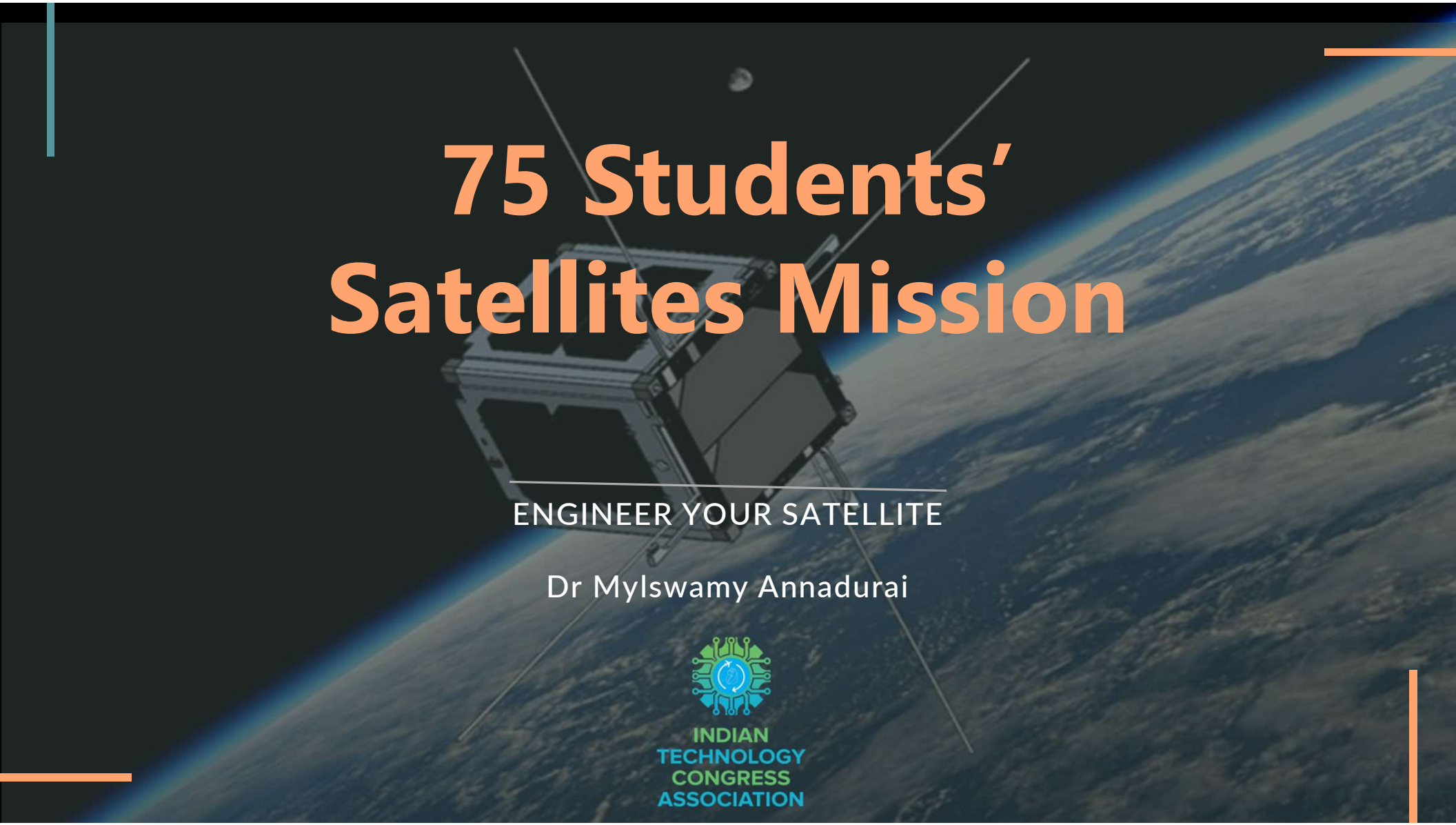


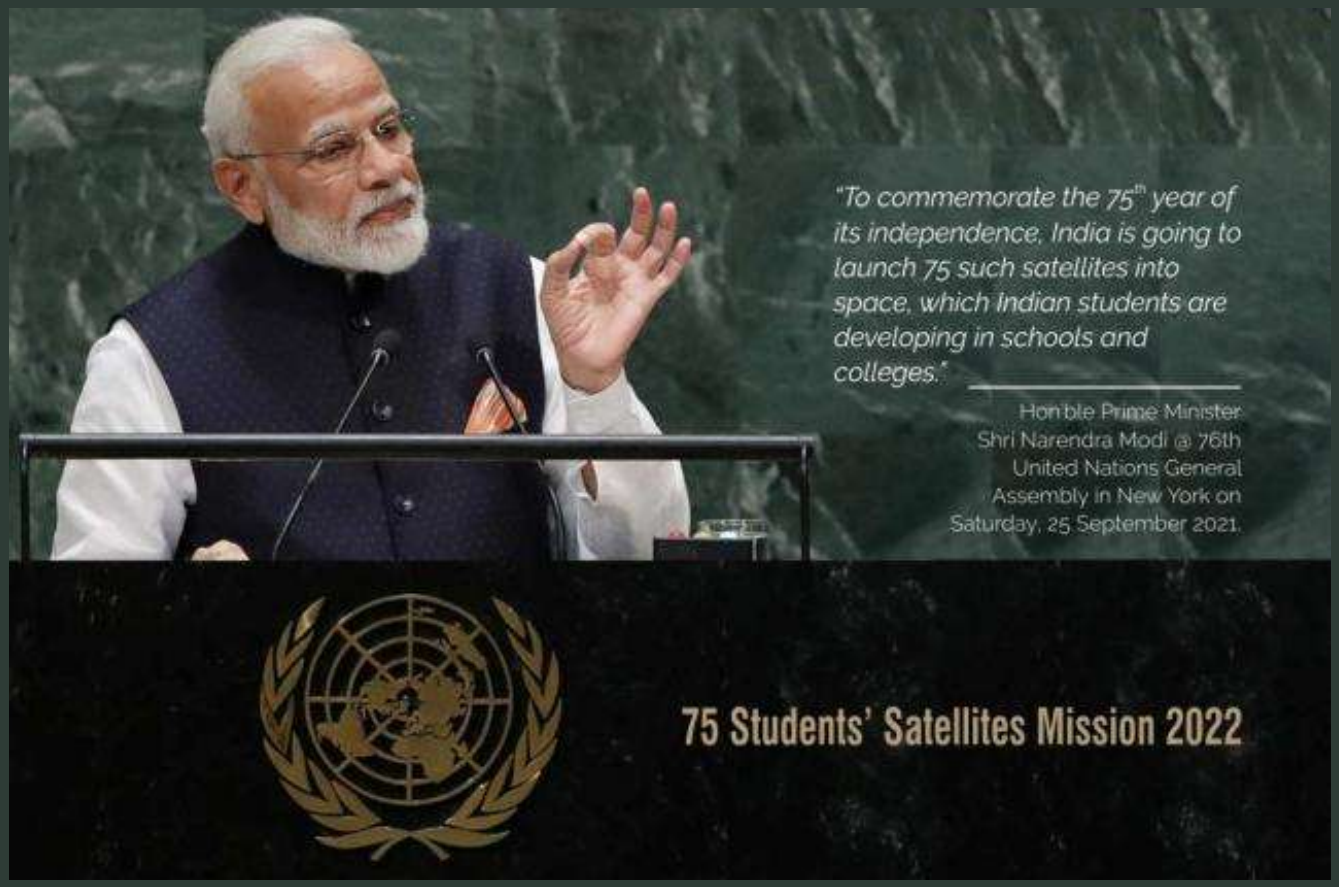
75 Students' Satellites Mission

ENGINEER YOUR SATELLITE

Dr Mylswamy Annadurai

INDIAN TECHNOLOGY CONGRESS ASSOCIATION

Prime Minister's Vision...



The Mission

Scope

Launching
75 student-built
SmallSats to LEO

Objectives

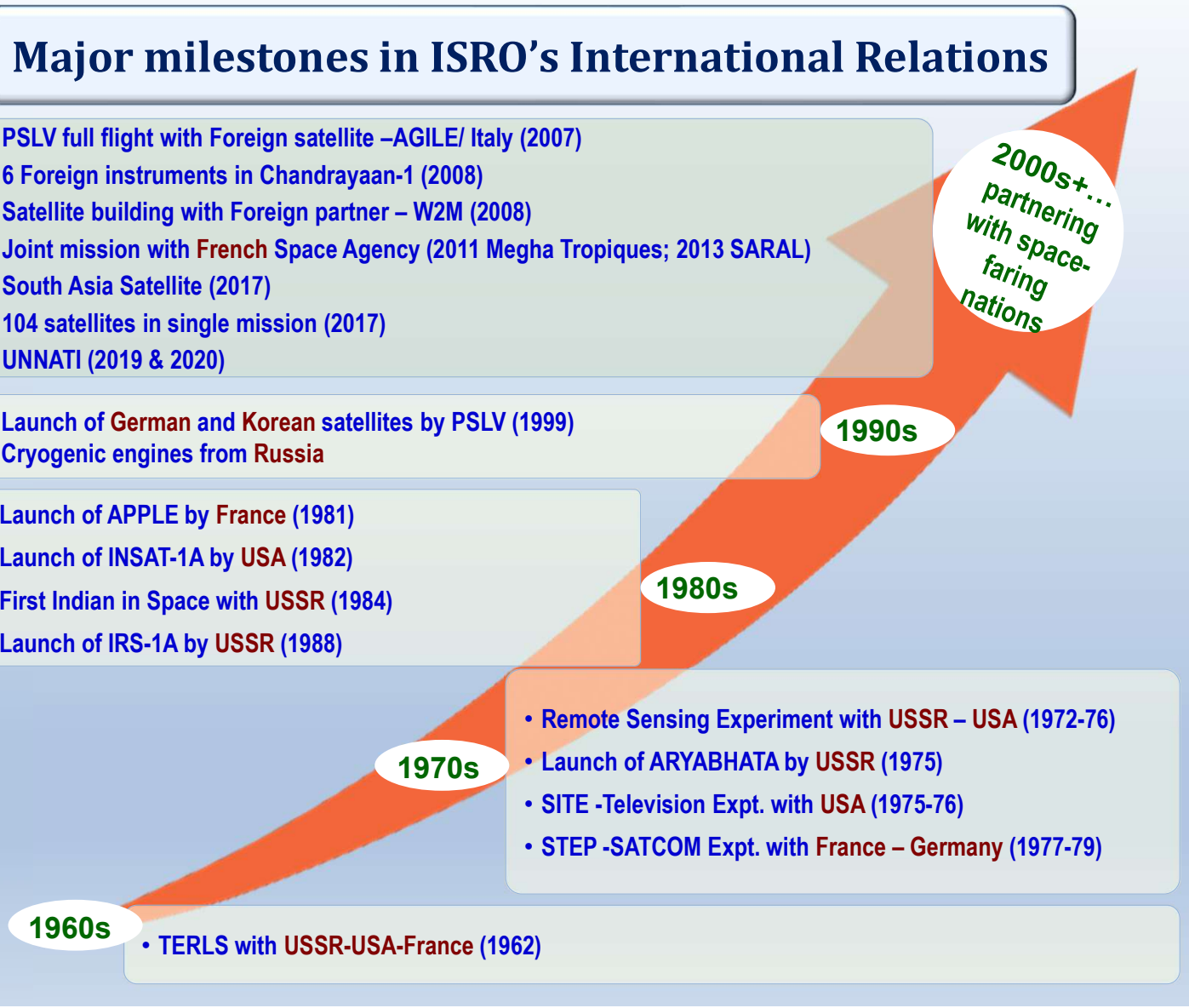
Build and sharpen students' skills in design, development, manufacture, integration, testing, launch, and monitoring of small satellites

Methodology

Providing science-based education and experience-based learning with mentoring by ITCA's renowned SpaceTech teams. Strengthening skills in systems engineering and project management

Through this unique mission, students will be able to compile a portfolio of signature space projects that will highlight their competencies

Major milestones in ISRO's International Relations



- PSLV full flight with Foreign satellite –AGILE/ Italy (2007)
- 6 Foreign instruments in Chandrayaan-1 (2008)
- Satellite building with Foreign partner – W2M (2008)
- Joint mission with French Space Agency (2011 Megha Tropiques; 2013 SARAL)
- South Asia Satellite (2017)
- 104 satellites in single mission (2017)
- UNNATI (2019 & 2020)

- Launch of German and Korean satellites by PSLV (1999)
- Cryogenic engines from Russia

- Launch of APPLE by France (1981)
- Launch of INSAT-1A by USA (1982)
- First Indian in Space with USSR (1984)
- Launch of IRS-1A by USSR (1988)

- Remote Sensing Experiment with USSR – USA (1972-76)
- Launch of ARYABHATA by USSR (1975)
- SITE -Television Expt. with USA (1975-76)
- STEP -SATCOM Expt. with France – Germany (1977-79)

- TERLS with USSR-USA-France (1962)

Indian Space Sector – A Snapshot

- DOS –ISRO, NSIL, IN-SPACEe; ISA
- Space Policy - SpaceCom and SpaceRS policies, Some states
- GSLV, PSLV and SSLV
- New Launch Facility for SmallSats
- Contribution to global space economy From 2% to higher levels
- Gaganyaan –The first Human Spacecraft
- The moon exploration programme - Chandrayaan 3; the data of Chandrayaan- 2 mission made avaiable for Academia to study and analyze
- **India's Thematic Space Alliances (Quad 1:**India, USA, Australia and Japan **and Quad-2:** India, Israel, UAE and USA)
- New National Space Ecosystem - Industry, Government and Academia

114 Spacecraft Missions (/list-of-spacecrafts)

83 Launch Missions (/launches-sdsc-shar-sriharikota-india)

13 Student Satellites (/spacecrat/list of-university-academic-institute-satellites)

2 Re-entry Missions (/list-of-re-entry-missions)

342 Foreign Satellites

The purpose of ITCA is to help in converting Indian-space into a Global Space Hub

Academic Satellites launched from India since 2008

Sl. No.	Name of Satellites	Launch Date	Launch Mass	Launch Vehicle	Name of University/ EEI
1.	UNITYSat (3 Sats: JITsat, GHRCEsat & SriShakthiSat)	Feb 28, 2021	1.4 kg	P SLV-C51 Amazonia Mission	JIT, GHRCE and SIET/TSC Tech)
2.	NIUSAT	Jun 23, 2017	15 kg	PSLV-C38 / Cartosat-2 Series Satellite	Noorul Isalm University
3.	PRATHAM	Sep 26, 2016	10 kg	PSLV-C35 / SCATSAT-1	IIT-Bombay
4.	PISAT	Sep 26, 2016	5.25 kg	PSLV-C35 / SCATSAT-1	PES University & Others
5.	SATHYABAMASAT	Jun 22, 2016	1.5 kg	PSLV-C34 / CARTOSAT-2 Series Satellite	Sathyabama University
6.	SWAYAM	Jun 22, 2016	1kg	PSLV-C34 / CARTOSAT-2 Series Satellite	College of Engg, Pune
7.	SRMSat	Oct 12, 2011	10.9 kg	PSLV-C18/Megha-Tropiques	SRM University
8.	Jugnu	Oct 12, 2011	3 kg	PSLV-C18/Megha-Tropiques	IIT-Kanpur
9.	STUDSAT	Jul 12, 2010	≤1 kg	PSLV-C15/CARTOSAT-2B	7EEIs of KAR & AP
10.	ANUSAT	Apr 20, 2009	40 kg	PSLV-C12 / RISAT-2	Anna University

UNNATI PROGRAMME GLOBAL SPREAD

As a part of UNICESPACE – 50 celeberations

For 33 Countries across the Globe

UNNATI-Batch 1
17 Countries(2018)

- Algeria
- Argentina
- Azerbaijan
- Bhutan
- Brazil
- Chile
- Egypt
- Indonesia
- Kazakhstan
- Malaysia
- Mexico
- Mongolia
- Morocco
- Myanmar
- Oman
- Panama
- Portugal

UNNATI-Batch 2
16 Countries(2019)

- Bahrain
- Bangladesh
- Belarus
- Bolivia
- Brunei
- Colombia
- Kenya
- Mauritius
- Nepal
- Nigeria
- Peru
- Republic of Korea
- Srilanka
- Thailand
- Tunisia
- Vietnam

Indian Technology Congress Association
ITCA

SpaceTech and Satellites

Precision Agriculture

Large Infrastructure Projects

Industry 4.0

LINEAGE

A professional organization with distinguished legion of renowned scientists, engineers and technologists

VALUE ADDITION

Engineering & Technology as a platform for promoting excellence, capacity building and policy formalization in the context of social transformation

INDIAN TECHNOLOGY CONGRESS ASSOCIATION

FOCUS AREAS

Fostering new technological paradigms and finding ways to resolve groundbreaking engineering challenges having major scientific and societal ramifications

DELIVERABLES

#Patents and Intellectual Property #Thought Leadership and Publications #Execution of Projects #Program Management #Partnerships and Alliances

Annual Congress

International Collaboration

Public-Private Partnership

Research and Development

CONNECT COLLABORATE NETWORK

Azadi Ka Amrit Mahotsav

To celebrate and commemorate 75 years of Independence

Dedicated to the people of India through its evolutionary journey fuelled by the spirit of AatmaNirbhar Bharat

The Mahotsav's Ideology

Freedom Struggle

Ideas@75

Resolve@75

Actions@75

Achievements@75

We honor the Mahotsav through amazing Missions in NewSpace

INDIAN TECHNOLOGY CONGRESS ASSOCIATION

Ethos.....

ITCA is a platform that connects bright minds, entrepreneurs, and innovators to faster ideas, concepts and builds NewSpace solutions through the 75 Students' Satellites Mission.

ITCA aligning India's academia to the cutting edge of space technological innovations by designing, developing and launching student-built satellites as part of the mission.

In Synergy with...

इसरो ISRO

NSIL एनसिल

Karnataka Science and Technology Promotion Society
Department of IT, BT and S&T
KSTePS

SYMBA-MAZ
Business Consortium

BRICS

КРСП/CSPD
Комитет за развој свемирског програма

VALLES MARINERIS
space innovation and beyond

PA
Planet Aerospace

ATL
ANANTH TECHNOLOGIES LTD

ALPHA DESIGN TECHNOLOGIES

NEW TECH SOLUTIONS

DUCOM AEROSPACE

KARNATAKA HYBRID MICRO DEVICES LTD.

mp Micropack Limited
macro quality in micro circuitry

PCB POWER MARKET

KEPLER AEROSPACE

DHRUVA SPACE

India
Israel
France
Russia
Canada
Spain
United Kingdom
United States
Japan
Italy
Serbia
Germany
Netherland
Portugal
Tunisia
Peru

“

The Mission's purpose is to encourage students to embrace
STEM education
in pursuit of long-term professions through
experiential hands-on learning.
It provides innovative, fascinating, and
constructive space projects
that foster problem-solving and critical thinking.

Changing Scenarios in NewSpace

Digitalization

Resulted in new functionality and applications

Miniaturization

MEMS, Smart Sensors, PCBs, Data Processing and Solar Cells are all manifestation's

Industry 4.0

Constellations are examples of mass fabrication, 3D printing

Adaptability

Designs, Computing, Software and Apps

Availability

Commercial-off-the-shell **(COTS)** Space Components

Affordability

Reduced Development Lifecycle considers risk, cost and time to market

Students Participation

- Strengthen India's renewed economic policy by creating employability, skill development and promoting innovation culture
- 75 Satellites to be built and launched by students
- Future is Start-ups fuelled by Entrepreneurship
- Prepare the NextGen to enter into the NewSapce arena which has immense potential
- Leverage pan-India missions: To create Space Hub by ensuring workforce remains competitive for the next decades
- International Collaborations and experience its value addition
- Educational Outreach

Students

to design, develop, test, fabricate, integrate and launch

CubeSats

End-to-End Lifecycle Experience

Contemporary SpaceTech Applications

Global Broadband Connectivity		Reliable and low latency connectivity enhancing global coverage
IoT and M2M		Connecting billions of devices, asset tracking, precision farming
Earth Observation Satellites		Early Warning Systems, providing ground visualization enables critical decision-making
Satellite Navigation		Providing precise location, navigation and timing services-GNSS, GPS, IRNSS
Satellite Telecommunication Infrastructure		TV and Radio broadcasting, VoIP Networks
National Security and Homeland Security		Prevent and defend against intrusions from air, sea and land

Space Technologies for SDG2030

2 ZERO HUNGER

Crop Productivity Optimization

Food security and safe distribution

End Malnutrition's

4 QUALITY EDUCATION

Geo-Referenced Baseline Inventory of Skill Facilities

Tele-Education to Overcome Geographic Limitations

Literacy Enrichment

11 SUSTAINABLE CITIES AND COMMUNITIES

Urban Planning and Infrastructure Monitoring

Expansion and Improvement of City Services

Deployment of sensor based smart waste management systems

3 GOOD HEALTH AND WELL-BEING

Monitoring and Prevention and planning of infectious diseases and epidemiology

Regulating Air pollutants

Telemedicine and Telesurgeries

13 CLIMATE ACTION

Climate early warning systems and mitigation plans

Reduce Global Co2 levels

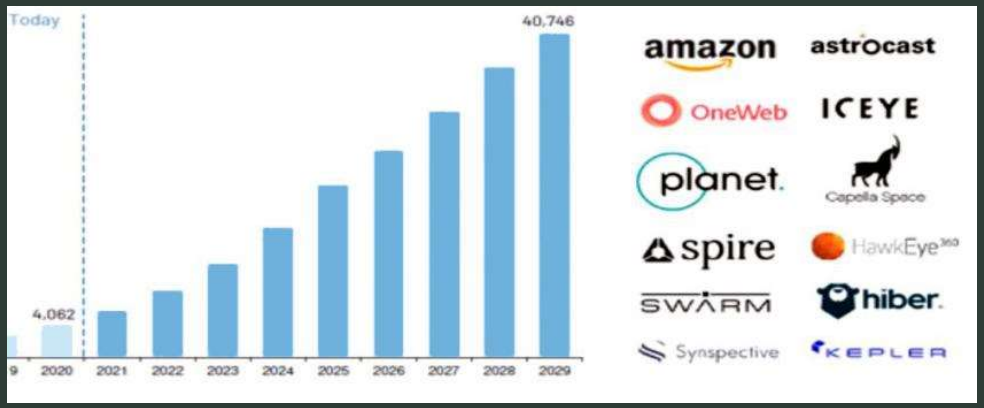
Human and Institutional Capacity Building

15 LIFE ON LAND

Increase afforestation and reforestation

Biodiversity protection and Predicting conservation hotspots

Identifying human-animal conflict zones



14X increase over last one decade

Global Small Satellites in Orbit

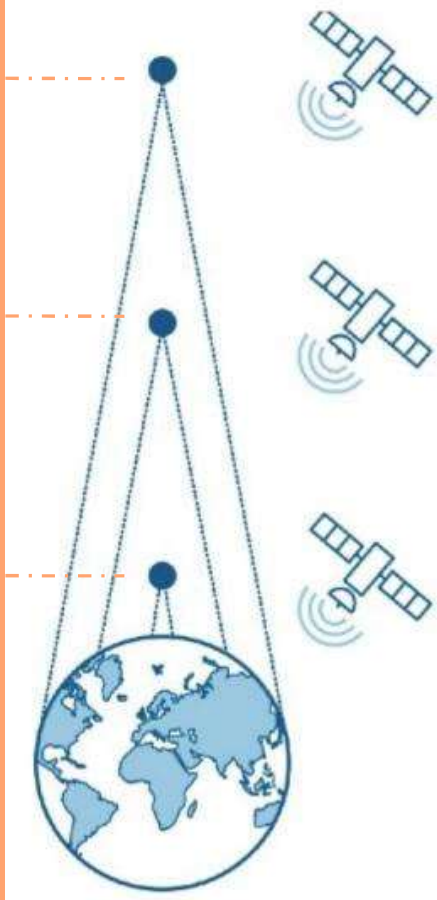
40+ Thousand satellites to be built and launched by 2030

Global small satellite market currently valued USD 325 Billion, and is projected to reach USD 1371 Billion by 2030, registering a CAGR of 16.4%

GEO satellites at altitudes of 35,786 km
Full orbital period of 24 hours
Latency (round trip) of approximately 477 ms

MEO satellites at altitudes of 2,000-35,786 km
Full orbital period of 127 minutes to 24 hours
Latency (round trip) of approximately 27-477 ms

LEO satellites at altitudes of 160-2,000 km
Full orbital period of 88-127 min
Latency (round trip) of approximately 2-27 ms



The Prominence of Low Earth Orbit (LEO)

- LEO economy and satellites are the future
- Key Spacecraft in LEO
  - International Space Station@400-420 km
  - Hubble Space Telescope@540 km
  - Iridium@780 km for Satellite phone service
- Satellite broadband is poised to become an even more important technology for addressing the growing digital divide.
- For many rural and remote communities, satellites are the only connectivity option *(63% of rural population globally will benefit)*
- COVID-19 Pandemic in 2020 and 2021 has accelerated the adoption of digital technologies pushing the demand for internet connectivity in multiple sectors, including learning, healthcare, leisure and entertainment.

GEO satellites at altitudes of 35,786 km
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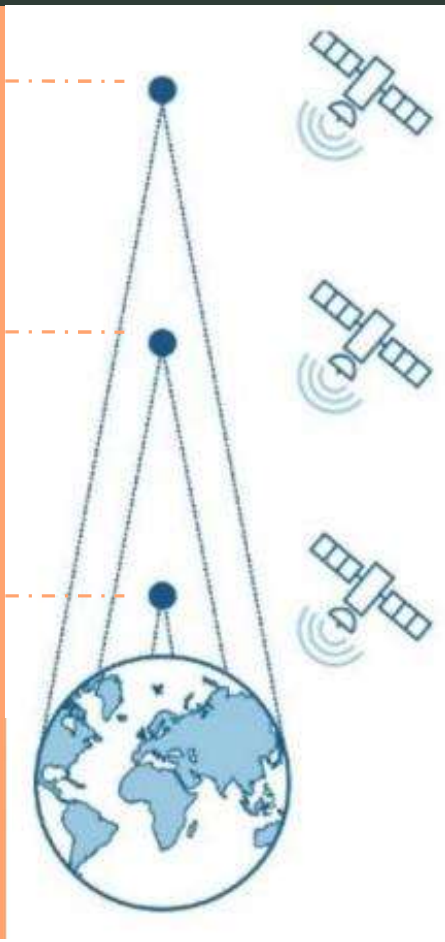
CLIMATE TRACE

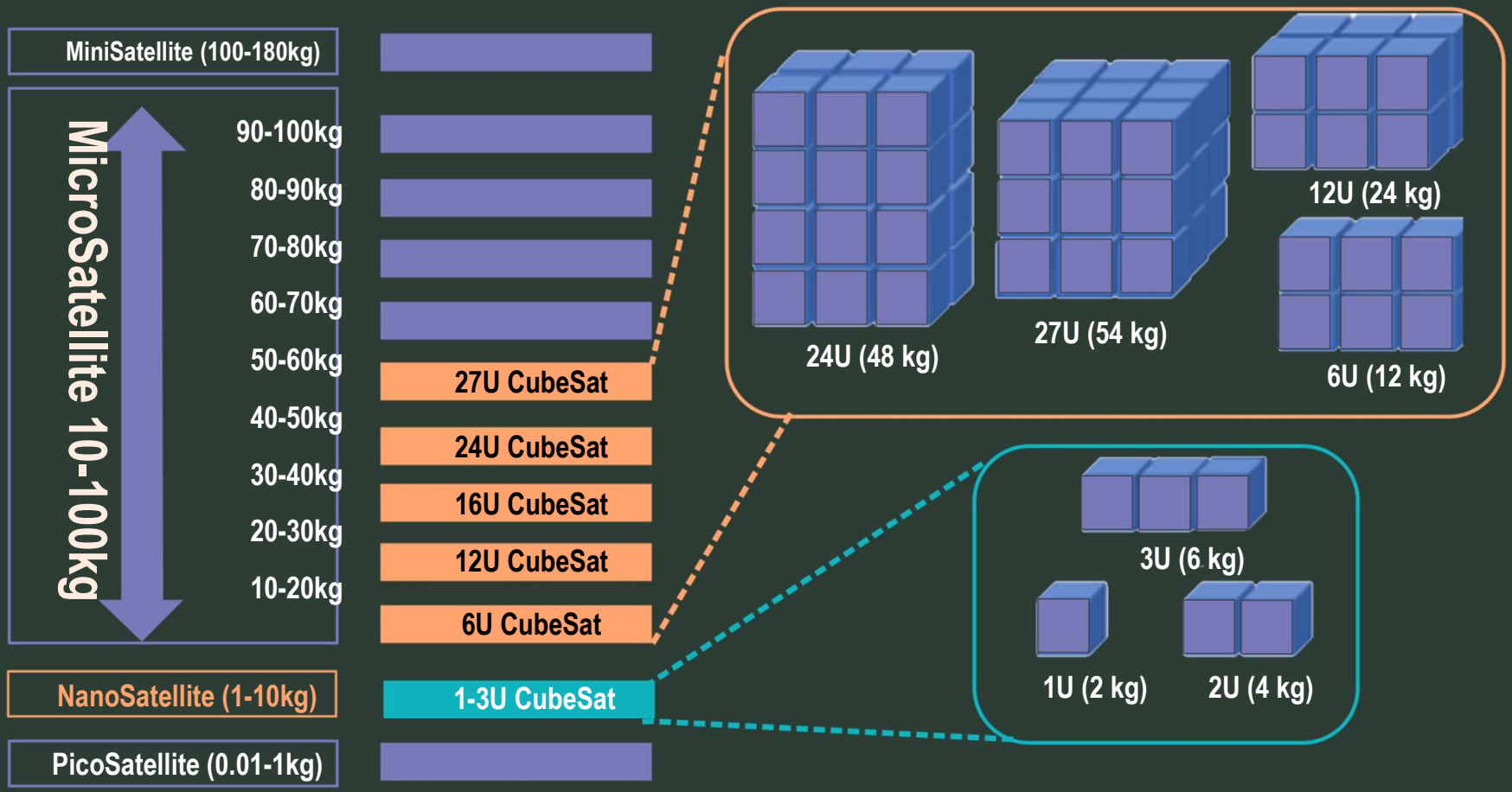
STARLINK

amazon | project kuiper

OneWeb



The Engineering of SmallSats : Mini to Pico, The CubeSats



Indicative Payloads

Multiple Sensors - Measurements in Different Locations in Space for Observing the Borders of the Atmosphere, Magnetic Field, Plasma Density etc

Remote Sensing from Space (*Cameras)*
Monitoring Natural Disasters, Air and Sea Pollution, Tracking Deforestation and Glacial Melting

Space Weather Sensors
Monitoring Radiation and Heavy Particles

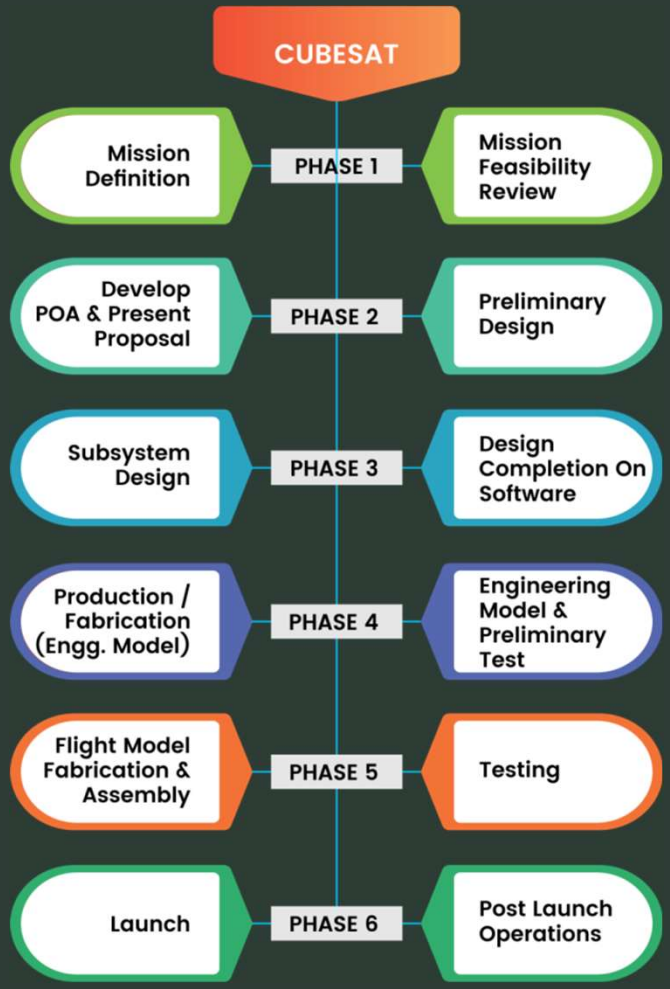
On-board Signal Processing
AI and Machine Learning algorithms (FPGA or SW)

Global Communications
On-board Transceiver for Inter-satellite Communications

Global Monitoring
AIS Ship Tracking and Aviation Monitoring Sensors for Monitoring Birds and Wild Animal Migration

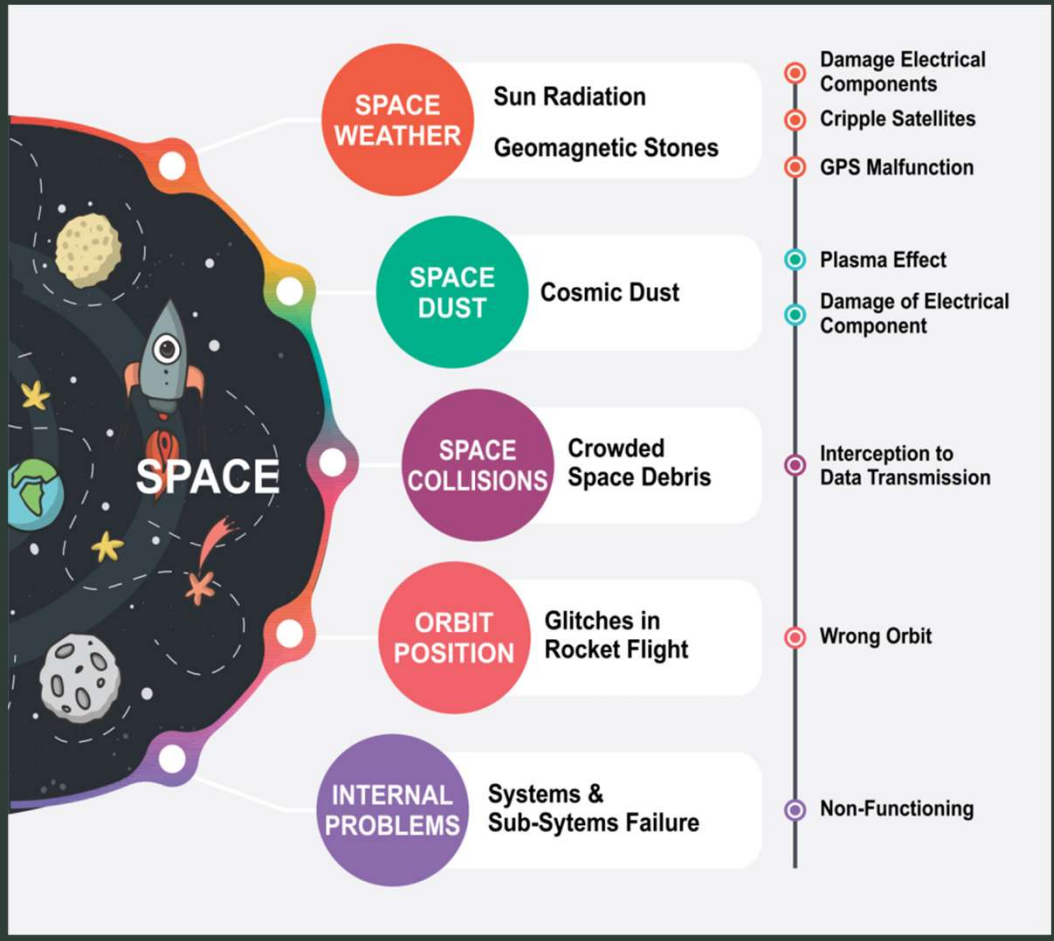
Engineering in a Cube

- Mechanical framework supports all other spacecraft components, attaches the spacecraft to the launch vehicle, and permits ordnance-activated separation
- Numerous subsystems present including an onboard computer (OBC), communication, electrical power system (EPS), attitude determination and control system (ADCS), data management and payload
- Functions of Attitude Control Electronics (ACE) are often implemented in the OBC using Field Programmable Gate Arrays (FPGAs)

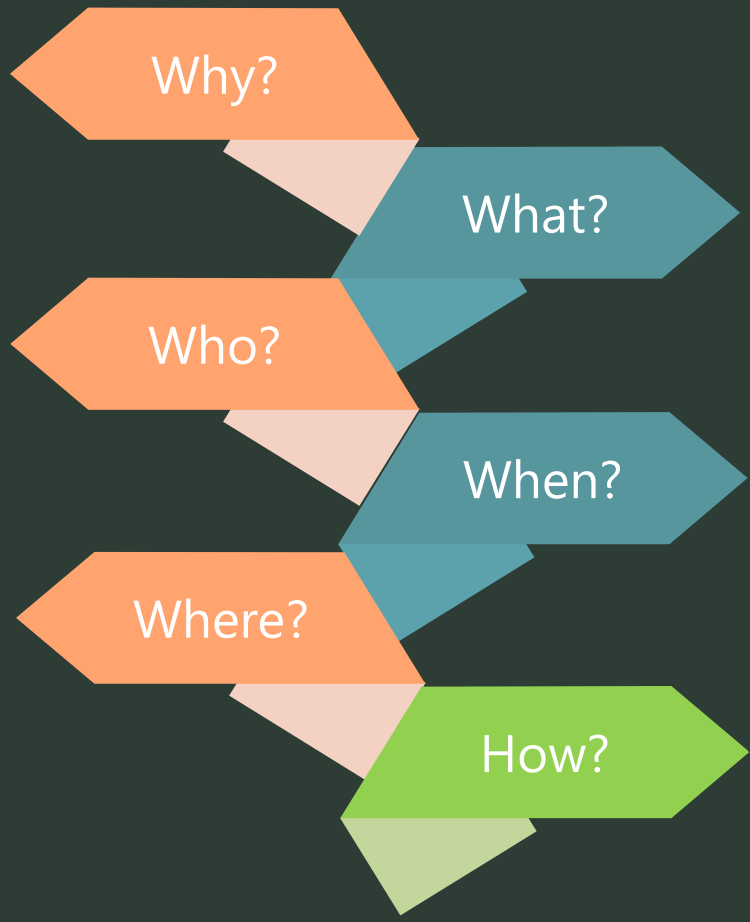


Design Factors in Space Missions

- Reliability is the primary and integral factor in design
- Creating a balance between mission requirements and the fundamental characteristics & capabilities of the satellite
- Choice between COTS and space-hardened components



Mission Pathfinder



Low cost and less time; Advances in miniaturization and digitalization

Education and Skills; Technology Demo, Scientific Temperament, Future jobs

Schools, Colleges, Universities, Industries, Government Space Agencies, Numerous countries in the world

Azadi Ka Amrit Mahotsav; The year 2022

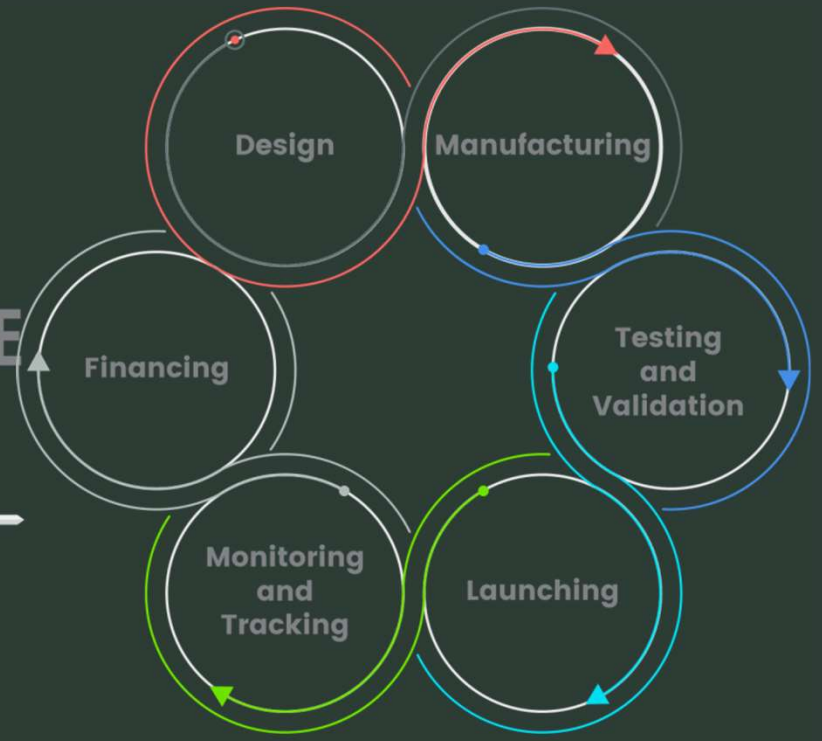
India's domestic capabilities; ITCA designs, and competency; Launch opportunity from ISROs entities

INDIAN TECHNOLOGY CONGRESS ASSOCIATION

Mission Lifecycle

ITCA brings the ecosystem to scale-up from

Concept to Constellation



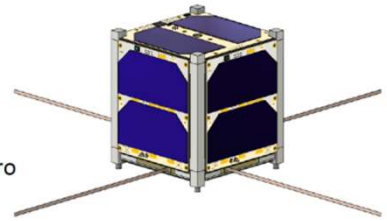
ITCA has a world-class execution team on board to drive this Mission

ITCA offers single-window services for Strategic Partners across the entire lifecycle including financing and launch facilitation

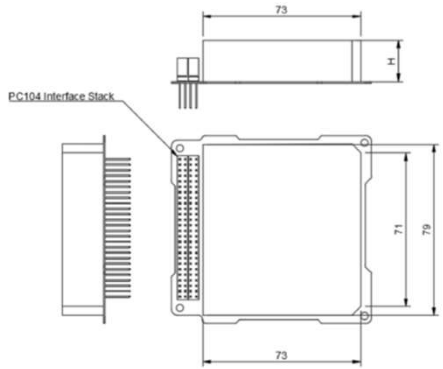
Satellite Payload Interface…

Satellite Configuration

- Size of satellite: 1U
- Dimensions: 103 mm x 103mm x 113.5mm
- Number of Solar Panels: 6 (on all faces)
- Antenna: cross dipole/monopole
- Stabilization: Magnetic
- Attitude Determination: Coarse Sun sensors, Gyro & Magneto meter



Available Payload Volume, Mass & Power (1U)



...Satellite Payload Interface...

Available Payload Volume, Mass & Power (1U)

The Payload can be built within a cube of size 79 x 73 x H mm
Here H can be varied based on different system configurations:

Configuration	Height (H)
With Beacon and GNSS Receiver; With 18650 battery pack	~19 mm
Without Beacon and GNSS Receiver; With 18650 battery pack	25.7 mm
With Beacon and GNSS Receiver; With Prismatic cell	N/A
Without Beacon and GNSS Receiver; With Prismatic cell	N/A

Configuration with Prismatic cells are under development and information will be provided when available; Currently marked "N/A".

Power

- Energy Available: ~1Wh/Orbit (Each Orbit lasting 93 Minutes)
- Energy generated over 1 orbit: 2.064 Watt-hour/Orbit
- Power consumed in coasting with ADCS off: 0.897Wh/Orbit (Margin: 1.167Wh)

Max instantaneous power:

- 3.3V Latch up protected output: 3 Amps – 9.9W
- 5V Latch up protected output: 3 Amps – 15W
- Max Current in 3.3V Rail: 5 Amps (50% Derating)
- Max Current in 5V Rail: 5 Amps (50% Derating)

...Satellite Payload Interface...

Interface

Through PC104:

- 1 x CAN line
- 6 x GPIO lines
- 3 x USART lines
- 2 x I2C lines

External Connector (Molex Pico-lock):

- 2 x I2C Connectors
- 3 x USART Connectors
- 1 x SPI Connector

...Satellite Payload Interface

Temperature Rating

Maximum Temperature: +60 C

Minimum Temperature: -20 C

Recommended operating temperature: -40 C to +85 C

Payloads Proposed

- LoRa Store and Forward
- LoRa Inter – Satellite Communication
- Study – RF Beam forming
- GNSS- Reflectometry (Tentative)
- Optical Radiometry (Tentative)
- Amateur Radio Repeater (Under development)

Typical Testing and Validation for CubeSats

- Physical Properties
- Launch Environment and Analysis Scenarios
- Random Vibration
- Thermal Cycling
- Thermal Vacuum
- Sinusoidal Vibration
- Qualification on an Engineering Model and identical to Flight Model
- Acceptance-testing on integrated system

Ground Station Configurations

ITCA-CSPD-TSC Ground Control Station Setup v3.0 to be established at Host Campus

Ground Station and Network, Optimized for Modularity, Built to Last and Affordable *(Patent Filed)*

Ground Station Solution comprises:

Client Computer

Client Software: *(Patent Filed)*

- Radio Receiver: (SDR: Patent Filed)
- Antenna System: (Patent Filed)
- Rotator
- Rotator Control Hardware/Software
- 180/270 Degree Curved Screen
- TSC SatNav (Mobile App)

Project Monitoring Committee (PMC)

- To mentor various stakeholders through technical interactions and sharing of expertise
- To review the progress of the mission and suggest mid-course corrections as and when deemed necessary
- To oversee the entire mission including technology development, access to technical infrastructure/facilities etc. towards ensuring mission success in a time bound manner

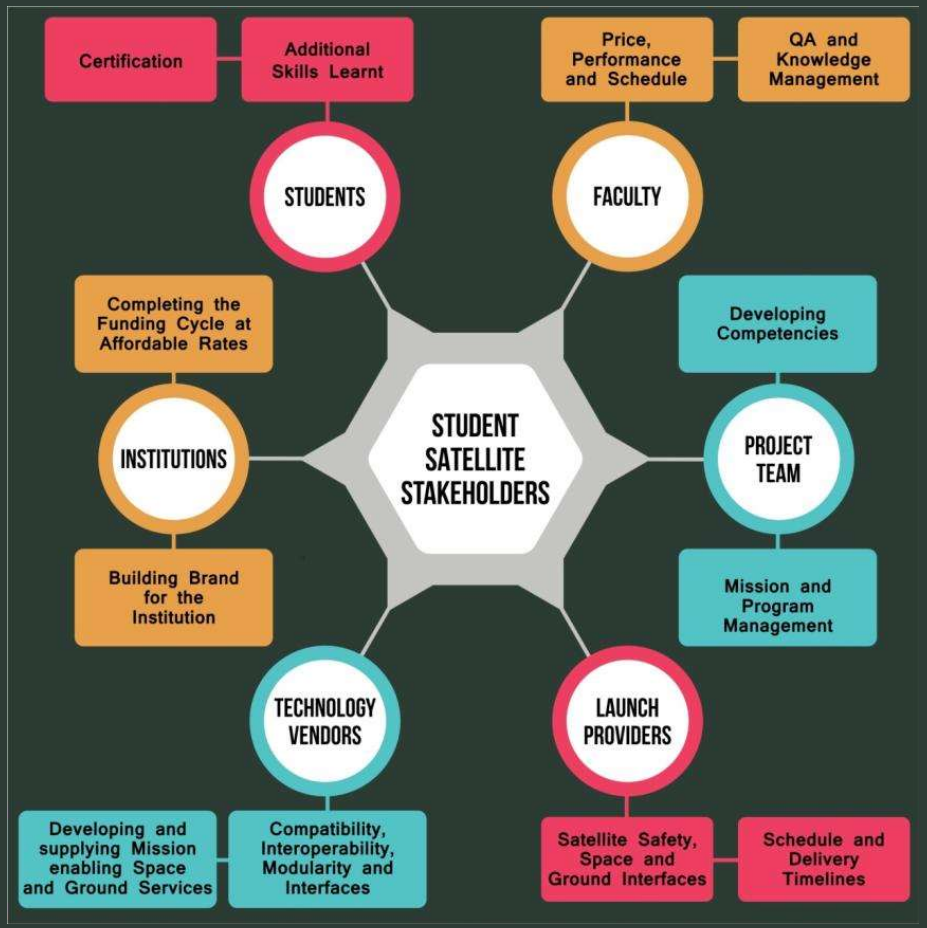
Mission Timelines *(illustrative)*

Mission Deliverables

- 1U/2U/3U Satellite: Functional Qualified for Space Launch with Qualification Test Reports
- Primary and secondary payloads
- Establishing Nano Satellite Centre and Ground Control Station (GCS) - Antennas, Receiver, Rotator @ Campus
- SatNOGS/TinyGS Ground Station Network (TinyGS community is based on LoRa Satellites only)
- ITCA Proprietary SatNav: A Mobile App for tracking of Satellite by students
- Satellite Functional Engineering Models/Qualification Models for Test/further studies as Classroom Satellite
- Integration of Satellites with Launch Vehicle-PSLV/SSLV Services at ISRO-Spaceport, Sriharikota
- Launch Qualification Tests of the Satellite: Jigs/Fixtures for CubeSats
- Safety Submission Requirements for Launch: Coordinated with ISRO-VSSC, Trivandrum
- Interface Control Document: Coordinated with ISRO-VSSC, Trivandrum
- Frequency Allocation: Orbit Spectrum Coordination & Acquisition
- Registration of Satellite with IN-SPACe
- Launch Campaign and Deployer Integration
- Participation of Institution's Satellite Team in World CanSat Rocketry Championship/Global Events/International Exposure
- Learning Resources/Training Materials (6 Months-24 Credits/Audio Visuals on Small Satellites and Space
- Training Programmes/Internships/Mentor Sessions/Publications on Space and Small Satellites/Startups

Value Proposition :NanoSats are a Disruptive Innovation for NewSpace Solutions

- Space and related technologies will be critical for the next two-three decades. Students will have significant opportunities for growth and success
- Multidisciplinary learning framework, transnational technology culture and entrepreneurial spirit are essential for success
- Faculty can enhance their competencies and progress research activities
- Universities / Institutions gain substantially through collaborative incubation with industry and R&D organizations' participating



Structured Content for Young Minds

- Structured and Graded Course material on space and related aspects developed for school students
- Access to course material through Learning Management System

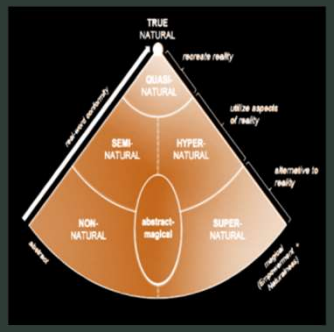
Five Big Ideas

Perception

Comprehension

Learning

Natural Interaction



Impact

NewSpace is for Curious and Creative Minds

Potential Opportunities

- Systems Engineers
- Propulsion Engineers
- Remote Sensing Specialists
- Data Scientists
- Cloud Dev Systems Engineers
- Antenna Engineers
- Ground Systems Engineers
- Flight Systems Engineers
- GNSS Engineers
- Product Assurance Engineers
- Project Managers
- Technical Launch Vehicle Staff
- Supplier Network Lead
- Plasma Physicist
- Oceanographers
- GNOS Specialist
- Network Architects
- General Management
- Business Development Staff
- Machine Vision Engineers
- Space Lawyer
- Orbital Analyst

Future Endeavour...

NewSpace is a self-sustaining ecosystem that increases the options and opportunities that can be leveraged by the stakeholders to shape the future of space.

Opportunity for India to build collaborations with more than 90 space faring nations, this will scale educational infrastructure, create high-skilled jobs, and boost the Indian economy

Building satellites, earth observation, space science, new propulsion technologies, sharing of satellite data, space situational awareness are some of the specific areas for future collaboration

Institution to create alumni with strong entrepreneurial focus and startups by creating student-centric content

“75 Students' Satellites Mission” is a mature platform for collaboration and cooperation in space research, creating a pathway for inflow of expertise

ITCA nurtured the 75 Satellites Mission to deliver value for institutions, faculty and students in the realm of NewSpace

Karnataka Government School Students Satellite (KGS3Sat) named PUNEETHSat

- Design, Development, Fabrication, Integration, Testing, Launching and Operation of KGS3SAT
- Adequate training to at least 200 students
- Establishing Nano Satellite Centre
- Establishing Ground Control Station
- Nav Software (Mobile App) for Satellite Communication Lab

Coverage of Educational Institutions in Karnataka

Focus of Influence for Impact in Educational Institutions in Karnataka

ITCA – TMISAT Students' Satellites Programmes

ITCA and TMISAT Joins Hands to Launch 75 Students' Satellites Mission in India

Indo-Israel Space Tech Leadership Programme

Exploring at...

Israel Space Agency

HERZLIYA SCIENCE CENTER

Elbit Systems

RAMONchips

TEL AVIV UNIVERSITY

Ben-Gurion University of the Negev

TECHNION Israel Institute of Technology

ASHER SPACE RESEARCH INSTITUTE

ITCA Satellite Development Alliances with Serbia

ITCA's Partnership with CSPD, Serbia

The Indian Technology Congress Association (ITCA) has signed a Memorandum of Understanding with Committee for Space Programme Development, Republic of Serbia on 19 December 2019 at Bangalore with Exchange of Scientific Research Collaboration, exploration of teaching collaboration, sharing of joint research results, exchange of academic, research personnel and adminstrative personne and joint organization of events.

SECOND INTERNATIONAL PROGRAMME ON

Students' Satellite Mission 2022

UNISEC INDIA

INDIAN TECHNOLOGY CONGRESS

ITCA-UNISEC COLLABORATION

7th University Space Engineering Consortium (UNISEC) Global Meeting held at Japan

The University of Tokyo, Institute for Open Innovation

30 November-05 December 2019 at Koshiba Hall, Hongo Campus, the University of Tokyo, Tokyo, JAPAN

Students' Satellite Team Represented by Nikhil, Denzel, Sainath and UNITYsat Mentor Dr. K. Gopalakrishnan, ITCA

Image Source: Herzliya Science Centre

Dr. Meir Ariel, HSC Director, at the pre-launch briefing Duchifat 1

Image Source: Herzliya Science Centre

A group of Herzliya Science Centre students working on Duchifat 1 in the clean room with Dr. Ana Heller.

ITCA's Satellite Teaming Partnerships

Access to State-of-the-art, Best-in-class Facilities in India and Israel

Access to ISRO Approved Facilities/Research Labs/Clean Rooms in India

Space Qualification Tests: Shock, Random Vibration and Sinusoidal Vibration	ALPHA DESIGN TECHNOLOGIES
Solar Cells/Panels Integration	KARNATAKA HYBRID MICRO DEVICES LTD.
OBC/EPS/CS: Telemetry/Mother & Daughter Boards Assembly and Integration	NEW TECH SOLUTIONS
Beacon *(Proof of Life Sensor)*	TSC KEPLER AEROSPACE
Space Grade 4 Layer PCBs and 2Layer PCBs for OBC/EPS/CS Solar Panels PCBs	mp Micropack Limited macro quality in micro circuitry
Space Grade Satellite Structure Machining and Anodising	DUCOM AEROSPACE
1U Deployer for 3-in-1 SlimSatellites	DHRUVA SPACE
Design, Development, Validation, Integration, Testing, Fabrication, Launch Integration, Programming, Firmware Coding etc; Ground Station, Antennas, Receiver, Mobile App etc.	Indian Technology Congress Association TSC ITCA Students Team's Start-up
Conceptual Support for UNITYsat and SATNOGS Global Network of Ground Stations	Indian Technology Congress Association
Registration of Satellite, Frequency Allocation, Thermovac Test and Launch Support with Deployer: IN-SPACe; ISRO PSLV C 51	इसरो ISRO URSC U R Rao Satellite Centre

INDIAN TECHNOLOGY CONGRESS ASSOCIATION

TSC

ITCA 75 Students' Satellites Mission in India

ITCA Team Launched
UNITYSat (3-in-1 Sat)
on 28 February 2021 during
ISRO's PSLV C51 Amazonia Mission

ITCA Team- After Successful Launch of THREE Satellites Team with Dr. K. Sivan, Secretary, Department of Space (DOS), Chairman , Indian Space Research Organisation (ISRO) @Satish Dhawan Space Centre (SDSC) – SHAR, Sriharikota.

ITCA Success Meet of UNITYsat

On the 6thApril 2021, the Indian Technology Congress Association (ITCA) has celebrated the Successful design, development, fabrication, integration, testing, launch and operation of the UNITYSat aboard the PSLV C-51 Amazonia Mission in 28th February 2021 from India's spaceport Satish Dhawan Space Center (SDSC) at Sriharikota, India, at The Leela Palace, Bangalore, India.

Strategic Collaborations and MoUs

ITCA has entered into strategic collaborations with universities and institutions to progress the Mission. Some of the recent partners


Mr. Srinivas Durvasula
Project Management, ITCA
Mr. Nikhil Riyaz
Founding Director & CEO, TSC Technologies
Core Team Member,
75 Students' Satellites Mission, ITCA
CA Pradhyumna Kumar
Finance Director
ITCA
Mr. Denzel Abraham George
Founding Director & CFO, TSC Technologies
Core Team Member,
75 Students' Satellites Mission, ITCA
Project Management Team
Technical Team
75 Students' Satellites Mission
ITCA's Engineering Prowess and Ingenuity
Mr. Krishna Reddy
Entrepreneur and
Director-Operations, ITCA
Mr. Sanketh S. Huddar
Founding Director & COO, TSC Technologies
Core Team Member,
75 Students' Satellites Mission, ITCA
Er. S. Shanmugam
Manager-Operations
ITCA
Mr. Vamshi Sainath Gavani
Chief Design Officer,TSC Technologies
Core Team Member,
75 Students' Satellites Mission, ITCA
Mr. Jegan R Mani
Co-founder & CTO, TSC Technologies
Core Team Member,
75 Students' Satellites Mission, ITCA
Mr. Ashwin Reddy
Chief Engineering Officer, TSC Technologies
Core Team Member,
75 Students' Satellites Mission, ITCA

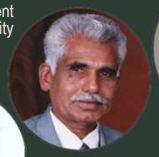
Leadership Team

75 Students' Satellites Mission

ITCA's Engineering Prowess and Ingenuity

Dr. L.V. Muralikrishna Reddy
President, ITCA
President, BRICS Federation of Engineering Organizations and President, UNISEC-India

Padma Shri. Prof. R.M. Vasagam
Vice President, ITCA,Former Project Director, India's First Geo Stationary Communication Satellite "APPLE", Eminent Scientist, ISRO, and Former Vice Chancellor, Anna University



Padma Shri. Dr. Mylswamy Annadurai
Outstanding Scientist, ISRO, Former Director, ISRO Satellite Centre, Project Director, Chandrayaan1 & 2 and Mangalyaan (Mars Orbiter Mission), Former Chairman, National Design and Research Forum

Padma Shri. Dr. Y.S. Rajan
Honorary Distinguished Professor and Scientist, ISRO, Former Vice Chancellor, Punjab Technical University, Author of INDIA 2020: A Vision for New Millennium along with Dr. APJ. Abdul Kalam, Former President of India

Mr. GNV Prasad
Former Deputy Director
ISRO Satellite Centre
URSC/ISRO

Padma Bhushan. Dr. B.N. Suresh
Former Director, Vikram Sarabhai Space Centre, (VSSC), Former Director, Indian Institute of Space Science and Technology and Vikram Sarabhai Distinguished Professor, ISRO HQ, India

Padma Shri. Dr. Dattaguru
Former Professor & HoD,
Aerospace Department,
Indian Institute of Science, Bangalore

Prof. Chaim Eshed
Founder, Israeli Space Programme and Chairman, National Space Committee, Tel Aviv, Israel

Dr. Meir Ariel
Director General,Herzliya Science Center
Director, Nano-Satellite Centre,
University of Tel Aviv, Israel

Dušan Radosavljevic
Founder and Head, Committee for Space Programme Development (CSPD), Serbia, Founder, World CanSat/Rocketry Championship, and Advisor, TSC Technologies Pvt. Ltd

Mr. Akiba Penkar
Director, TIMISAT
Director, MAZ Investments Pvt Ltd, and
Managing Partner, SYMBA MAZ Ltd, Israel

Ms. Rei Kawashima
Secretary General,
University Space Engineering Consortium (UNISEC) Global, Japan

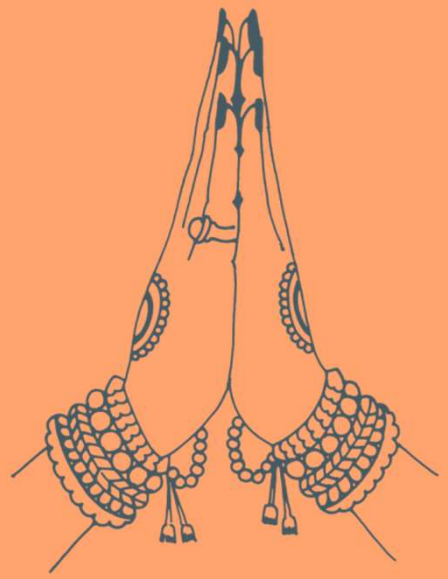
Dr. R. Venkatesan
Head, Ocean Observation Systems, Scientist G, National Institute of Technology, Ministry of Earth Sciences, Government of India and Visiting Professor, IIT Madras and IIT Bhuvneshwar

Mr. R.K. Rajangam
Outstanding Scientist, ISRO satellite Centre (ISAC), Formerly Prof. Satish Dhawan Visiting Professor, President, Planet Aerospace and Mentor, IIT Madras/MSRIT StudentsSats

Dr. S.K. Prasad
Professor, School of Management Studies,
REVA University
Strategy and Operation

Dr. Wooday P. Krishna
National President, Indian Institution of Production Engineers, Vice President, World Academy of Engineers, Vice President, UNISEC India and National Council Member, The Institution of Engineers (India)

Dr. K. Gopalakrishnan
Secretary General, ITCA, Project Director, 75 Students' Satellites Mission 2022 and Secretary General, UNISEC-India



Thank You...