

## List of Ongoing RESPOND Projects

Sr No.	Research Title
1	A Compact Low-volume Dielectric Resonator Antenna Loaded with Metamaterial Structure for Small Satellite Application
2	A High-Speed SAR Analog to Digital Converter (ADC) with low distortion sample-hold front-end
3	A low Noise subharmonic Mixer for millimeter-wave Space-Borne Applications
4	A Novel Mach zehnder Modulator based integrated Photonic highly Steerable Beam-forming system for Broadband Satellite Communication Link
5	Adaptive Beam Forming for Mitigation of Interference and Jamming at the Ground Terminal of Global Navigational Satellite Systems (GNSS)
6	Analysis and Performance Enhancement of Graphene Plasmonic Antennas
7	Classification of Satellite Images using Cellular Automata
8	Combining Hyperbolic and NavIC navigation algorithms for attitude control of ship in floating dry dock
9	Delaying programmed cell death of beneficial gut bacteria in microgravity using oxide and complex nanoparticles
10	Design and analysis of an Integrated optic microring resonator array based sensor system for detection of multiple gases
11	Design and Development of a Proof-of-Concept Model of a Packaging Methodology & Rigidization for Gossamer Space Antenna Structures
12	Design and development of a Scalable Framework for Geospatial/Geoscience Data Ingestion, Ad-hoc Queries and analysis on Big Data Environment
13	Design and Development of Optimized Miniature Antenna Modules with duality function for Inflatable Satellite Antenna Setup
14	Design and development of registration & Super Resolution Reconstruction (SRR) techniques for remotely sensed images
15	Design and development of Substrate Integrated Waveguide (SIW) based circular polarized high gain slot array antenna for satellite communication
16	Design and Development of Wideband Circularly Polarized Antenna using 2D Metamaterial Structures
17	Design and development of X-band dual polarized waveguide slotted array antenna
18	Design and Simulation of Beamforming Algorithms and Baseband Technologies for SATCOM On the Move (SOTM) Networks
19	Design and Simulation of Physical Layer and Medium Access Control (MAC) Layer Functionalities of Future Mobile Satellite Systems
20	Design and study of Nano and micro displacement sensor based on Photonic Crystal Fiber modal interferometer
21	Design of 0.18 $\mu$ m CMOS Dual band Low Noise Amplifier (LNA) for IRNSS Applications
22	Design of an algorithm for Urban feature extraction and classification for satellite Image
23	Design of Ultra Low Power CMOS (Complementary Metal Oxide Semi-Conductor) temperature sensor for aerospace applications

Sr No.	Research Title
24	Design of urban storm water drainage system for Jorhat Town (Assam) and its suburb using GIS and Remote Sensing
25	Design, Fabrication and Characterization of Uncooled Microbolometer for IR Imaging Applications
26	Development of Automated Web Based Online Feature Tracking system using Shape Adaptive Curvelet with PCA and Haralick Texture Feature
27	Development of ESD I/O Pads for CCD Image Sensor for 0.18um SCL Foundry
28	Development of Fusion Algorithms for Remotely Sensed Satellite Images in Cartographic Applications
29	Development of High Voltage (HV) devices for CCD clock drivers
30	Development of Microwave Absorber (Carbonyl Iron Filled Silicon Rubber Sheets) in 1 to 8 GHz range
31	Development of SDR based GNSS Receiver
32	Development of Time Weighted Dynamic Time Warping (TWDTW) Algorithm for Analysis of Vegetation Dynamics using Time-Series Vegetation Index Data from Earth Observation Satellites
33	Development, Testing and Characterization of 1m Dia Ku-Band P.E.E.K parabolic reflector with and without Metallization for Spacecraft Applications
34	Elucidation of the deformation signatures and fluvial activity near junction of Noachis Terra with Margaritifer and Arabia Terra
35	Estimation of Crop Water Productivity (CWP) in the major River basins of Tamilnadu using Geospatial technology
36	Experimental Studies on tropospheric scintillation and associated rain attenuation for SATCOM links over North Eastern India (Sikkim) at Ku/Ka-Band
37	Government Agency Initiatives for Scientific Research Management with special reference to Institute/University Interface
38	Impacts of land use changes on human-primate conflict in India
39	Integrated Post cyclone impacts on the chlorophyll biomass in the central and Western Bay of Bengal
40	Integration of NAVIC receiver with mapping services
41	Ionospheric studies using IRNSS Receivers and Comparison with other GNSS
42	Ku-band Tx/Rx transportable reflect array Antenna for satellite communication
43	Modeling of Chlorophyll-a (Chl-a) Dynamics of the Eastern Arabian Sea : Biophysical coupling in the Context of change in climate
44	Neuro-Fuzzy Synergism based POLSAR Image Classification
45	Noncontact Multidirectional Vibration Sensor using 2D Position Sensitive Detector (PSD)
46	On-orbit Characterisation of Space-born Synthetic Aperture Radar (SAR) Performance using ground deployed Corner Reflectors
47	Ontology Driven Meteorology Conceptual Data Dissemination through Open Geo-Spatial Consortium (OGC) web services
48	Orbit parameter refinement using GNSS carrier phase data in post facto scenario for Interferometric SAR and Pol InSAR applications

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49	Performance enhancement of circularly polarized planar/dielectric resonator antennas using defected ground structures
50	Predicting Reliability and Optimal release time of various categories software systems
51	Prediction of ground-level particulate matter concentrations from Multi-Satellite Aerosol Optical Depth (AOD) over the Indian Subcontinent
52	Reliability based Soft Decision Decoding of Turbocodes for Satellite Communication
53	SAR Polarimetric image classification using Wishart Mixture model and Convolution Neural Networks
54	Satellite Network Simulator (SNS) with ULPC and ACM features
55	Sediment budget and estuarine dynamics along the West Coast of India: Implications for Coastal Hazards Management - A Case study of Gangolli estuary, Near Kundapur, Karnataka
56	SIRMI - Strengthening IRNSS receiver by mitigation of Interference
57	Situating Scientific Environment and Institution Building in India : Vikram Sarabhai & his Times
58	Software framework for hosting Application Programming Interface / Modules for Artificial Intelligence, Heterogeneous Parallel Computing and Device Drivers for various scientific equipment in ex-planetary vehicle to the end/remote user
59	Speckle noise reduction in SAR images using Neuro-Fuzzy approaches for coastal zone change detection and monitoring
60	Study on the heat transfer characteristics of low melt alloy encapsulated PCM for Satellite avionics thermal management
61	Synthesis of algorithm from multiple orbiting satellites towards operational high resolution soil moisture estimation-HighRes-SM
62	System design for Ground based Beam Former
63	Thermal Management of Space Electronics using Multi-turn Pulsating Heat Pipes (PHP)
64	Visible-IR and XRF spectroscopic studies of Lunar Analogues
65	Vision guided Auto-Lander for Planetary missions
66	Wireless optical signaling based Inter-satellite tracking and monitoring for high data rate communication