

List of Completed STC Projects

S.No.	Research Title
1	Growth and aging of tissues under microgravity environment
2	Powder Metallurgical (P/M) Processing of Diamond-based High Thermal Conductivity Alloys with Transition Metal Additives
3	Modelling and System Identification of Inflated Torus membrane using Frequency Response Transmissibility
4	High Gain agile antennas and feed arrays for multibeam antennas.
5	A self-consistent predictive quantum transport simulator for quantum dot IR photo detectors
6	Development of Integrated Heat Pipe Based Passive Thermal Management Platforms with Stress Free Mountings
7	Vibration Control of Cryo-coolers for Satellite Applications
8	Development of a 3-D Riesz Scanner Scanner
9	Remote Sensing application in Coastal Geomorphology, changes in morphology in parts of West coast of Maharashtra, India
10	Stabilization of zirconia for electronic applications, in tetragonal and cubic structure using various dopants.
11	Design, fabrication and testing of a compact and robust Monochromator
12	Studies on Biodiversity of poly-extremophilic bacteria for their probable use as test organisms in space research
13	Application Aware Image Quality Evaluation
14	Design and Development of GaN Based Compact DC-DC Converter
15	Fabricating of Porous Copper with Carbon Nanotube Reinforcement for Loop Heat Pipe Application
16	Shape Memory Alloys actuated Mechanically Active Reconfigurable light weight PEEK material based parabolic reflector for active control on RF patterns for High frequency Micro / Nano Spacecraft Applications
17	Forecasting applications of the microwave data from AMSU on board NOAA Satellite
18	A study of weather over Himalayan terrain using microwave data from AMSU-B
19	Implementation of the designed HRPT receiver for collecting atmospheric data
20	Fabrication of narrow bandwidth low loss microstrip filter
21	Mobile communication using genetic algorithms
22	Study of the apparent convective cloud and cloud systems motion during the southwest monsoon season using the Meteosat-5 half-hourly infrared images
23	Development of cloud climatology and preparation of a cloud atlas based on the analysis of microwave images from AMSU on board NOAA satellites using Artificial Neural networks (ANN) technique
24	Fabrication of Sensitive Hand-Held Magnetometer and its use for surveying near Pune geomagnetic rock systems
25	Integrated approach to teaching Programming and Mathematics : Development of Study Material with accompanying software.
26	Study of free space laser communication using semiconductor laser diode at 1 MBPS duplex with the target distance of 500/1000 meters
27	Biodiversity assessment of tropical midges using geo-biological parameters and remote sensing techniques
28	Design and Development of a Thermal Gradient Diffusion Chamber for measurement of Ice Nuclei in the Atmosphere

S.No.	Research Title
29	Application of RS and GIS techniques to evaluate effects of landuse – landcover on ravination along Pravara Basin, Maharashtra
30	Reconstruction of Late Quaternary Fluvio-sedimentary response of Kaveri and Palar Rivers: Based on chronostratigraphy, digital geomorphometry and remote sensing analysis
31	A Study of Geomorphic characteristics and Structural elements in Select Seismically Active Regions of India; with the help of Remote Sensing Techniques
32	Simulating urban growth using GIS & RS - a case study of Pune city, India
33	Fast Sign-of-Laplacian-based Image Matching
34	Design and simulation of satellite-borne high resolution interferometric measurement of monsoon rain rate (SHIMMER)
35	Studies on fade mitigation control for microwave satellite signal propagation
36	Study of CDMA codes for satellite navigation
37	Error resilient Scheme for Satellite TV system
38	Design, Simulation and Development of MM-Wave Six Port Receiver
39	Where is the grass green? Quantifying historical declines and mapping existing grasslands in India
40	Handset normalization and reduction of noise and distortion for voice authentication
41	FPGA-based design and development of H-264 codec
42	Feasibility Study of Microwave Imaging for Material Resource Exploitation in Planetary Missions
43	Design of radiation hardened data converters
44	Test Simulator for satellite based AIS
45	Multiple Access array antenna system at S band using digital beam forming techniques
46	Enhancement of Transport Layer performance for Inter Planetary Network
47	Pre project-Energy Efficient Routing
48	Development of mixed refrigerant cascade refrigerators operating with non-flammable refrigerants for cooling space simulation chambers
49	Study of the direct radiative forcing of atmospheric aerosols over different environments
50	Design of an 8-bit Analog to Digital and Digital To Analog data converters
51	Development of Economical photo mask fabrication techniques for micro-machining using excimer laser
52	Model based tomographic subsurface soil characterization
53	DHM Based Precision Assembly Simulation of MMIC Packages
54	Development of piezoelectric ZnO films as high-frequency resonators(HTM)
55	Studies on the construction and performance evaluation of multiplexed binary offset carrier spreading modulation for improved satellite radio navigation signal and system design
56	Design of an Integrated Code for Authentication and Error Correction
57	Design and Analysis of a Light Weight Cryptographic System on FPGAs
58	Study of interferometric data and its applications for subsidence monitoring
59	Preparation of Barium Magnesium Tantalate (BMT) and Barium Zinc Tantalate (BZT) with and without dopants for microwave dielectric application
60	Enhancing rural development through improved communication: case study western India
61	Total Variation and Compressive Sensing for L1 Regularization Based Image and Video Restoration
62	Paleo-geographic reconstruction: Development of a new GIS based methodology
63	Source of Black carbon in of particulate fraction in Himalayan Snow using stable isotope analyses

S.No.	Research Title
64	Effect of Terrain Relief and vegetation cover on interferometric SAR derived digital elevation models
65	Design and implementation of scalable parameterized stream cipher well-suited for both software and hardware
66	Electromagnetically Coupled Dual Polarized High Isolation Broadband Planar Antenna Array for Satellite Communication
67	Study on different aspects of secured quantum communication (DSQ)
68	Phase-II Expanded Proposal on Design of Active Flexible and Re-configurable Parabolic Antenna using SMA based Smart Actuators
69	Assessing Impacts of Global and Local Changes on River Basin Scale Hydrology
70	Estimation of Sea Surface Nitrate-nitrogen from SST and chlorophyll-a- in using OCM and Thermal Sensors : an investigation of new production around Mumbai coast
71	On chip Ku/K band quadrature oscillator and PLL
72	Design feasibility of PLL synthesizer for ku band
73	Implementing a Scalable Video Transcoder based on Motion Compensated Temporal Filtering (SVM)
74	Protocol Development for Interplanetary Delay Tolerant Network (ITN)
75	Design of Fault-Tolerant VLSI Systems for Applications in Satellite Communication (DFV)
76	Reduction of false acceptance/rejection for non cooperative speakers in Automatic Speaker Recognition System (FAN)
77	Retrieving of Temperature and Salinity of the Ocean from Satellite Surface Observation (RBU)
78	Development of Earth Simulator For Time Domain GPR Applications (EDG)
79	GPU based Multi-Temporal Implementation of Image Change Detection Algorithms and their Verification (TIT)
80	Development of a Laser Assisted Scribing Technique to Generate Gridded Strips of a Parabolic Antenna
81	Design, implementation and performance evaluation of algorithms for compression of Hyper-spectral data products (PSD)
82	Analysis and design of wide band compact rectangular patch antenna embedded on cylindrical pin structure (PIC)
83	Model Based Error Concealment (SVD)
84	Studies on New Modulation Techniques for Satellite Navigation (NSN)
85	Design and Development of Application tool for Differential InSAR Technique to Determine Ground Surface Movement (ITG)
86	Wide-band Frequency Selective Surfaces(FSS) for quasi optical network
87	Probabilistic Estimation of Soil Moisture from RISAT1 Data along with Uncertainty Quantification (PMA)
88	Secure Key Management in Wireless AD HOC Networks (MWA)
89	Hands-free Gesture Control for Immersive Image Navigation
90	Suitability of Free Space Optical Communication link for On Board Data Handling (OBDH) in Satellite (OCH)
91	Feasibility of Design and Development of L & S Band Dual Polarized Shared/Common Aperture Microstrip Antenna (ALC)
92	Microwave Remote Sensing and SAR Tutor with Virtual Laboratory
93	A 14GHz Phase Locked Loop and Millimetre-Wave Circuits in Standard 90nm CMOS Technology

S.No.	Research Title
94	Application of imaging spectroscopy and thermal remote sensing techniques in delineating palaeo-channel related Calcretes; an investigation in parts of Rajasthan and Gujarat for Carnotite exploration
95	Calibration of Polarimetric SAR systems and Software Development
96	Investigation of vegetation changes in the arid TransHimalayan ecosystem of northern India the arid Trans-Himalayan ecosystem of northern India the arid Trans-Himalayan ecosystem of northern India Himalayan ecosystem of northern India
97	Development of Low Cost Colloidal HgCdTe Quantum Dot photodetectors and their utility in the Monolithic Infrared Focal Plane Arrays
98	High Resolution Image Restoration and Enhancement using GPU
99	New synthesis route to prepare infrared transmitting bulk chalcogenide glasses and glass-ceramics glasses and glass-ceramics bulk chalcogenide glasses and glass-ceramics
100	Geochemical and isotopic study of Jarosite and its implications for aqueous alteration in planetary surface environments
101	Modelling of Evapotranspiration from Remote Sensing
102	Exploiting strong thermoelectric effect in 2D transition metal dichalcogenides for IR sensing applications
103	Free Space Optical communication with Acousto-Optic-Modulator based Transmitter
104	Microwave Metamaterial Absorber
105	Novel Strategies for Source-Node Localization in Mobile Ad-Hoc Sensor Networks
106	Satellite stereo triplet image matching for digital elevation model generation
107	HEMT modeling for broad temperature and frequency ranges
108	Microwave Active Remote Sensing of Buried Objects
109	Ultrasensitive Thermal Spectrometer with Molecular Size and Mass Sensitivity
110	Development of Ohmic and Schottky Contacts on GaN HEMT
111	Feasibility study of Photonic bandgap structures for Space applications