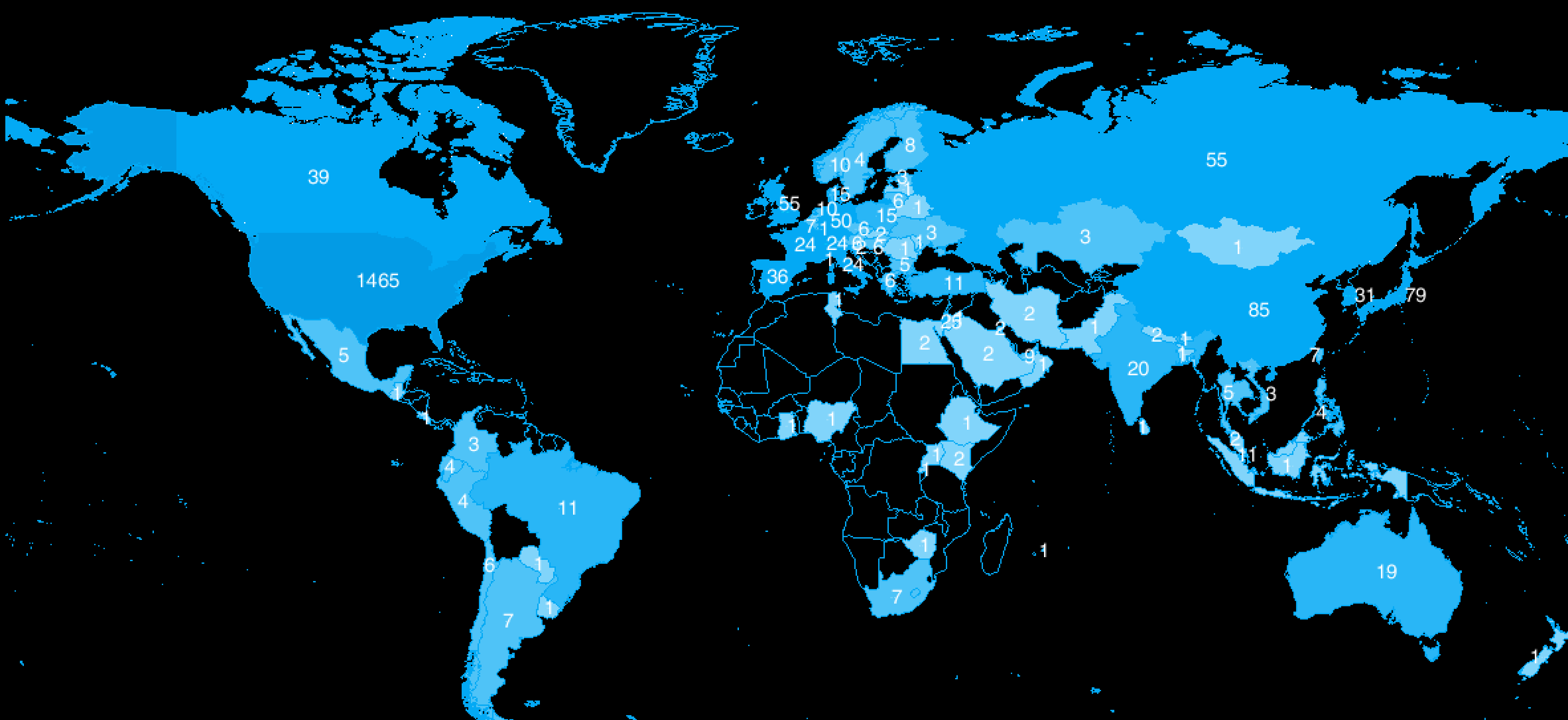
İTÜ-SSDTL
Space Systems Design and Test Lab

İTÜ-SSDTL CUBESAT PROJECTS

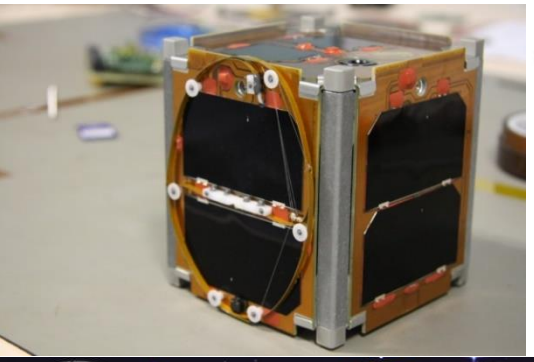
ITU-SSDTL has completed 7 CubeSats in the lab (all launched) , and supported many others into orbit.

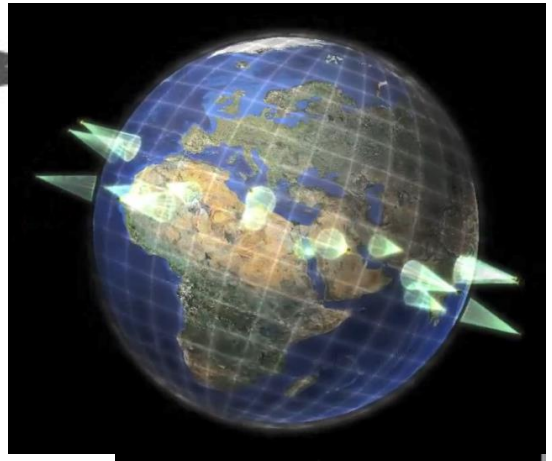


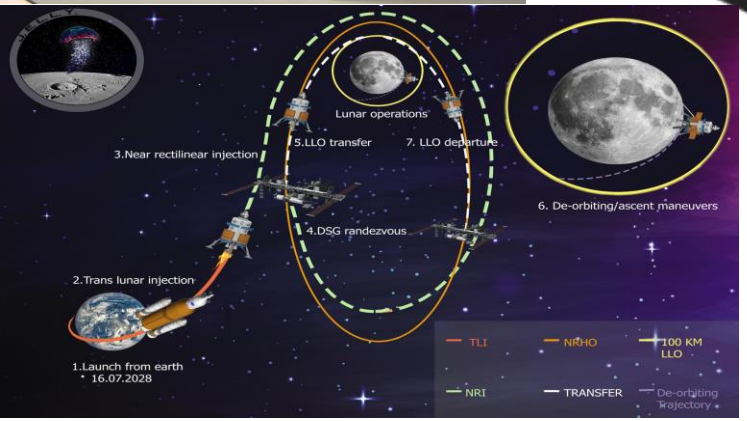
Launched nanosatellites



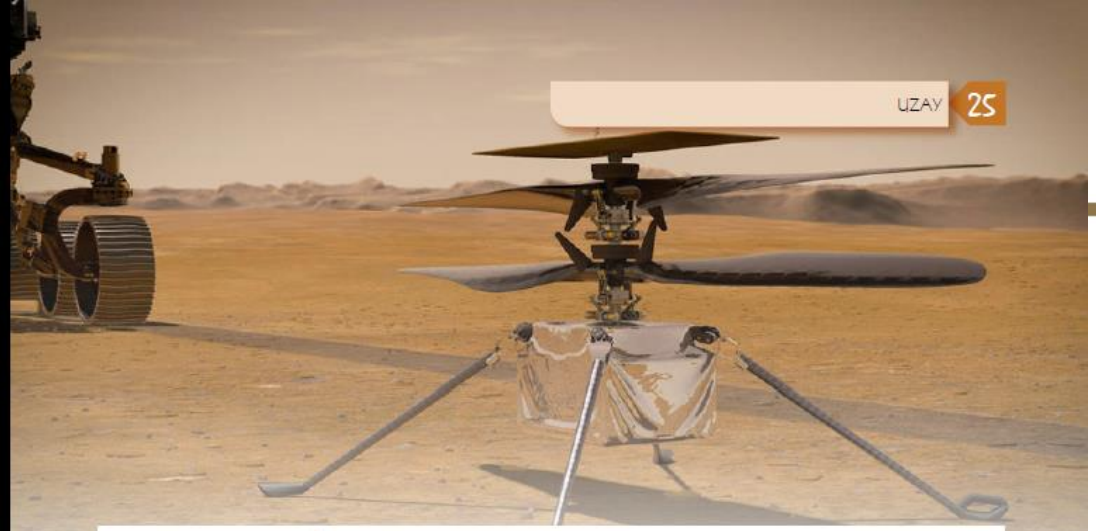
Small Satellite Constellations for various Applications
FUTURE OF CUBESATS







Prof.Dr. Alim Rustem Aslan
Manager and founder, Space Systems Design and Test Laboratory
Istanbul Technical University, Faculty of Aeronautics and Astronautics,
Istanbul, Turkiye, aslanr@itu.edu.tr, http://usttl.itu.edu.tr



MARS HELİKOPTER TASARIMI

Zeynep Sevgi Savaş[1], Prof. Dr. Alim Rüstem Aslan[2]

1. GİRİŞ

Uzay araştırmalarının büyük önem kazandığı günümüz dünyasında, bu araştırmalarda Mars'ta keşif çalışmaları da önemli bir yer tutmaktadır. Mars, Güneş sisteminin erken tarihini ve küçük gezegenlerin zaman içinde nasıl evrimleştiğini anlamak için ideal bir gezegendir. Mars'ta veya herhangi bir Dünya dışı cisimde geçmiş veya şimdiki yaşamın kanıtı henüz bulunamamıştır ve bu temel soru, keşif görevlerini asıl motive eden şeydir [1].

Başlangıçta Mars, uydular ve yörüngeler kullanılarak uzaktan incelenmiştir. Daha sonra araştırmalar ve çalışmalar bir adım daha ileri götürülmüştür ve gezegen sabit yüzey aracı kullanılarak yüzeyden incelenmeye başlanmıştır. Ancak sabit yüzey araçları düşünüldüğünde, hareketsiz oldukları için işlevlerinin sınırlı olduğu söylenebilir. Daha sonra geliştirilen gezici teknolojisi, Mars yüzeyinde daha ayrıntılı bir araştırma fırsatı sağlamıştır. Geziciler hem yüzeyde olup hem de hareket edebildikleri için daha detaylı keşifler yapabiliyorlar. Mars araştırmalarına yönelik bir adım ötede neler olacağı düşünülürse, şu anda hayata geçirilen helikopter teknolojisinin bu olduğu söylenebilir. Mars'ta uçacak bir araç, araştırmalara farklı bir bakış açısı sağlayabilir. Böyle bir araç, yüzeyi yukarıdan gözlemleyebilir, daha geniş bir mesafeyi inceleyebilir ve uçabildiği için büyük engellerin üstesinden rahatlıkla gelebilir.

Mars'ta uçacak bir helikopter tasarlamak için öncelikle Dünya'da uçan helikopterlerin teknolojisini iyi anlamak gerekiyor. Helikopterlerin genel mekanizması basitçe incelenecek olursa, helikopter, pal adı verilen kanatlarla uçan bir uçaktır. Rotor sistemine sahiptir. Kanatlar, helikopter motorunun gücü altında dönerek bir hava akımı ve bu hava akımı sonucunda bir itki oluşturur. Ortaya çıkan itme kuvveti helikopterin ağırlığını aştığında helikopter kalkış durumuna geçer. Helikopterin ileri uçabilmesi için rotor tarafından tutulan kanat gövdesi belli bir açıyla eğilir ve ileriye doğru bir itme meydana gelir ve bunun sonucunda helikopter ileri doğru hareket etmeye başlar. Pek çok helikopter çeşidi ve her çeşidin kullanıldığı farklı alanlar bulunmaktadır. Her helikopterin belirli avantajları ve dezavantajları vardır. Bazı helikopterlerin taşıma kapasitesi yüksektir ve daha fazla kargo veya yolcu taşıyabilir. Bazı helikopterlerin taşıma kapasitesi

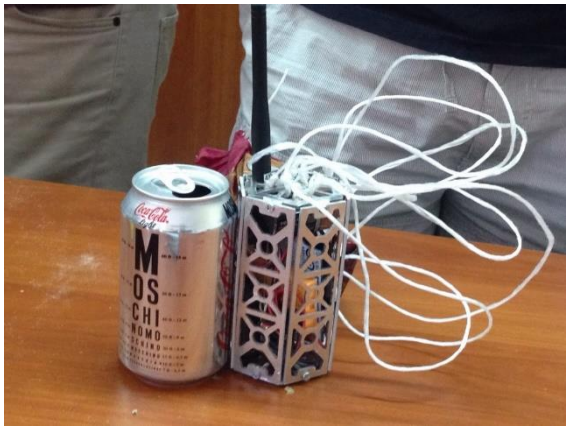
[1] Öğrenci, Uzay Mühendisliği Bölümü, İstanbul Teknik Üniversitesi - savazz16@itu.edu.tr
[2] Öğretim üyesi, Uzay Mühendisliği Bölümü, İstanbul Teknik Üniversitesi - aslanr@itu.edu.tr

Astronautical Engineering and Design

CANSAT(MODEL SATELLITE) DESIGN and TRAINING

2022/2023 SPRING

CanSat – Model Satellite
Intro to CanSat, Mission Definition and Sensors



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Istanbul, Turkey

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AIAA DEEP SPACE PROJECTS for SSD COURSE

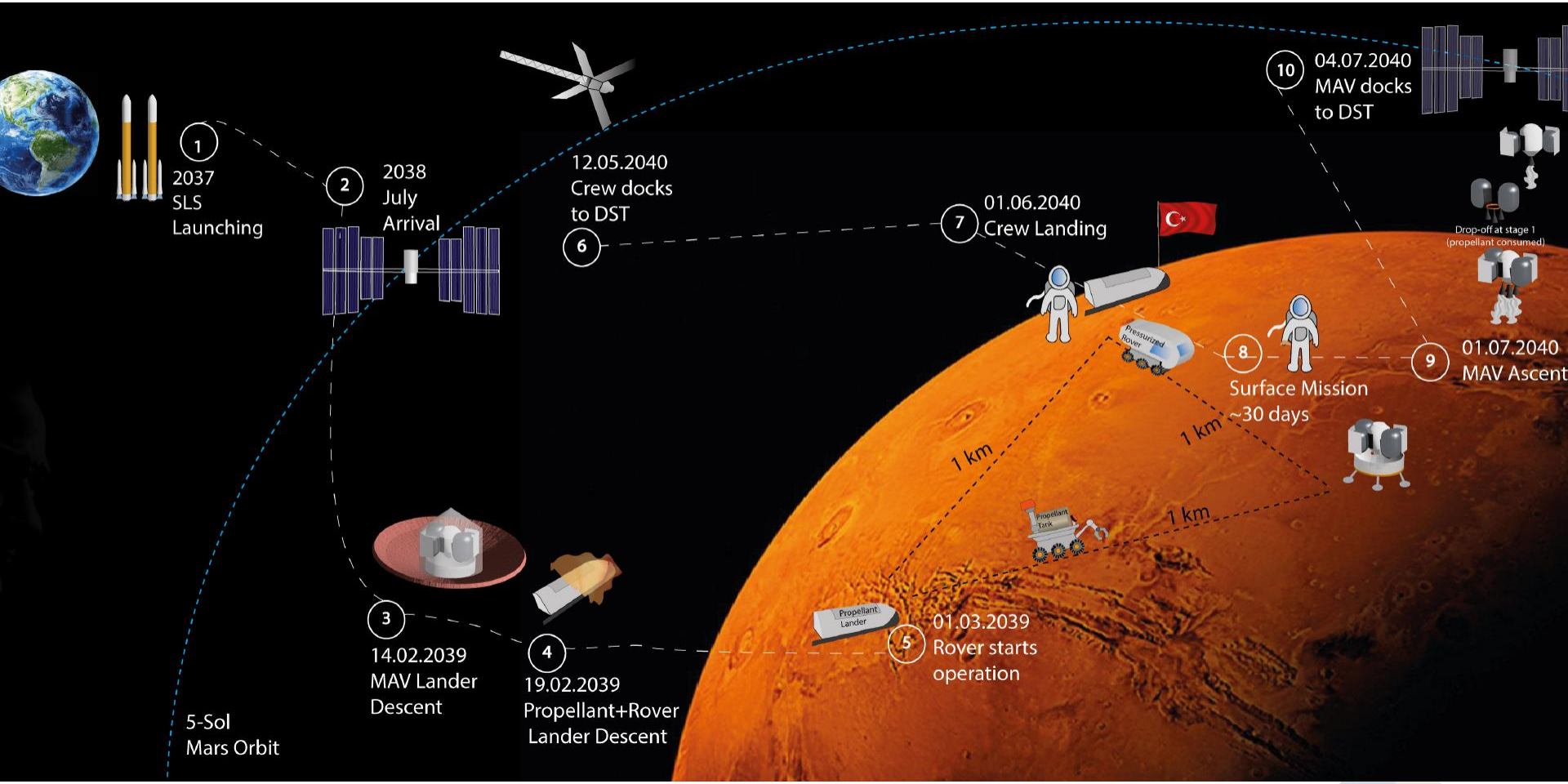
2021-2022 Project
Manned Mission to Martian Moons

2022-2023 Project

MARS DUAL ASCENT VEHICLE

2023-2024 Project

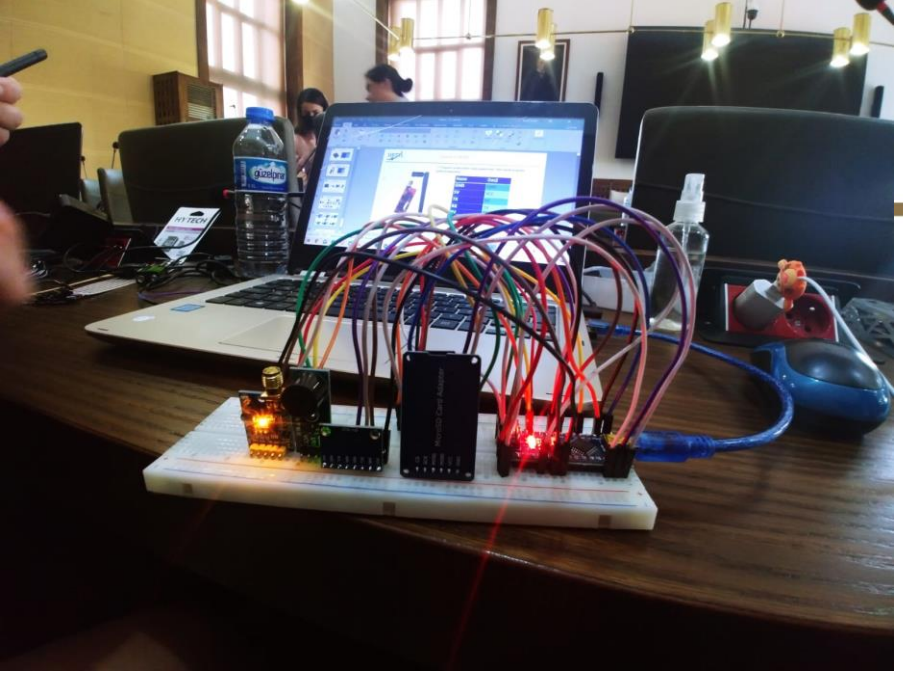
Human Enabled Venus Robotic Exploration


1
2037
SLS
Launching
2
2038
July
Arrival
12.05.2040
Crew docks
to DST
6
7
01.06.2040
Crew Landing
10
04.07.2040
MAV docks
to DST
Drop-off at stage 1
(propellant consumed)
Pressurized
Rover
8
Surface Mission
~30 days
9
01.07.2040
MAV Ascent
1 km
1 km
1 km
Propellant
Tank
Propellant
Lander
5
01.03.2039
Rover starts
operation
3
14.02.2039
MAV Lander
Descent
4
19.02.2039
Propellant+Rover
Lander Descent
5-Sol
Mars Orbit

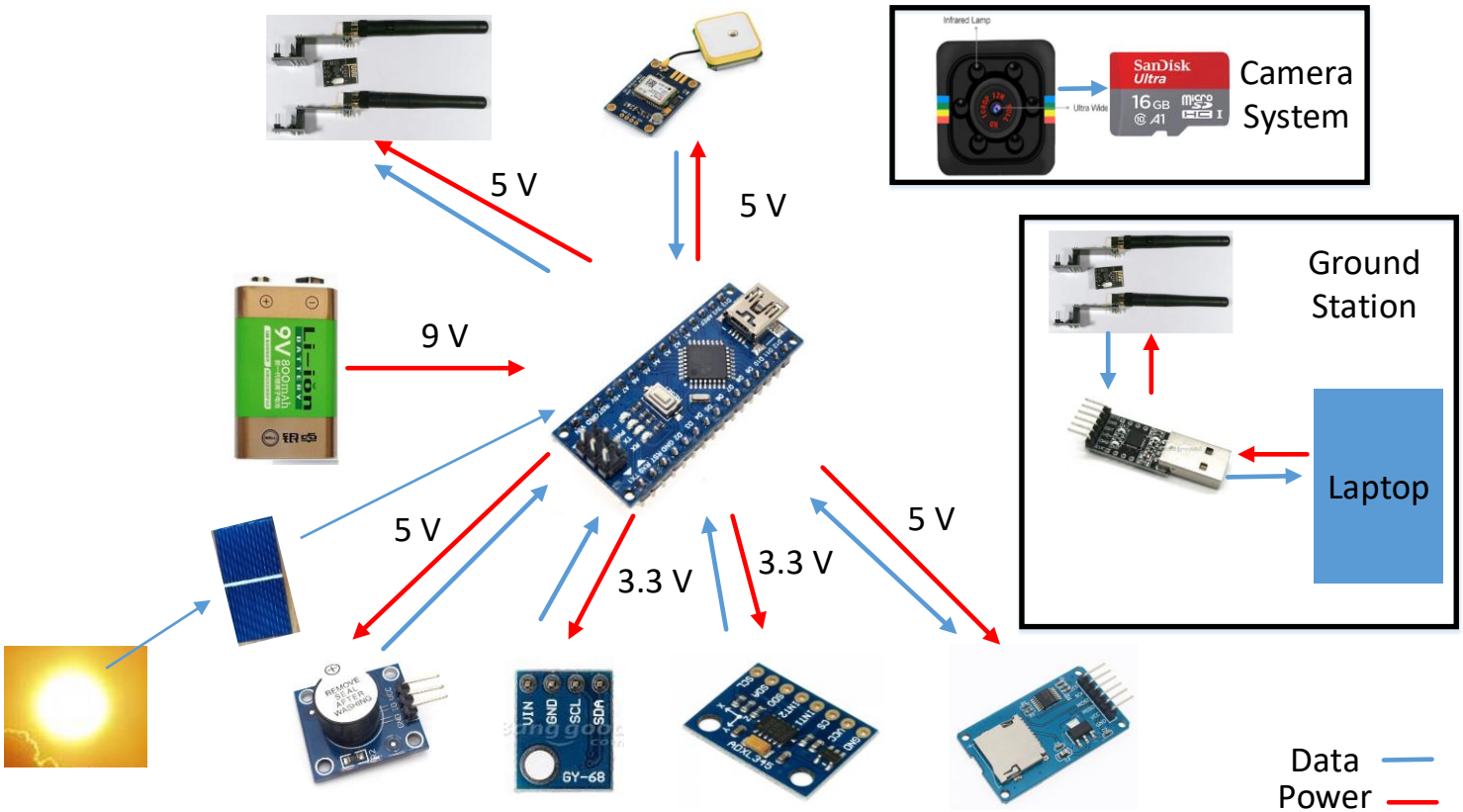
CANSAT/CUBESAT HANDS ON WORKSHOPS

- CANSAT/CUBESAT Design and development WORKSHOPS in
- Turkiye (many cities)
- UAE (Uo Sharjah)
- Jordan, ISNET
- Lebanon
- Sri Lanka
- Pakistan
- Morocco, ICESCO
- Egypty, NARSS
- Burkina Faso, ICESCO
- Efforts towards UN UN 2030 goals


DOĞA



Cansat Example Power and Data Block Diagram




ايسيسكو
ICESCO
ICESCO'S 3rd
INTERNATIONAL MODEL
SATELLITE (CanSat)
WORKSHOP & AEROSPACE
SYMPOSIUM
"Building Tomorrow's
Global Workforce"
31st July 2023 - 5th August 2023
Istanbul & Aksaray, Turkey
azercosmos
GUHEM
roketsan


ISLAMIC WORLD EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION
ORGANISATION DU MONDE ISLAMIQUE POUR L'EDUCATION, LES SCIENCES ET LA CULTURE
ICESCO
ICESCO'S FIRST INTERNATIONAL
MODEL SATELLITE
(CANSAT) TRAINING
WORKSHOP & AEROSPACE
SYMPOSIUM


NOVERT


HYBRID EVENT
ICESCO'S FIRST INTERNATIONAL MODEL SATELLITE (CANSAT) TRAINING WORKSHOP & AEROSPACE SYMPOSIUM
ICESCO HQ - RABAT - KINGDOM OF MOROCCO
REGISTRATION LINK
JULY 18-22 , 2022
10:00 AM GMT+1
WWW.ICESCO-ACCELERATOR.COM/CANSAT


منظمة العالم الإسلامي للتربية والعلوم والثقافة
ISLAMIC WORLD EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION
ORGANISATION DU MONDE ISLAMIQUE POUR L'EDUCATION, LES SCIENCES ET LA CULTURE
FIRST INTERNATIONAL
ICESCO MODEL SATELLITE (CANSAT) WORKSHOP & AEROSPACE SYMPOSIUM
"BUILDING TOMORROW'S GLOBAL WORKFORCE"
July 18-22, 2022
10:00am to 5:00pm GMT
Website
Registration
SPACE FOUNDATION
MARRAKECH
UR
THE INNOVATIVE UNIVERSITY


ISGE-BF
Deuxième Internationale
Satellite modèle (CanSat) ICESCO
Symposium sur les sciences spatiales
"Constituer globalement une main-d'oeuvre pour le futur"
Burkina Faso
26-29
décembre
2022

ICESCO 2nd WS, Burkina Faso

TEKNOFEST


5TH YEAR
MODEL SATELLITE COMPETITION
ROCKET COMPETITION
HELICOPTER DESIGN COMPETITION
FLYING CAR COMPETITION
ENVIRONMENT AND ENERGY TECHNOLOGIES COMPETITION
JET ENGINE DESIGN COMPETITION
TEKNOFEST
AEROSPACE AND TECHNOLOGY FESTIVAL
UNMANNED AERIAL VEHICLE COMPETITION
#MİLLİ TEKNOLOJİ HAMLESİ
SWARM ROBOTS COMPETITION
HETEROGENEOUS SWARM SIMULATION COMPETITION
TECHNOLOGY FOR HUMANITY COMPETITION
AGRICULTURAL TECHNOLOGIES COMPETITION
FIGHTER UAV COMPETITION
EDUCATIONAL TECHNOLOGIES COMPETITION
BIOTECHNOLOGY INNOVATION COMPETITION
COME AND JOIN US IN THE WORLD'S BIGGEST TECHNOLOGY COMPETITIONS
EFFICIENCY CHALLENGE ELECTRIC VEHICLE COMPETITION
ROBOTAXI FULLSCALE AUTONOMOUS VEHICLE COMPETITION COMPETITION
SMART TRANSPORTATION COMPETITION
UNMANNED UNDERWATER SYSTEMS COMPETITION
ARTIFICIAL INTELLIGENCE IN HEALTHCARE COMPETITION
HIGH SCHOOL STUDENTS POLAR RESEARCH PROJECTS COMPETITION
AGRICULTURAL UNMANNED LAND VEHICLE COMPETITION
TURKEY DRONE CHAMPIONSHIP
WORLD DRONE CUP
TRAVEL HACKATHON
DIGITAL TECHNOLOGIES COMPETITION IN INDUSTRY
ARTIFICIAL INTELLIGENCE IN TRANSPORTATION COMPETITION
HACK BLACK SEA
> TURKISH NATURAL LANGUAGE PROCESSING COMPETITION
> PARDUS 21 DEBUGGING AND SUGGESTION COMPETITION
> HYPERLOOP DEVELOPMENT COMPETITION
> ISIF
> ROBOTICS COMPETITIONS
> TAKE OFF INTERNATIONAL STARTUP SUMMIT
> DOCTORATE SCIENCE AWARDS
> TOURISM TECHNOLOGIES COMPETITION
> VERTICAL LANDING ROCKET COMPETITION
> BARRIER-FREE LIVING TECHNOLOGIES COMPETITION
> HIGH SCHOOL STUDENTS CLIMATE CHANGE RESEARCH PROJECTS COMPETITION
> UNIVERSITY STUDENTS RESEARCH PROJECTS COMPETITION
TURKISH TECHNOLOGY TEAM
REPUBLIC OF TURKEY MINISTRY OF INDUSTRY AND TECHNOLOGY
FOR APPLICATION teknofest.org teknofesteng
APPLICATION DEADLINE FEBRUARY 28'22

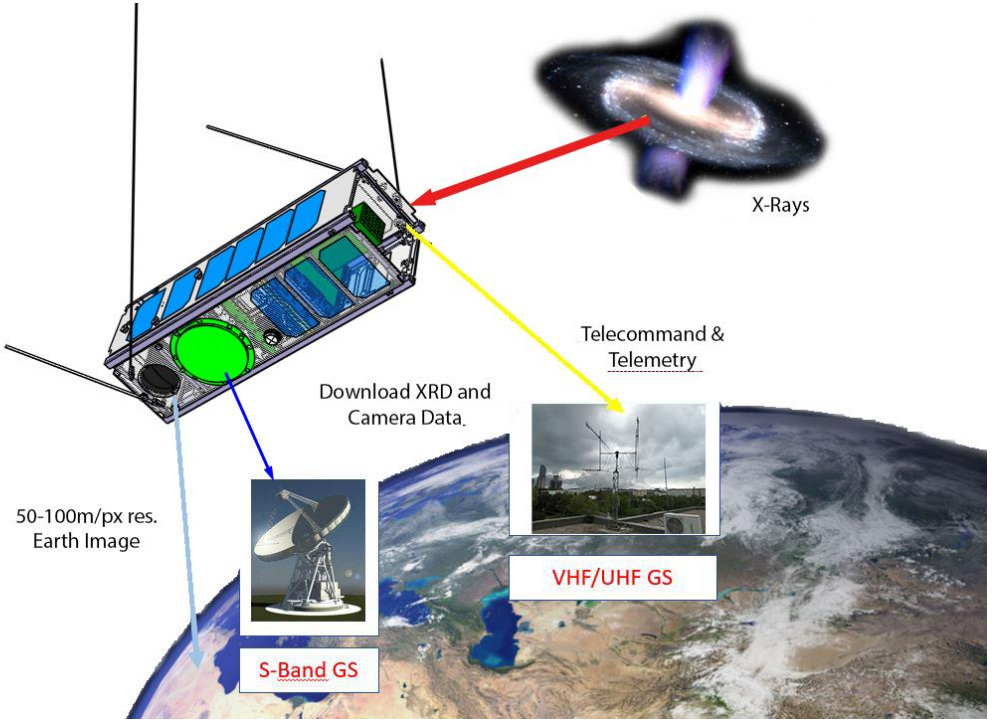
SHARJAHSAT-1 MISSION

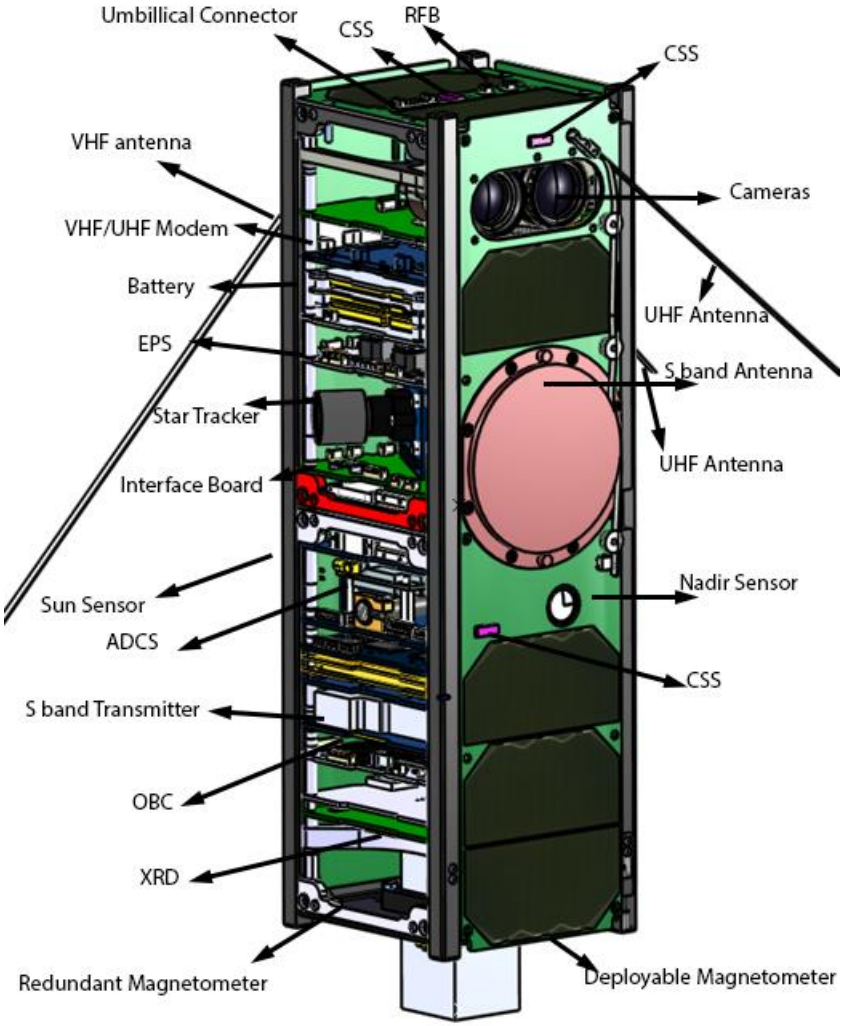
- UNIVERSITY of SHARJAH, UAE
- Istanbul Technical University
- Sabancı University

- Capacity development through
  - Science mission: star detection and sun observation
  - Imaging mission: earth and space
- Payload
  - X Ray detector
  - Optical camera

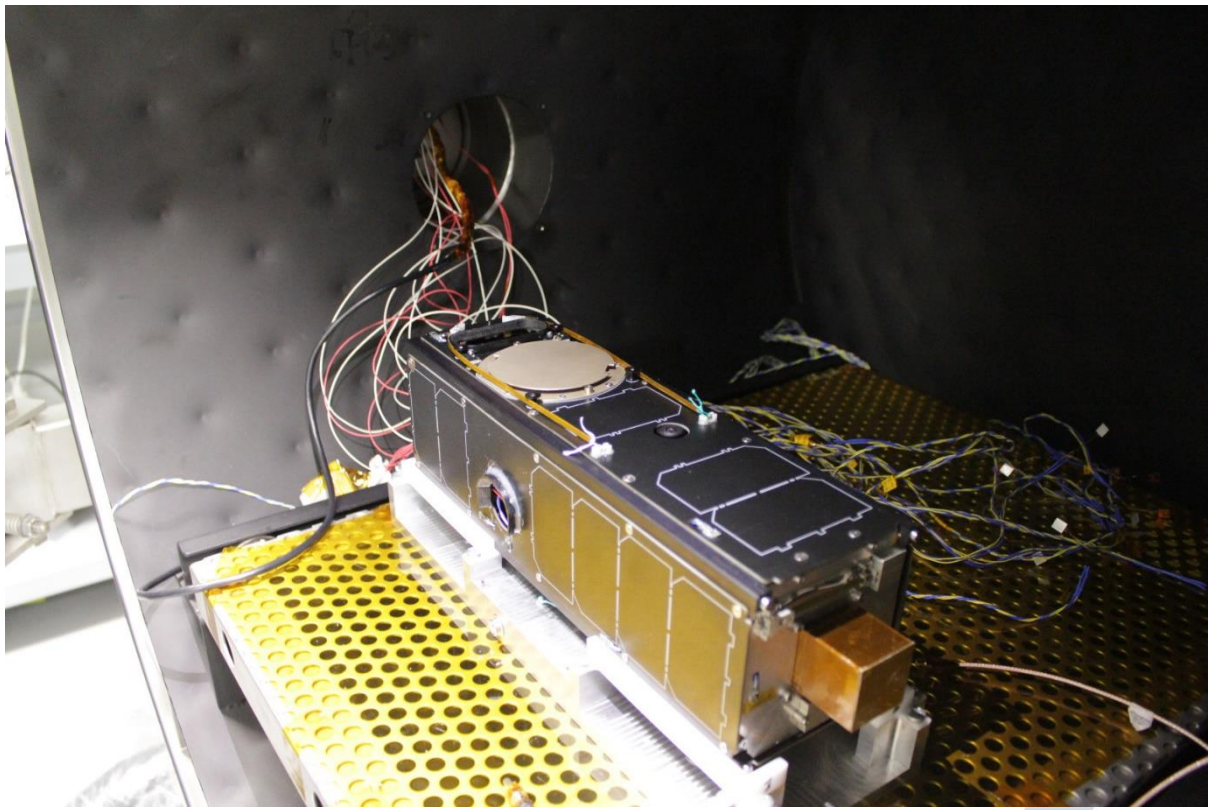
- Launched 3 January 2023

SHARJAH SAT -1






REMOVE BEFORE FLIGHT
REMOVE BEFORE FLIGHT

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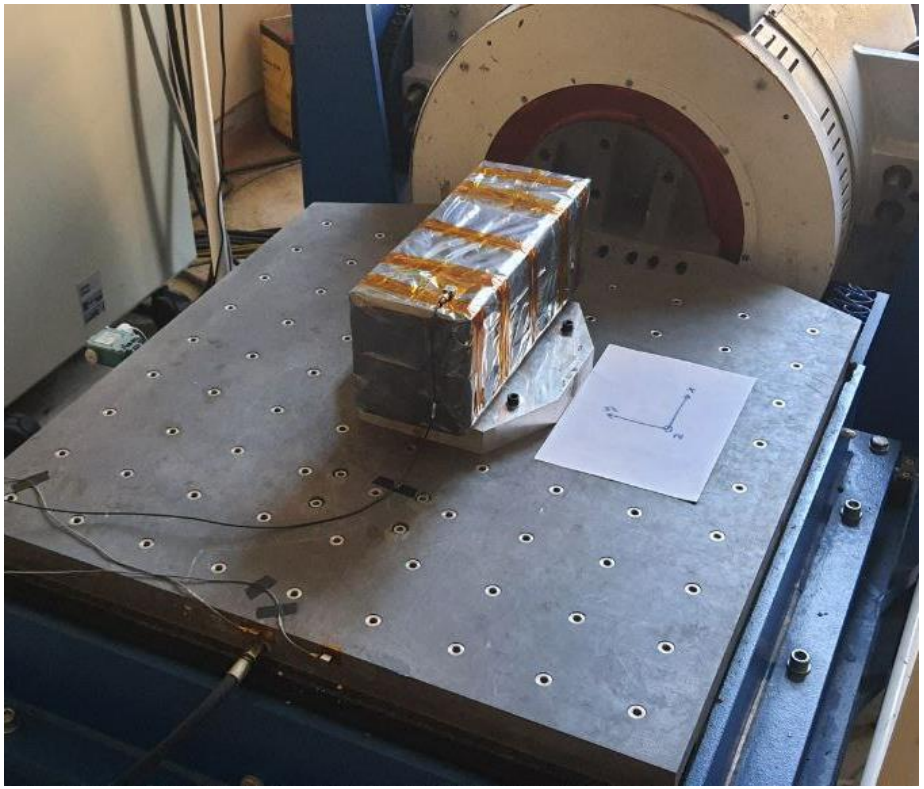
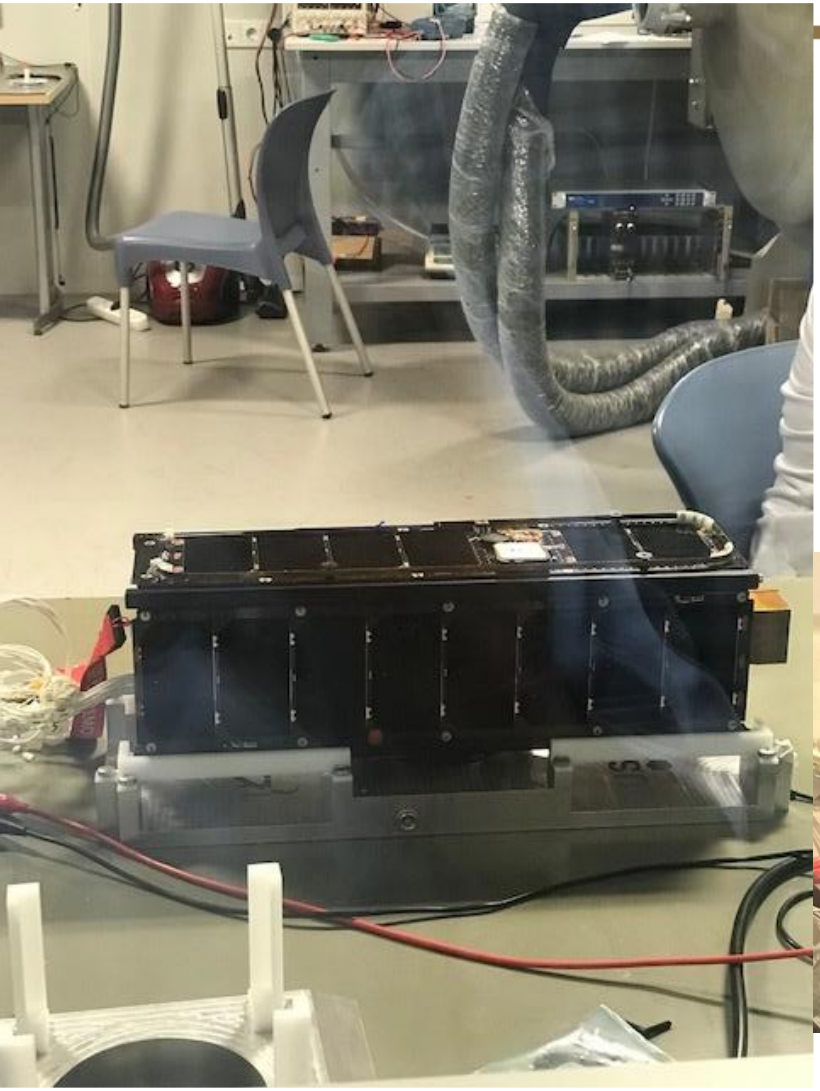
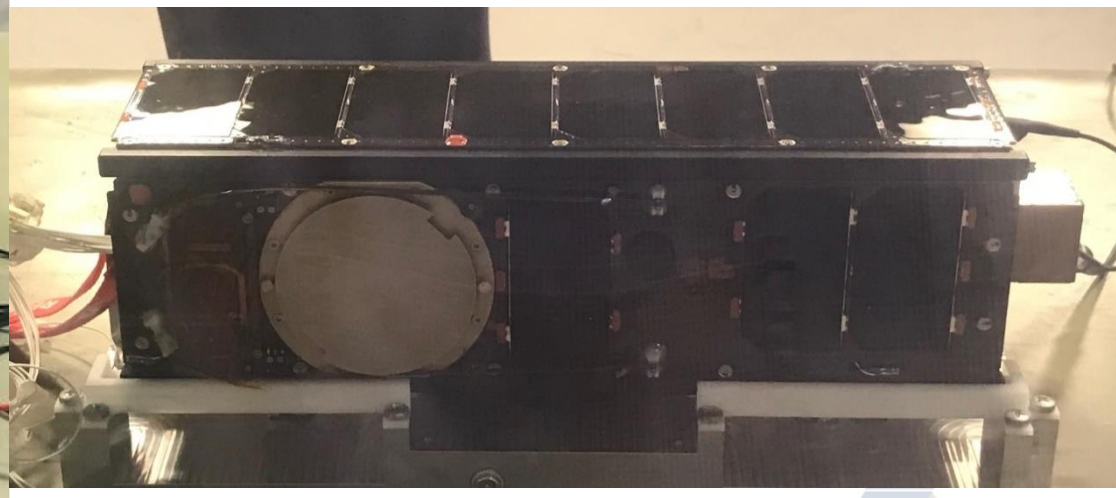
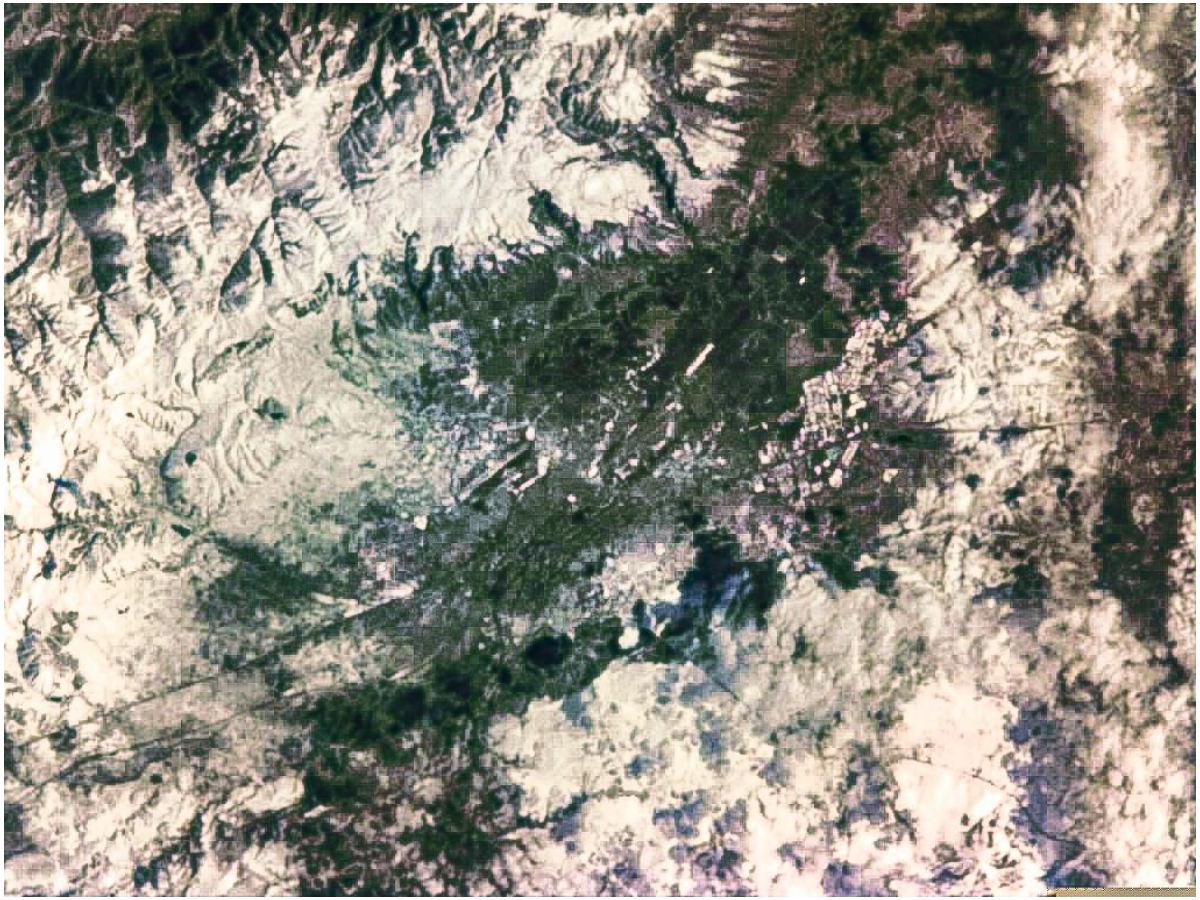
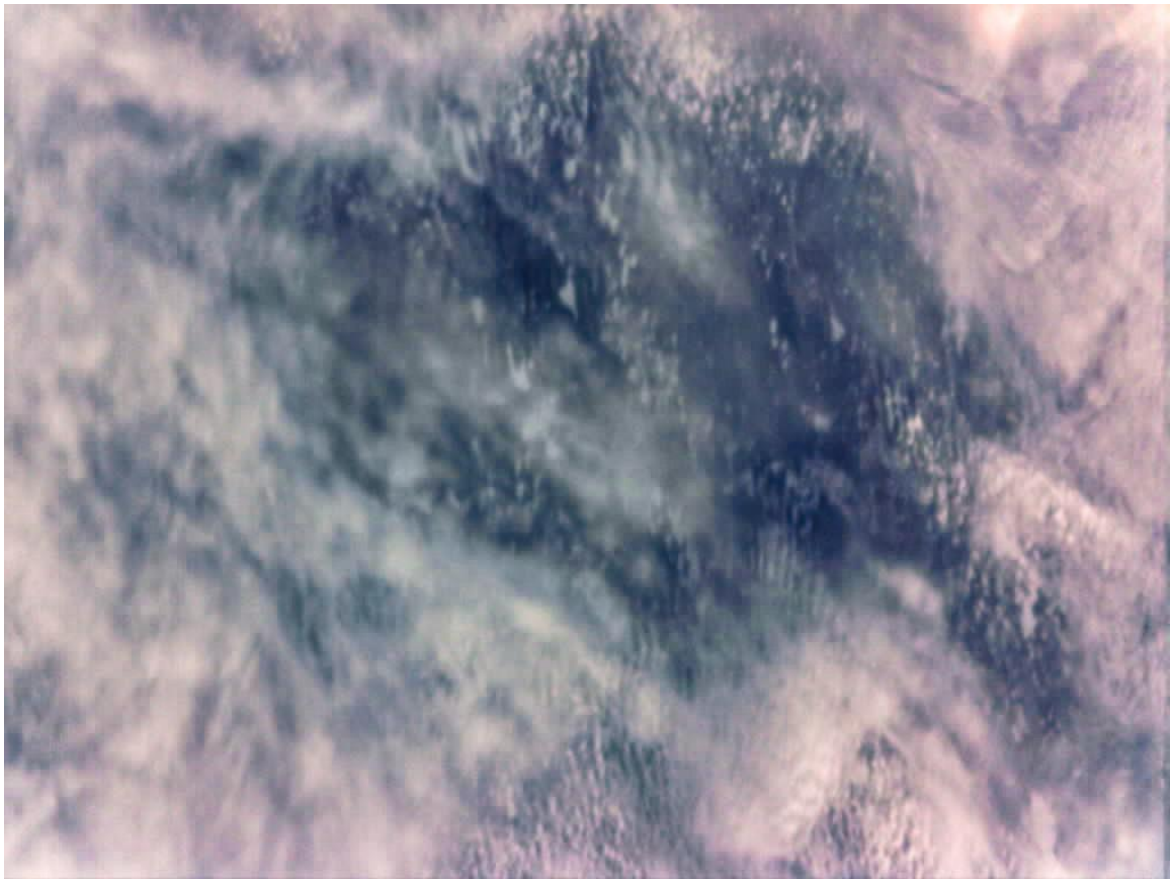


SHARJAHSAT-1 Before Flight



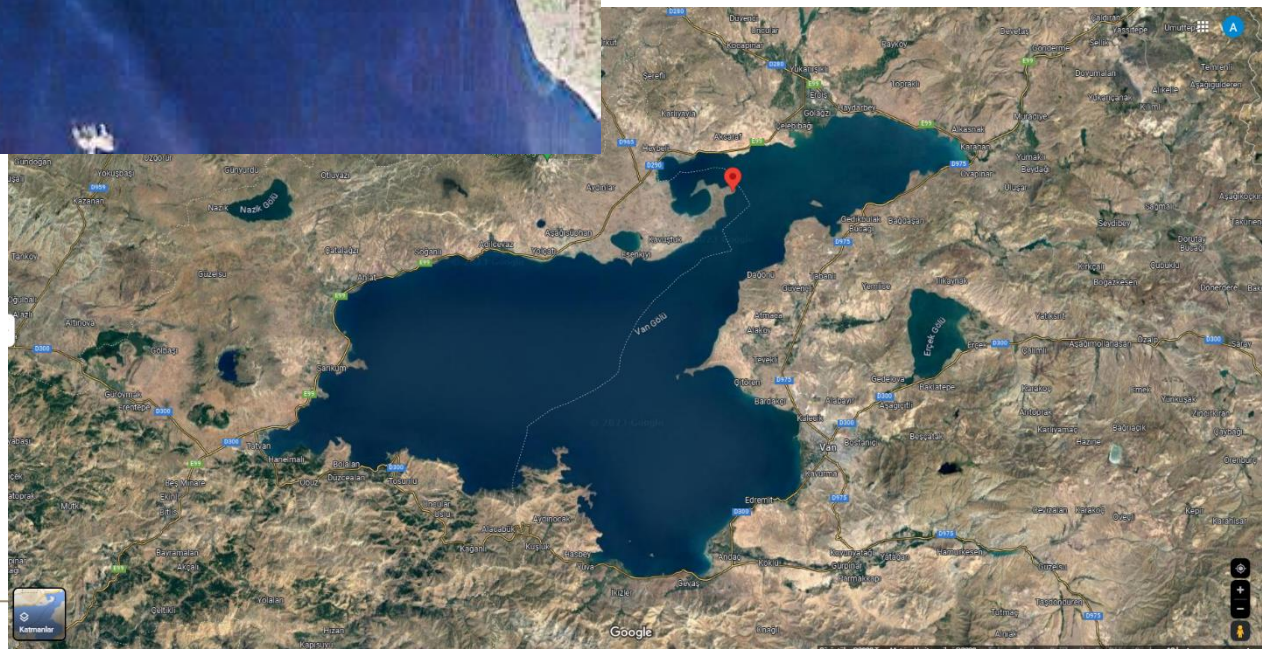




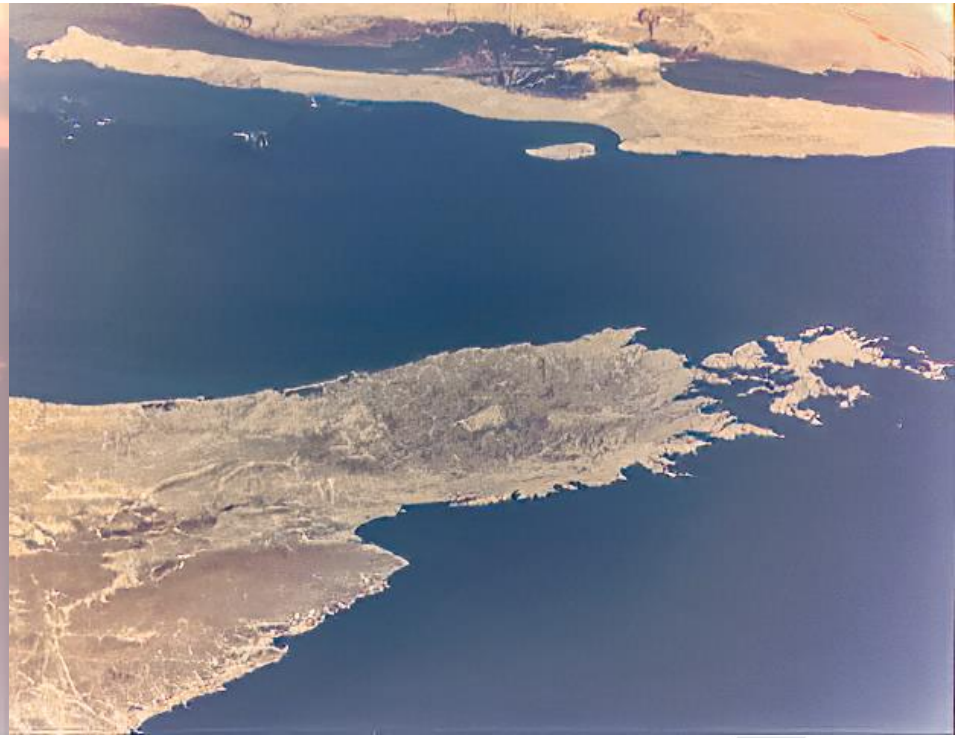


İTÜ

VAN LAKE
TURKİYE

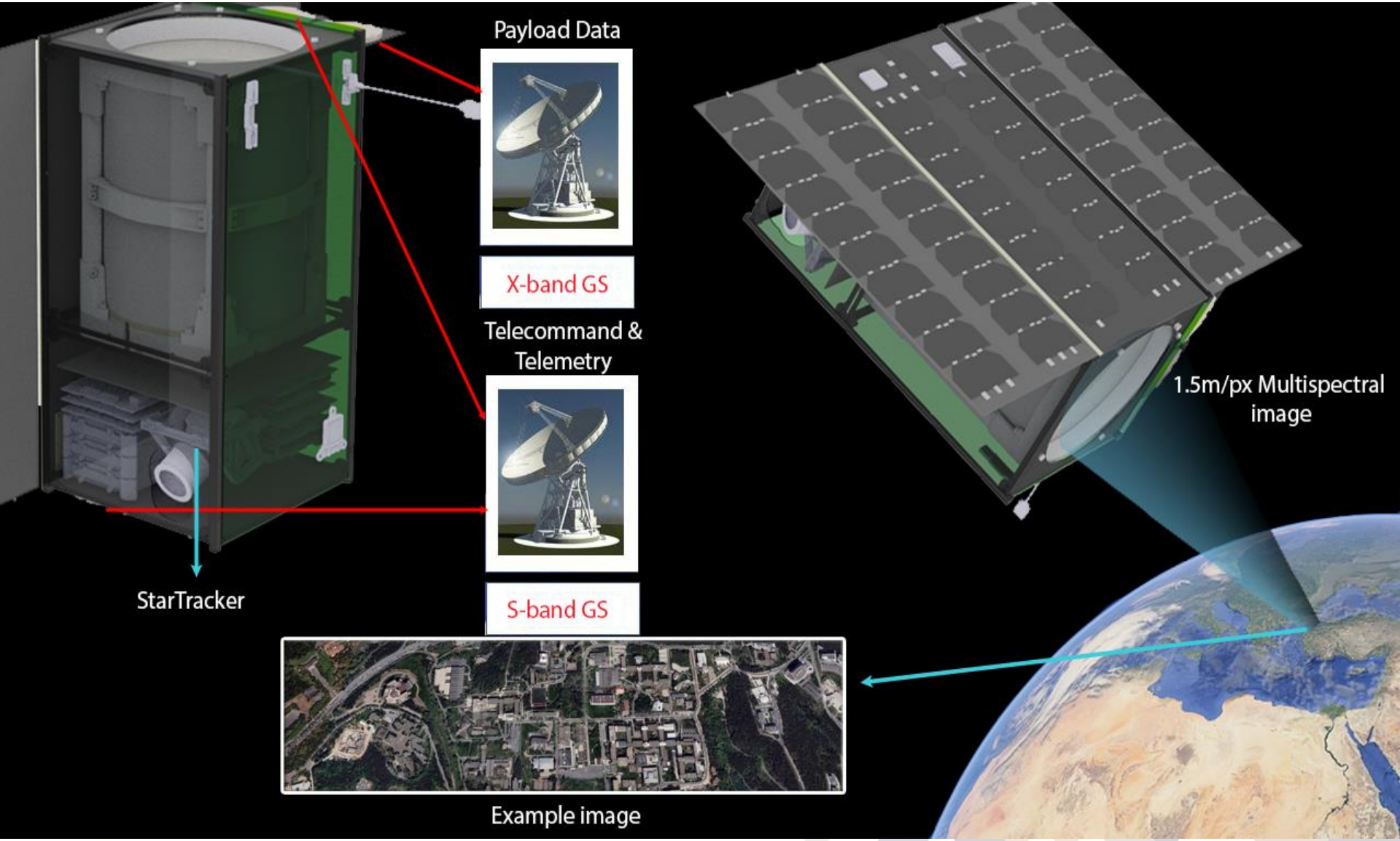


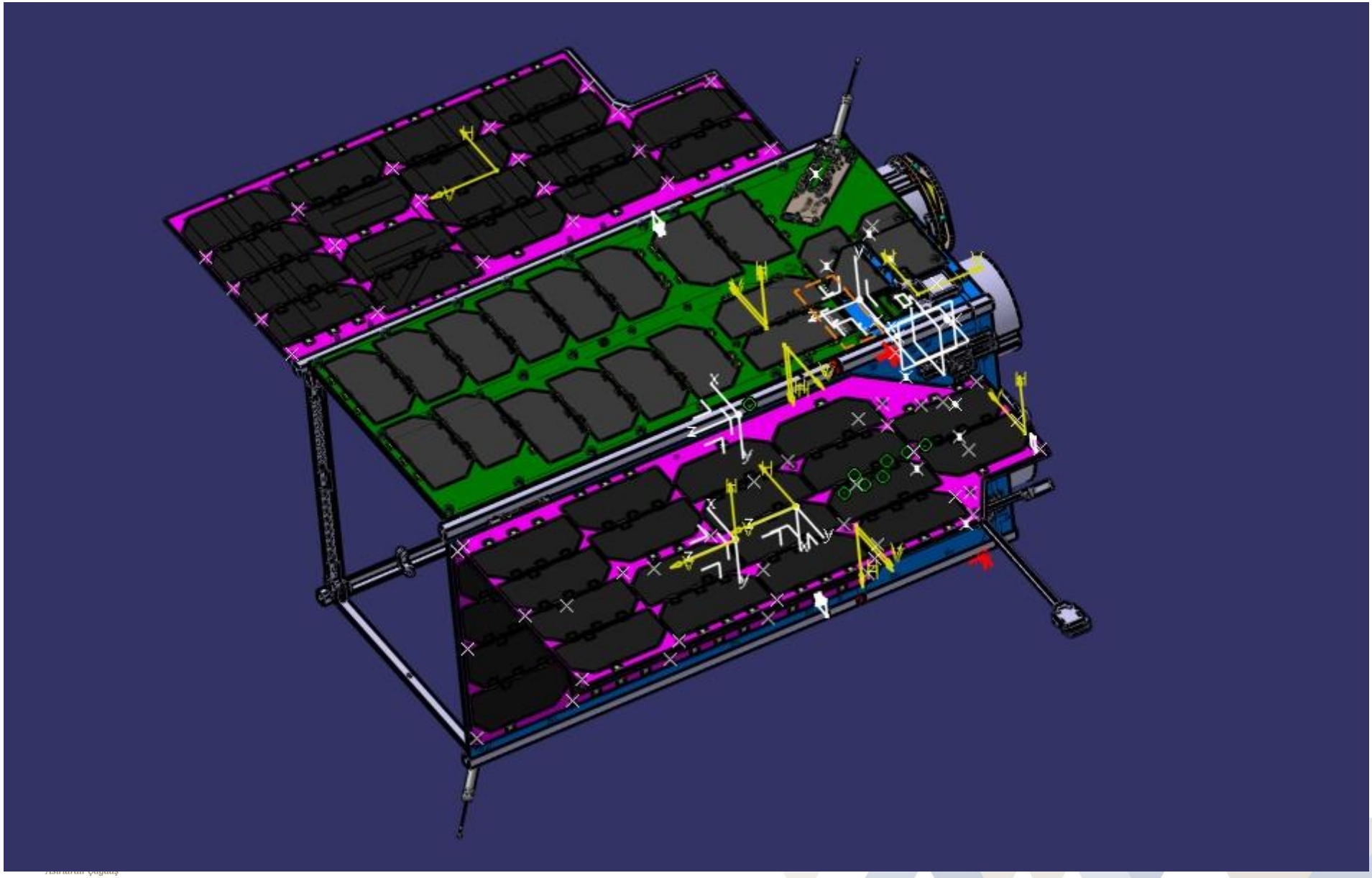
EAST UAE

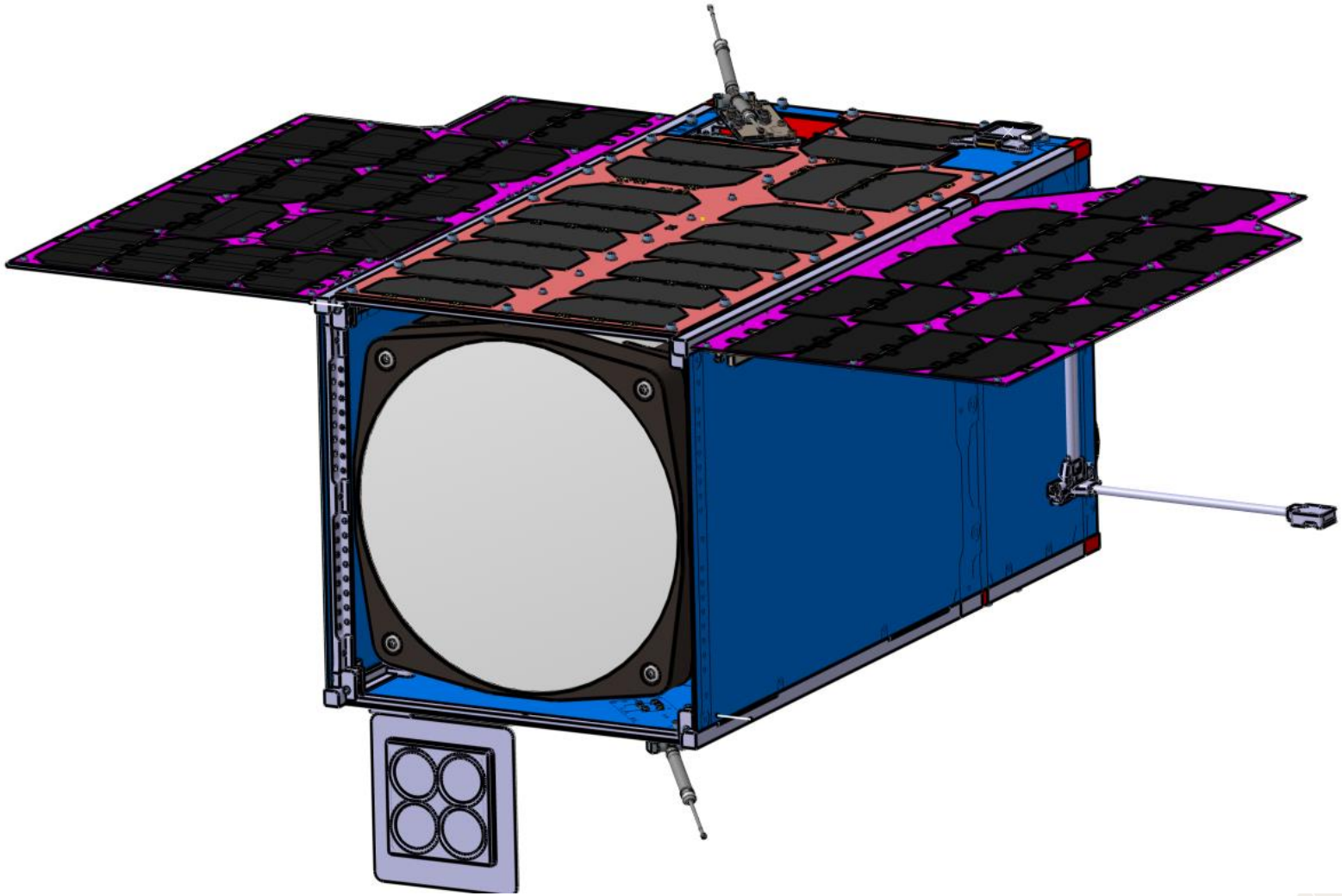


ISKENDERUN BAY

1.5M GSD at 500 km Earth Observation Mission

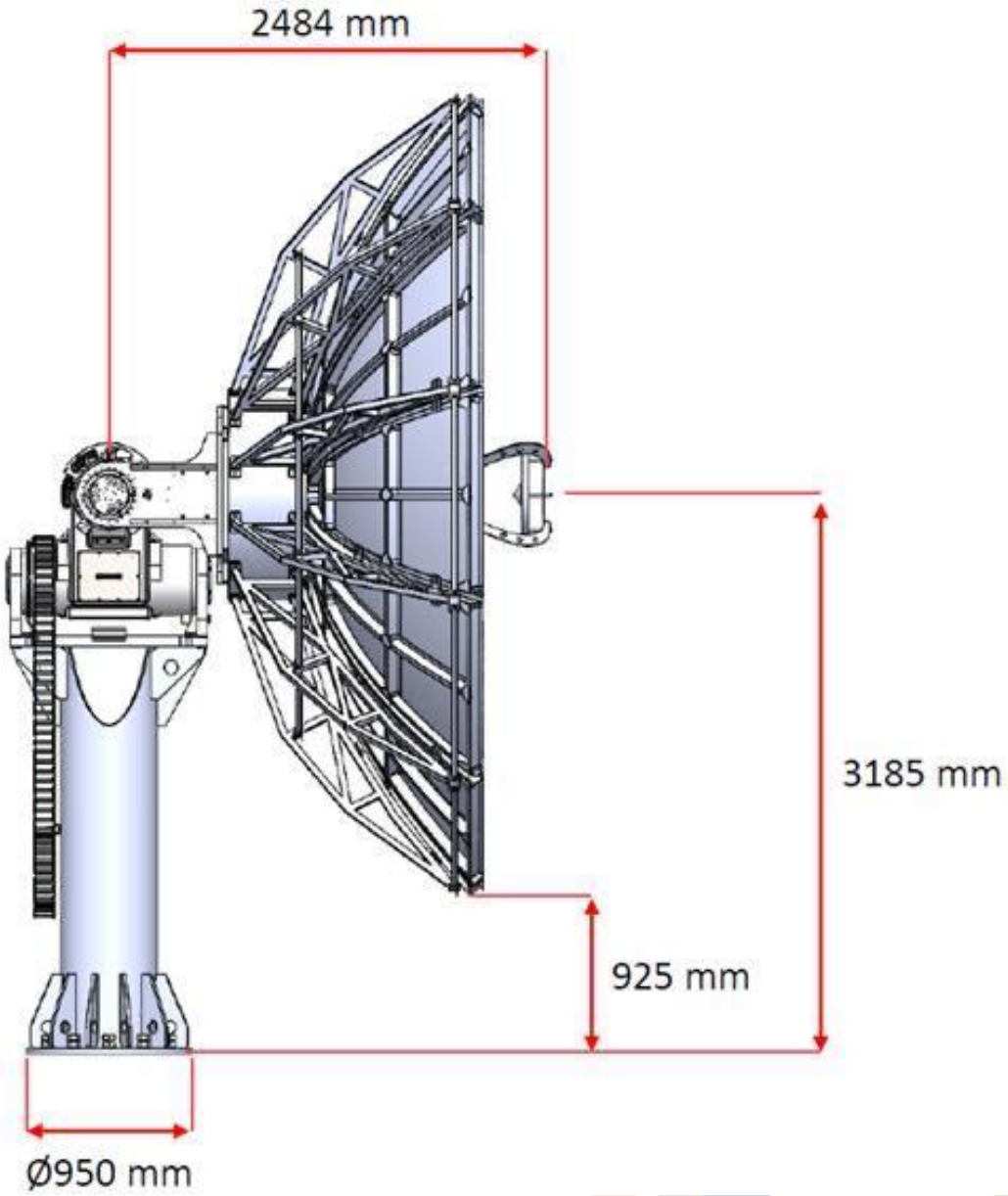






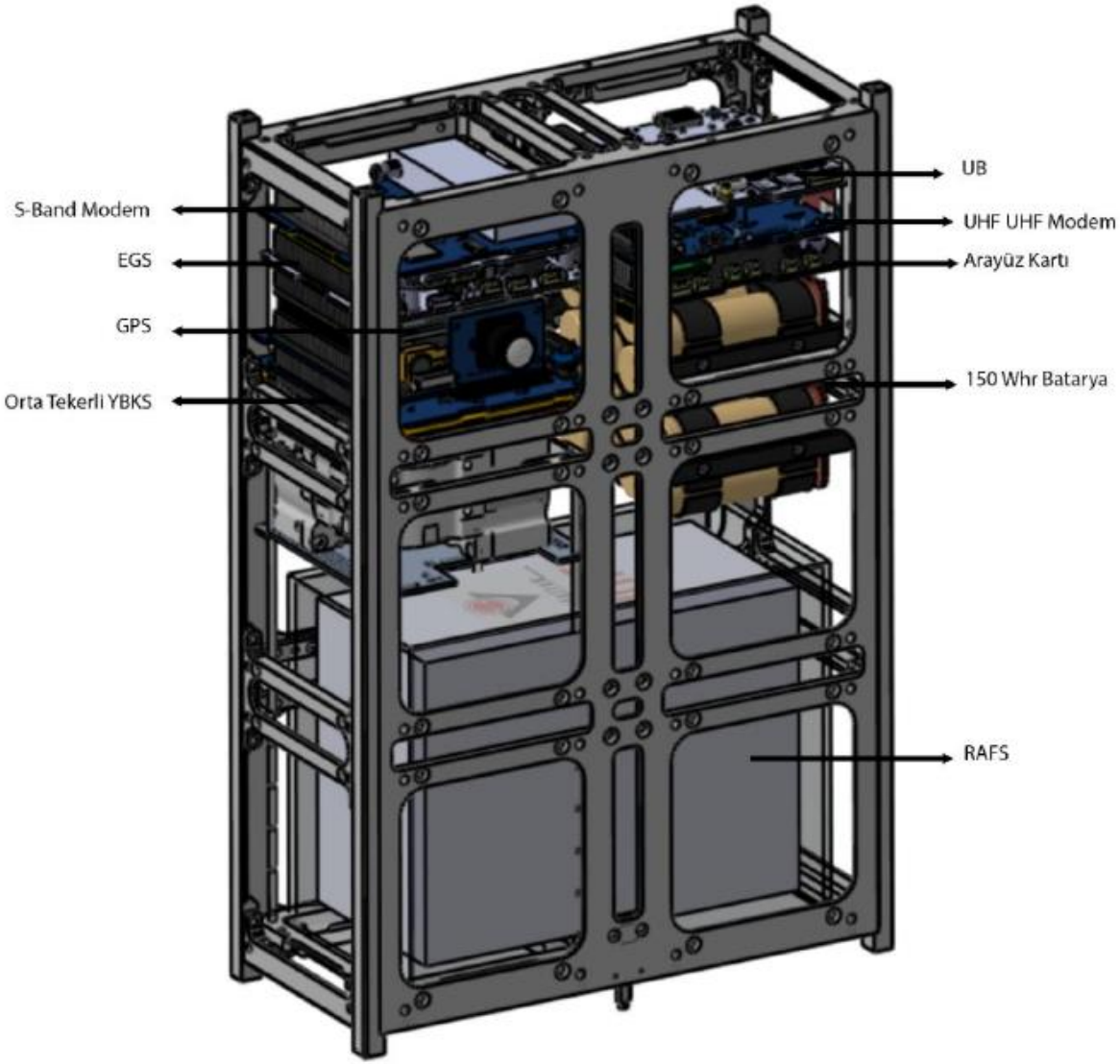
1.5 m GSD MS 16 U 25 kg


Carton

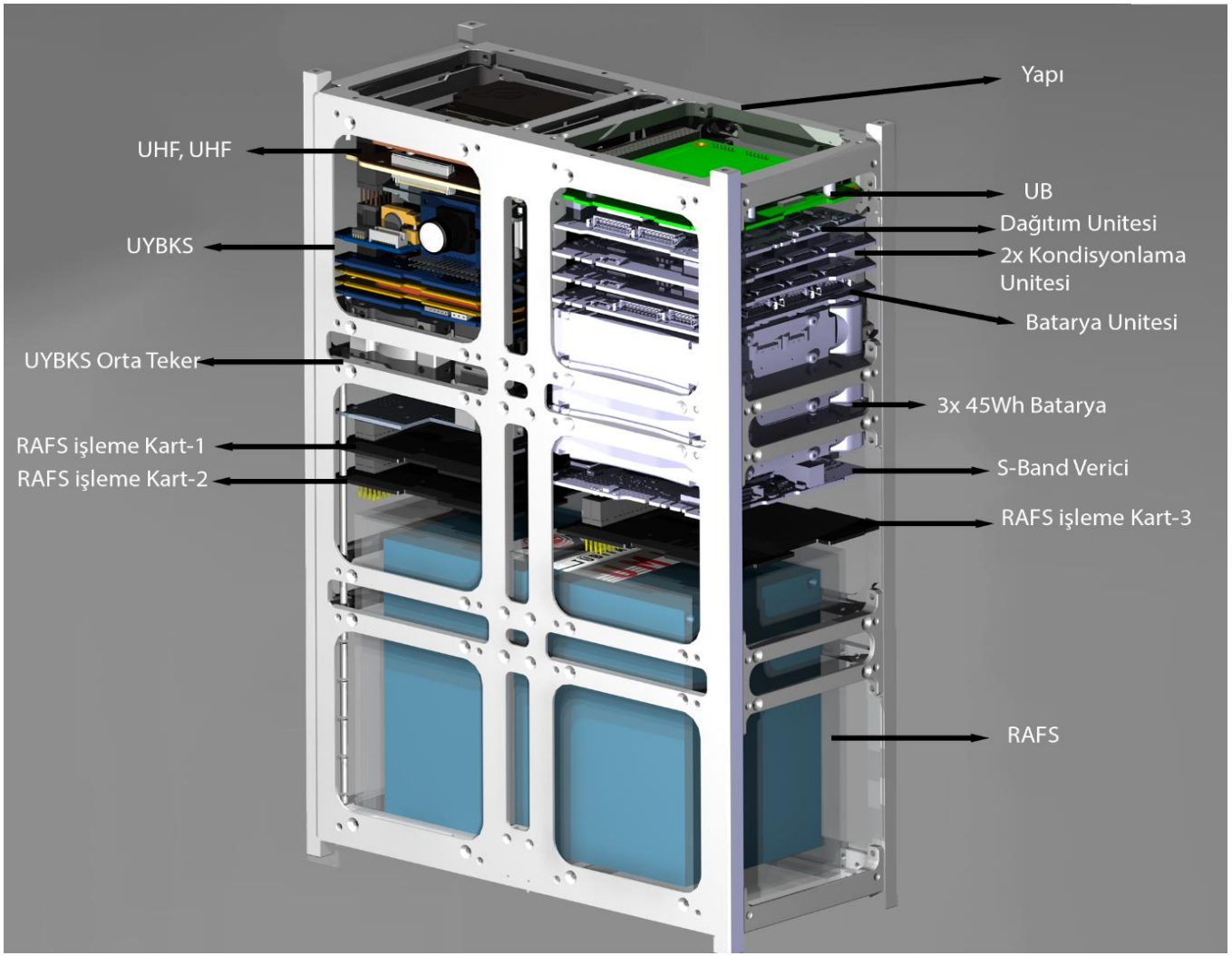

2484 mm
3185 mm
925 mm
Ø950 mm


Mask

TUA-Tubitak UME-ITU RAFS -6U CubeSat



Rubidium Atomic Frequency Standard (RAFS) CubeSat



- RAFS Payload
- RAFS
  - RAFS signal transfer
- RAFS ve Sat thermal management
- 6U Structure
- OBC and interfaces
- EPS
  - Battery (135Whr)
  - Panels 75W
  - PDCU
- Comm
  - UHF-UHF trcv, antenna
- ADCS, wheels
- Imaging

Rubidyum Atomik Frekans Standardı (RAFS) Görev Yüklü Küp Uydu (CubeSat) Geliştirilmesi Projesi

Türkiye Uzay Ajansı

TÜBİTAK

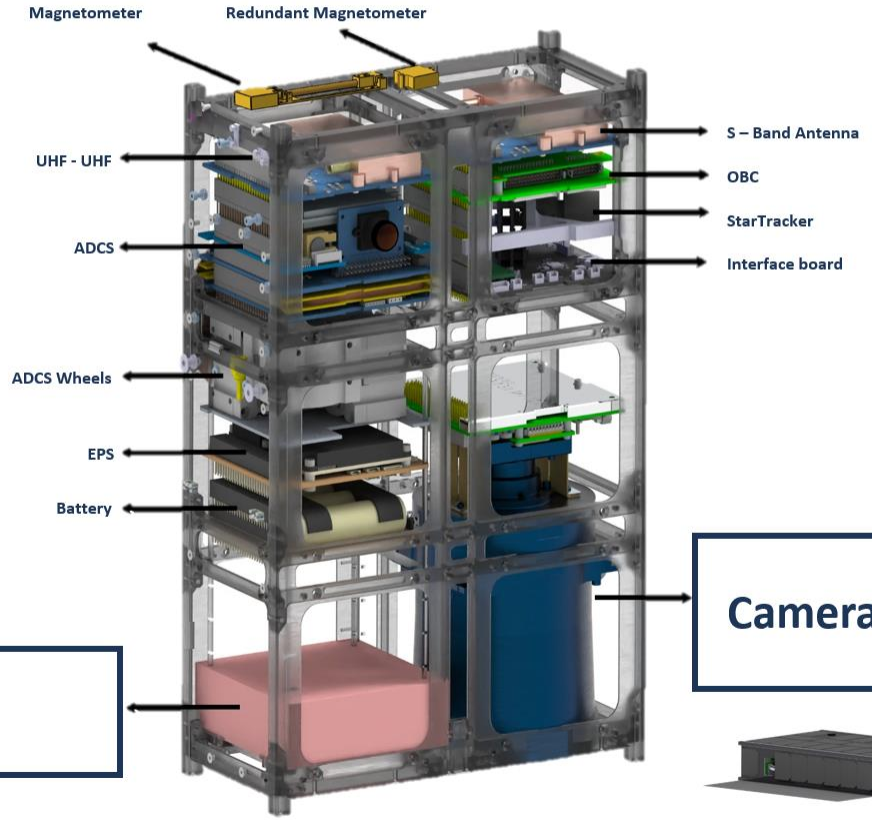
ITU/FAA
Faculty of Aeronautics and Astronautics
Space Systems Design and Test Laboratory
USTTL

İTÜ RF ELEKTRONİK LABORATUVARI

TEKNOLOJİ

AGRISAT

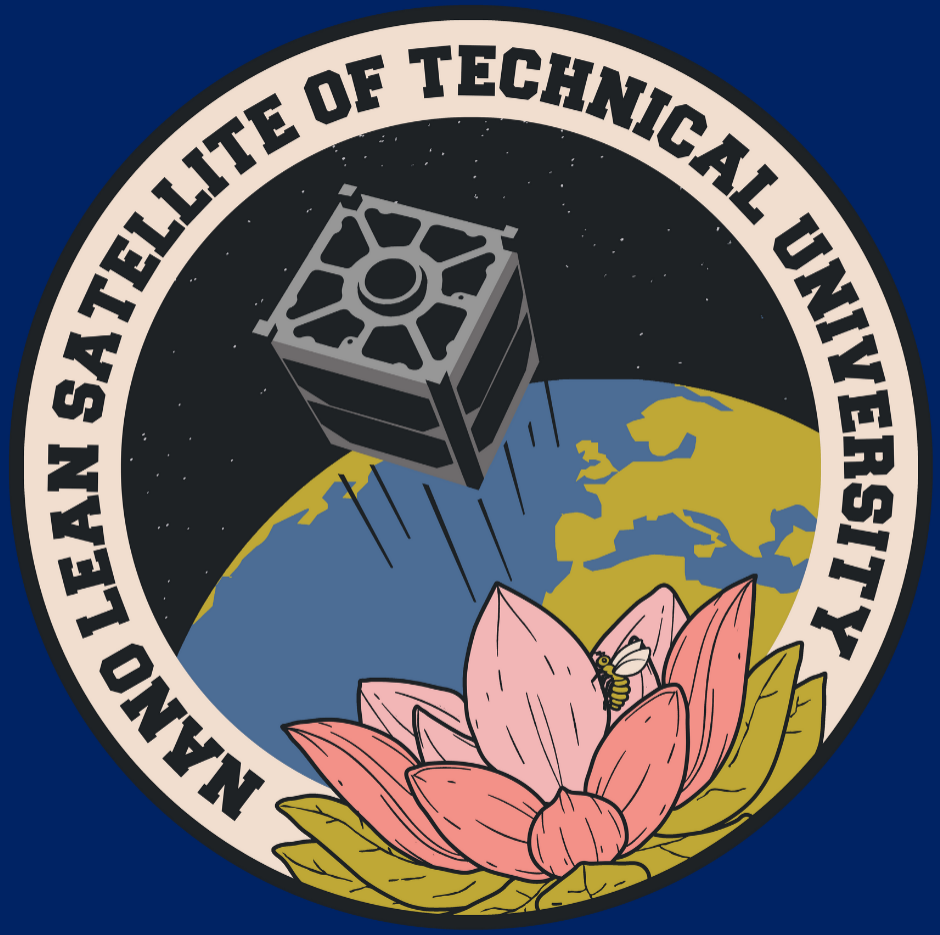
The CUBESAT



Technical Specs	
Altitude / Orbit	500-600 Km
Mass	Max 12 kg
Dimension	10*22*34cm
Resolution	5m GSD /500 km
Mission Duration	3 years min
Orbital Period	98 min
Revisit Time	1-4 days
Budget	~3M USD

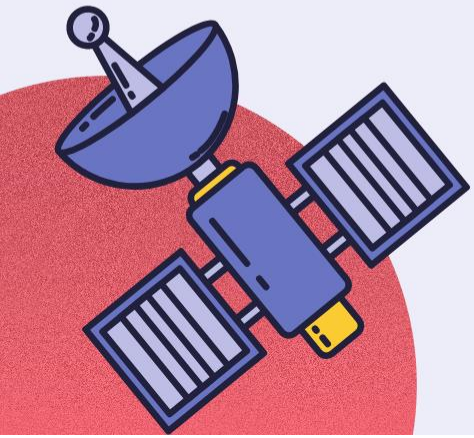
n-LOTUSat

A 1U CUBESAT PROJECT



WHO ARE WE?

- "Nano Lean Satellite of Technical University"
- 1U cubesat project
- Developed by undergraduate students from with **CanSat experience**



OUR GOALS

- To gain interdisciplinary experience in the development stages of a cubesat
- To practise aerospace engineering in undergraduate level
- To develop our own electronic systems & designs, and gain flight heritage to them

MISSION

MAGNETOMETER PRODUCTION	DOSIMETER	MAGNETOMETER PRODUCTION
• designing and manufacturing our own sensor	• COTS • data analysis after launch	• COTS • software & algorithm development

PLAN-S SATELLITE & SPACE TECHNOLOGIES

PLANS SATELLITE TECHNOLOGIES

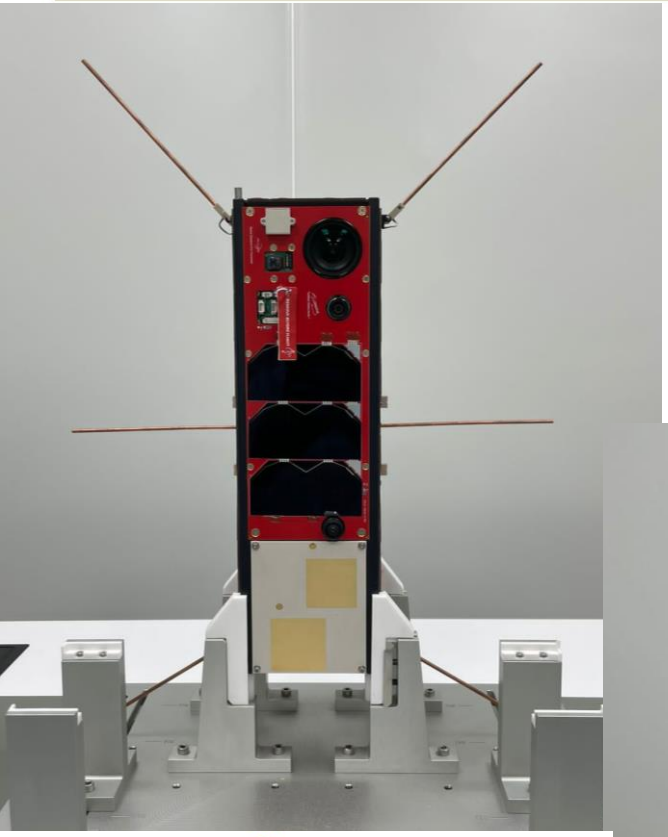
- Establishment Summer 2021
- IoT and EO Constellations
- Building tech demo missions
- 3U and 6U CubeSat

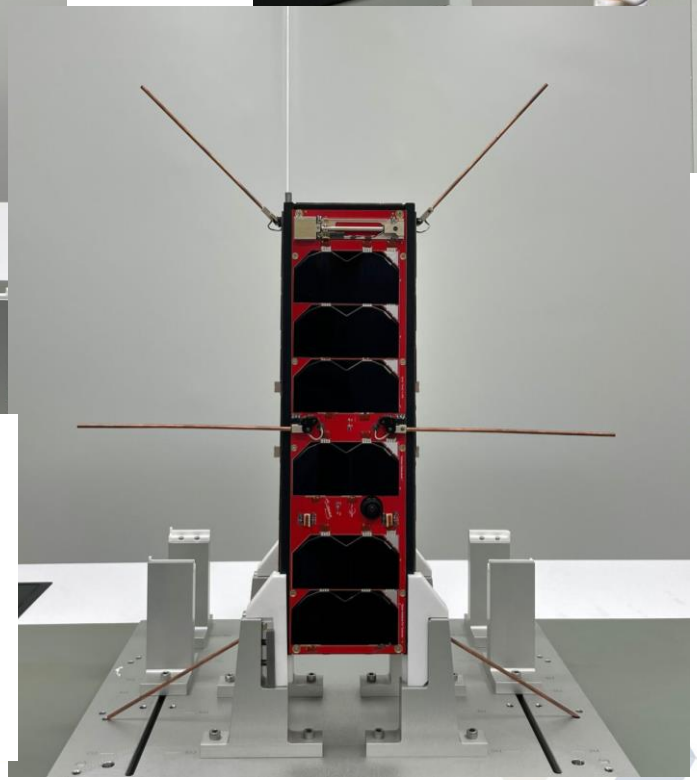
INVESTMENTS

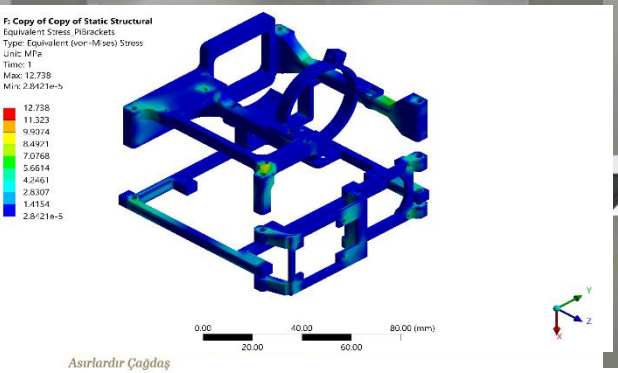
We started building our R&D facility and it will be ready by the Q4 of 2022;

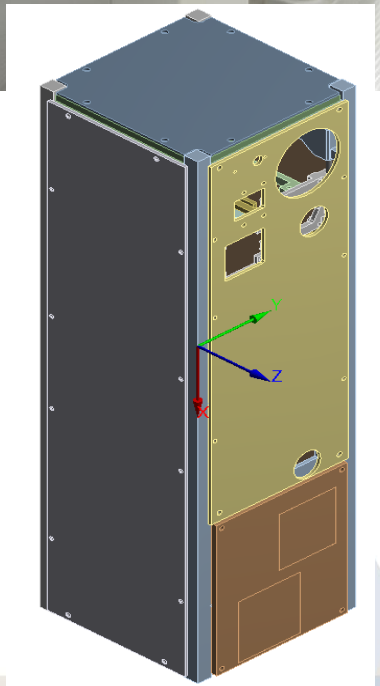
- 9000 m2 in total
- 10.000 class clean room
- 100.000 class clean room
- TVC, Vibration and Climatic Test Chambers/Equipments
- EMI/EMC & Antenna Measurement Laboratories
- Electronic and Mechanical Laboratories

USTTL





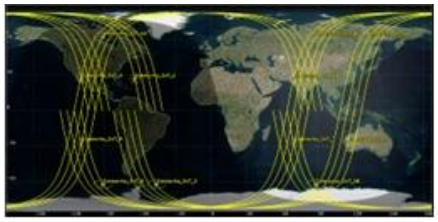
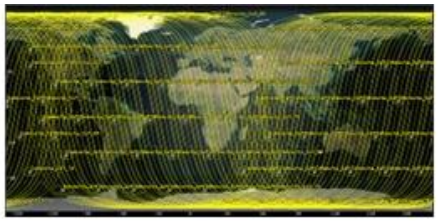
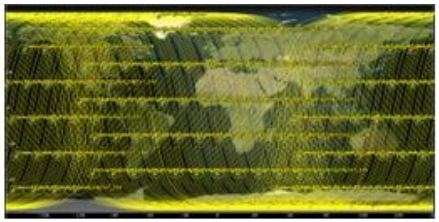

F: Copy of Copy of Static Structural
Equivalent Stress_PiBrackets
Type: Equivalent (von-Mises) Stress
Unit: MPa
Time: 1
Max: 12.738
Min: 2.8421e-5
12.738
11.323
9.9074
8.4921
7.0768
5.6614
4.2461
2.8307
1.4154
2.8421e-5
0.00
40.00
80.00 (mm)
20.00
60.00
Asırlardır Çağdaş


Y
Z
X

https://www.linkedin.com/posts/weareplans_weareplans-plans-selfie-activity-7046485868856918016-UuNT/?utm_source=share&utm_medium=member_ios

[Post | LinkedIn]

ROADMAP

Preperation & PoC Phase

2022 Q2: 1 Sats
2023 Q1: +1 Sats
2023 Q2: +1 Sats
2023 Q4: +2 Sats

5 Active Satellites

Initial Phase

2024 Q2: 4 Sats
2024 Q3: +4 Sats
2024 Q4: +4 Sats

12 Active Satellites

Revisit Time: 5 Hours 45 Minutes

Capacity of Connected Devices D2S & G2S Devices
286 Million

Satellite launches will start by June 2024 and total of 12 Connecta IoT Satellites will be launched in this initial phase.

Expansion Phase

2025: +16 Sats
2026: +24 Sats
2027: +32 Sats
2028: +40 Sats

84 Active Satellites

Revisit Time: 48 Minutes

Capacity of Connected Devices D2S & G2S Devices
1.6 Billion

Satellite launches will continue with large number of deployments within the same launches. Orbital transfer vehicles will be utilized to carry large number of satellites to their orbits to form the Connecta IoT constellation.

Sustainment Phase

2029: +50 Sats
2030: +50 Sats
2031: +50 Sats
2032: +50 Sats
2035: +50 Sats

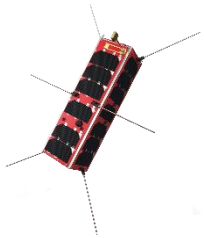
144 Active Satellites

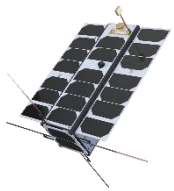
Revisit Time: 30 Minutes

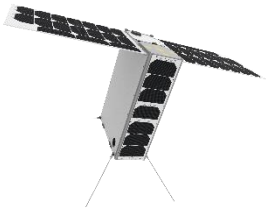
Capacity of Connected Devices D2S & G2S Devices
2.2 Billion

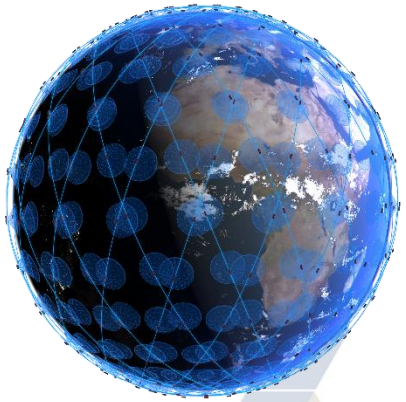
Satellite launches with large numbers will continue to achieve the final Connecta IoT constellation formation and 144 active satellites will be sustained untill 2035. Most of the satellites launced during this phase will be used to replace the one reached to their end-of-life.

OUR ROADMAP









MISSION DEFINITION OF CONNECTA T2.1

Connecta T2.1 is a technology demonstrator for detection, early warning and management of forest fires and natural disasters like floods and landslides.

ROADMAP OF THE PROJECT

PHASE-A
Connecta T2.1 Mission
Tech. Demonstrator & Development Platform

PHASE-B
Design and Development of the System
(Satellites & Ground Equipments)

PHASE-C
Deployment of the Constellation, Installation of the Complete System & Operation

Forest Fire - South Coast of Turkey

Flood- North of Turkey

Landslide- North of Turkey

PARTNERSHIPS

Partner on Satellite Design, Development & Testing

İstanbul Technical University
Space Systems Design and Test Laboratory

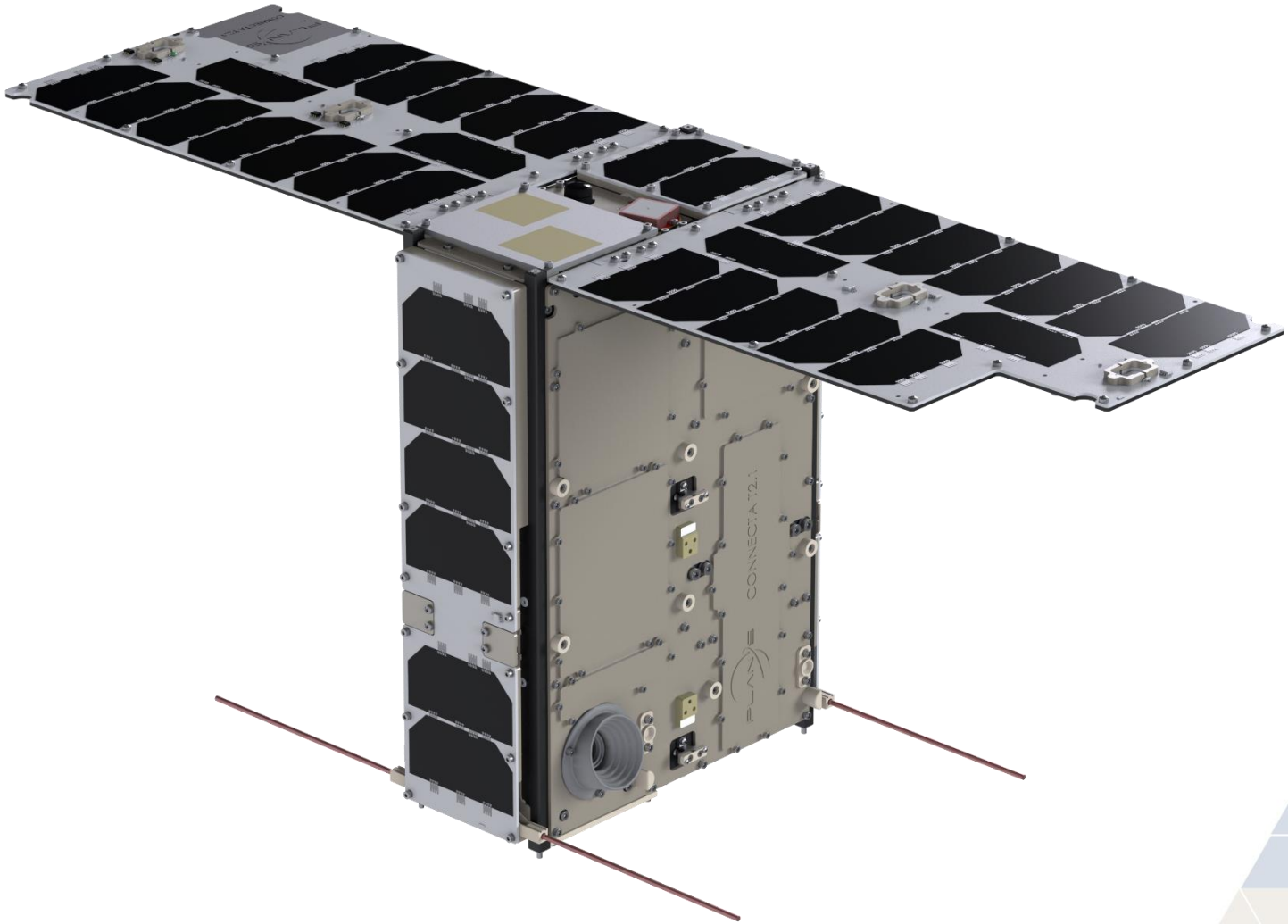
Potential Partner on Multispectral Cubesat Cameras

Dragonfly Aerospace
Caiman Award Program

PLANYS
SATELLITE & SPACE TECHNOLOGIES

Potential Partner on Image Processing & Machine Learning

İhsan Doğramacı Bilkent University
Electrical & Electronics Engineering Dept.


CONNECTA T2.1

Jumeirah Palm Island/Dubai
2023-07-08 UTC: 06:33:58


Antalya/Turkey
2023-06-21 UTC: 08:03:26


PLANS
Beijing/China
2023-06-15 UTC: 02:20:59

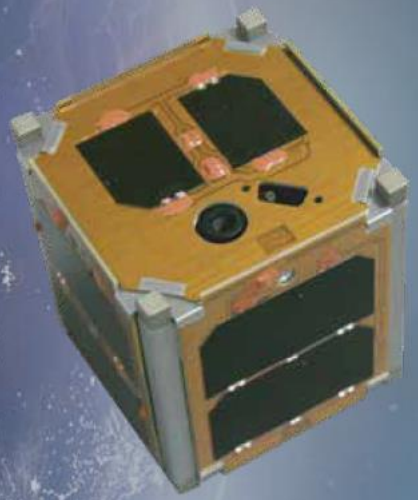
Izmir/Turkey
2023-06-29 UTC: 08:19:16


PLANYS
Warroo/Australia
2023-07-31 UTC: 01:01:00

LOW EARTH ORBIT AND
CUBESAT VISION

"small satellite" "BIG TASK"

International 'Low Earth Orbit' Cube and Small Satellite
conference and seminar



PROGRAM

14 December 2023 / 09:00 - 17:00
BTK Conference Hall / ANKARA


LOW EARTH ORBIT AND
CUBESAT VISION
"small satellite"
"BIG TASK"
International Low Earth Orbit Cube and Small Satellite
conference and seminar
TUYAD
TELECOMMUNICATION SATELLITE AND ELECTRONIC INDUSTRIALISTS BUSINESS PEOPLE ASSOCIATION
Conference Speaker
Prof. Shinichi
Nakasuka
University of Tokyo
"Space Commercialization and Cubesat's at LEO"
14 December 2023
BTK Conference Hall / ANKARA
Keynote Speaker
Qstc
isnet
TURKSAT
BİLGİ TEKNOLOJİLERİ VE İLETİŞİM KURUMU
DİJİTAL YAŞAM
HEDEF ELEKTRONİK

We Look Forward To a Fruitful Cooperation

Towards being a civilization living in the Solar System

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