



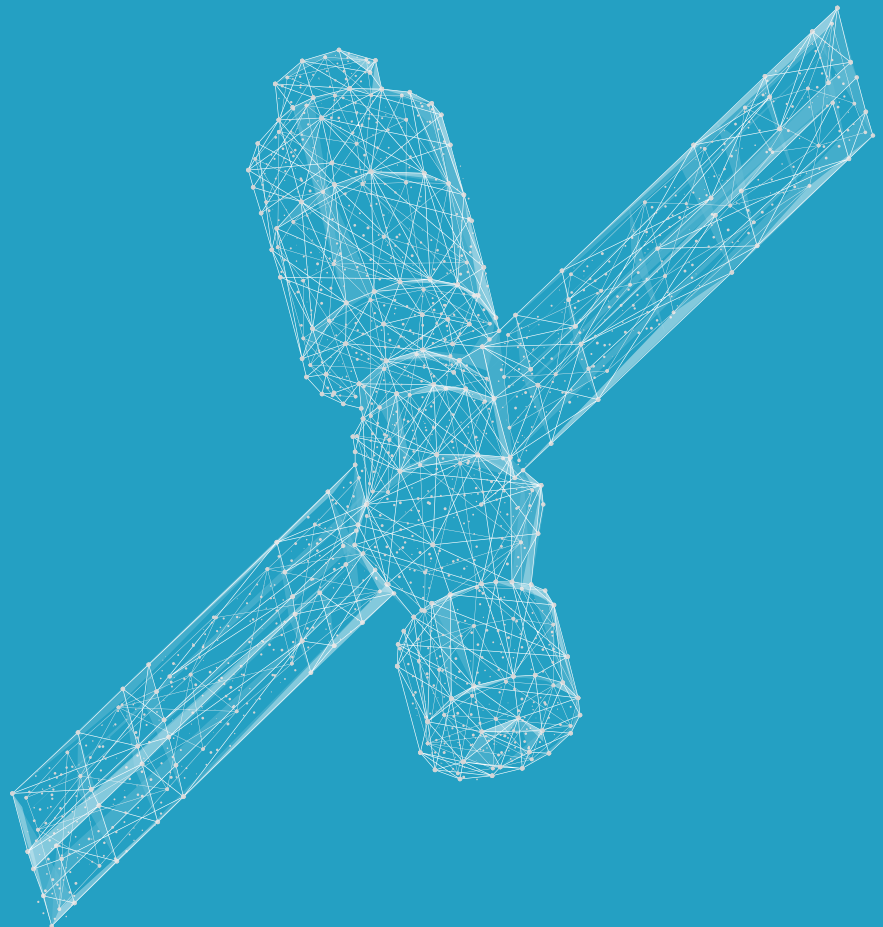
ANANTH TECHNOLOGIES LTD.

A GLOBAL AEROSPACE ENGINEERING
AND MANUFACTURING FIRM

THE INCEPTION

A vision to see India at the forefront in space and defence technologies has led to the inception of Ananth Technologies in 1992. Since then, Ananth has become India's leading designer and manufacturer of avionic systems and platforms.

Growing from strength to strength, today Ananth's products are part of critical systems such as satellites, launch vehicles, missiles and aircraft. Almost all the pioneering Indian organisations in the field of aerospace and defence trust and use Ananth's products.



With 1,200 employees, spread across 3 locations, Ananth has built up robust design and manufacturing capabilities to serve the needs of space, defence and the civilian aviation industries.

Technology, quality and trust are the cornerstones of our business.

Ananth has been a part of every single Indian space program.

AREAS OF EXPERTISE

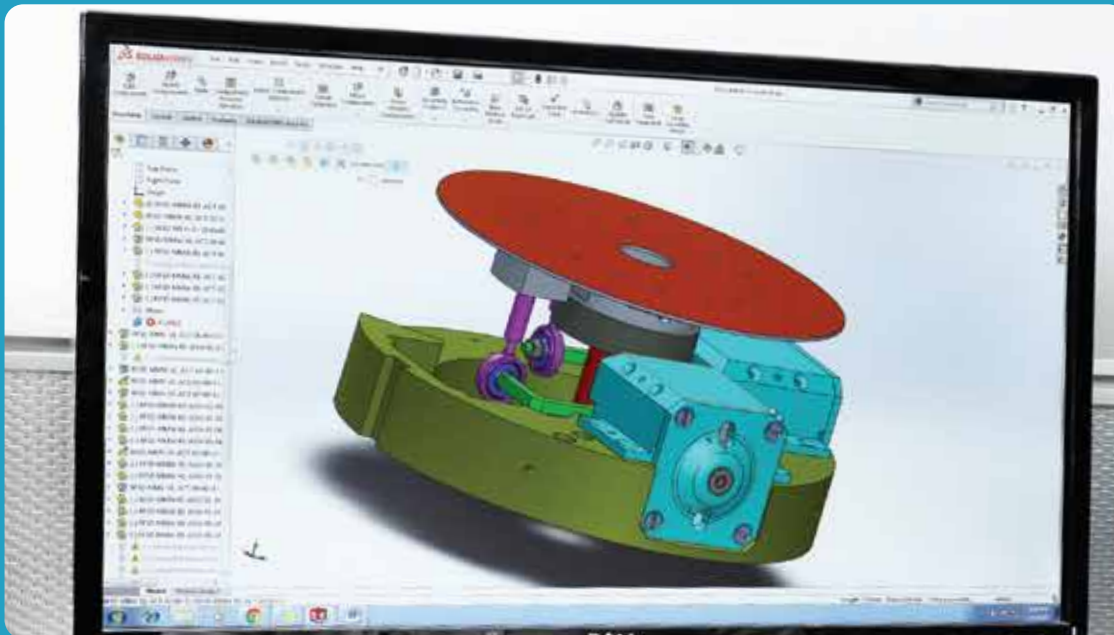
- › Satellites and Launch Vehicles
- › Small Sats
- › Navigation and Guidance Systems
- › Missile Development Programs
- › Radar, RF and Microwave Systems
- › Airborne Platforms
- › Unmanned Aerial Systems
- › Embedded Systems
- › Thermal Imaging and Night Vision Systems
- › Security and Surveillance Equipment

DESIGN AND INNOVATION

Expertise comes with experience. With over 25 years of experience, we design and develop a range of devices and systems such as Laser & Optics, Mechanical, Digital & Embedded systems, Telemetry, Navigation & Controls and Radio Frequency. Uncompromising quality and precision stand as strong pillars of Ananth.

DIGITAL DESIGN & DEVELOPMENT

- › Complete FPGA development life cycle support
- › Covers multiple application areas including test bench design, system validation and technology migration
- › Use of latest architecture and optimization techniques across FPGAs/CPLDs
- › High Speed Digital Design
- › Processors & DSP
- › Devices: Xilinx, ALTERA, Actel, Cypress, Lattice
- › HDL: VHDL, Verilog, RTL simulation & verification
- › SoC NIOS-II based solutions
- › Various Communication Interfaces



RF DESIGN & DEVELOPMENT

- › Radar, Satcom, RF & Microwave Communication Systems
- › State-of-the-art Microwave Circuit and System Simulation using Simulation Tools
- › Design validation using EM Simulation
- › High frequency structure simulation
- › Design, Fabrication and circuit packaging of planar RF & Microwave components
- › Expertise in circuits in strip line and micro strip configuration
- › Frequency synthesis and frequency conversion
- › High efficiency solid-state amplifiers



AEROSPACE AND DEFENCE PRODUCTS

Ananth designs and manufactures products across a broad spectrum of applications. With a highly qualified team of engineers and technicians, Ananth produces systems that are part of critical aerospace platforms.

SATELLITE SYSTEMS

NAVIGATION, GUIDANCE AND CONTROL

- › Attitude & Orbit Control Electronics
- › Bus Management Unit
- › Star/Sun sensor system
- › Inertial Reference Systems
- › Wheel Driver Electronics



TTC & POWER

- › Telemetry / Tele-command
- › Core Power System
- › Power Distribution
- › EED system
- › Shunt system
- › DC-DC Converter & Regulators
- › EMI Filters
- › Electronic Power Conditioner
- › High voltage power modules

RF SYSTEMS

- › Transmitters and Receivers
- › Transponders
- › Integrated Telemetry Systems
- › RF Seekers & Seeker Simulators
- › Radar Simulators
- › RF Link Systems
- › Radio Altimeters
- › RF Front End Systems
- › Solid State Power Amplifiers
- › Frequency converters
- › Transmit /Receive Modules
- › Automated test equipment



LAUNCH VEHICLE

NAVIGATION, GUIDANCE AND CONTROL

- › Advanced Mission Computer
- › NGCP processor
- › Stage Processing systems (SPS)
- › NaviC Receiver
- › PSOM Control Electronics
- › Stage Control Electronics
- › Servo Control System

TTC & POWER

- › Integrated Control Unit
- › Sensor Electronics
- › Interface Units
- › DC/DC converters



INSTRUMENTATION

- › Smart pressure / vibration sensors
- › Data Acquisition Units
- › Thermocouple acquisition module

MECHANISMS & VEHICLE INTEGRATION

- › Safe Arm relay units
- › Power Switching Modules
- › Stage Harnessing
- › Stage Integration



LASERS AND OPTICS

- › Telescopic manipulator for explosive handling
- › Electronic Stethoscope
- › Explosive detectors
- › Fibre optic surveillance devices
- › Night Vision Systems for gun mount applications
- › Thermal Imagers
- › Imaging LIDAR for surveillance & security

DEFENCE SYSTEMS

- › Onboard computers (OBC)
- › Missile interface units (MIU)
- › Inertial Navigation Systems
- › Nozzle control system
- › Actuators & Control systems
- › Power Supply Systems
- › Pyro Relay Unit
- › Radio Proximity Fuse
- › Radar Altimeters
- › Tele-Command Receiver
- › Thermal Imagers and IIR Seekers
- › Laser Seekers, Designators & Range finders
- › Integrated checkout system
- › Launcher Integration System
- › Launch Control Centre
- › Underwater communication systems
- › Warship Electronic Chart Display system



OTHER AEROSPACE SYSTEMS

- › Multi-Channel Rotor Telemetry System for LCA
- › Airborne Stores Inertial Systems for LCA
- › MEMS Inertial systems for 155mm shell
- › Attitude Heading Reference Systems (AHRS)
- › Inertial data recorder for Parachutes
- › Digital Receivers
- › Transmit - Receive Modules for Radar systems
- › Strain Gauge Data Acquisition System for LCA
- › Exciters for communication jammers
- › Solid State Power Amplifiers



MANUFACTURING AND QUALITY

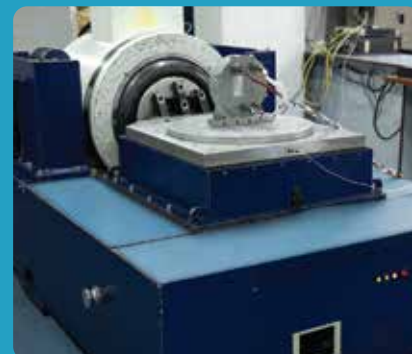
Ananth is a leading manufacturer of aerospace products in India. With labs spread over 50,000 sq. m area, cleanrooms and manufacturing facilities, Ananth is capable of meeting large scale production needs with AS certified quality standards.

- › Class 100,000 Clean Room
- › ISRO Certified facilities for Aerospace production
- › Trained and Certified manpower
- › Automated production line
- › Surface Mount, Through-Hole & mixed PCB Assembly
- › Fine Pitch Components (0.10 mm pitch)
- › BGA Placement, Assembly and Rework facility
- › Potting and conformal coating facility
- › Radiation shielding for space systems
- › Encapsulation of electronics for high 'g' applications
- › Harnessing & Packaging of flight cables
- › In-house ESS test facilities



TEST FACILITIES

- › Wide range of test equipment
- › Simulation and analysis tools
- › Automated test equipment
- › Burn-in chambers
- › Thermal cycling chambers
- › Humidity chambers
- › Bump test facility
- › Rate table
- › Vibration and shock table
- › Acceleration test facility
- › Spin test facility up to 20,000 rpm
- › Pressure test chamber



FACILITIES

Our R&D, Design and Manufacturing facilities are strategically placed across multiple locations. These large facilities can support any new activities and scale production as needed.



HQ, Hi-Tech City, Hyderabad



R&D, Manufacturing and MRO Facility, Aerospace Park, Hyderabad



Satellite AIT Facility,
Aerospace Park, Bengaluru



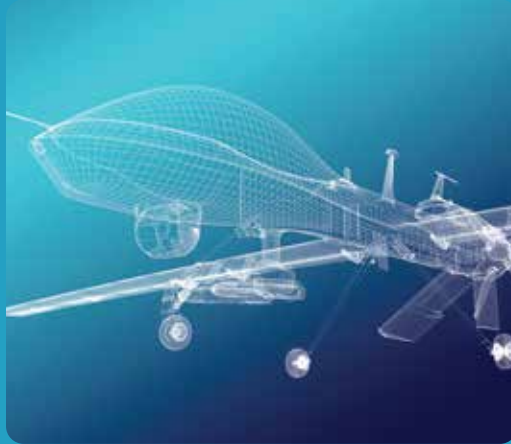
Launch Vehicle Integration
Facility, Trivandrum

UAVs

Advent of Unmanned Aerial Vehicles is revolutionising the world in ways not seen before. Not only 'dangerous, dull and dirty' jobs but everyday civil applications are also being opened up to new possibilities. Ananth's product range includes UAV systems for both civilian and military use. They range from medium to high altitude long endurance applications.

UAV SYSTEMS

- › Telemetry Transmitter - 6W
- › Communication Links
- › Control Systems
- › Auto Landing Systems
- › Laser Designators



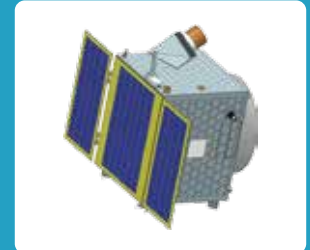
SATELLITES AND LAUNCH SERVICES

Spacecraft Assembly, Integration and Test (AIT) Facility

Spread across 20,000 sq. meters, Ananth's Bengaluru campus houses an advanced Spacecraft Assembly, Integration and Test (AIT) facility for satellites up to 4,000 kg class. Large, medium, small and nanosats can be accommodated in the same facility, with a capacity for simultaneous integration of 4 large satellites. This end-to-end facility can realise assembled and tested satellites, ready for launch.



Satellite AIT Facility,
Aerospace Park, Bengaluru



LAUNCH SERVICES

ISRO's satellite launch service is amongst the world's most reliable and cost effective. With record breaking launches per mission and a proven and highly reliable PSLV launch platform, ISRO's launch services are trusted and leveraged internationally. In addition to design and AIT services for the satellites, Ananth can partner to seamlessly launch the satellites.

Ananth's launch services include

- Procurement of Dispenser
- Assembly of Spacecraft
- Mission Management
- Interactions with Antrix
- Documentation
- Transportation to SDSC/SHAR
- Pre-launch Activities
- Checks & Integration to Launch Vehicle
- Logistics, Regulatory, Clearances etc.





**ANANTH
TECHNOLOGIES LTD.**

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India - Head Quarters

Ananth Technologies Limited
39, Ananth Info Park, Phase - II
Hi-Tech City , Madhapur,
Hyderabad, India - 500 081
Tel: +91-40-6615 6615 / 6615 6789
Fax: +91-40-6615 6531 / 6615 6652

Bangalore

Ananth Technologies Limited
Plot No. 593, 9th A-Main 14th Cross,
ISRO Layout, Kumaraswamy Layout Post,
Bangalore 560 111
Tel: 080-26664179, 26666229
Fax: +91-80-26664175

Thiruvananthapuram

Ananth Technologies Limited
BNRA 85A, Sai Gopa Subha
Bhagavathi Nagar, Kowadiar
Thiruvananthapuram - 695 003
Tel: +91-471-2315913

Sales: sales@ananthtech.com

HR: hr@ananthtech.com

Media: mail@ananthtech.com

Queries: mail@ananthtech.com