



## Patents filed since 2023

This showcase presents IISc-driven patents advancing telecom, navigation, and signal processing for 5G-and-beyond networks, radar sensing, and satellite systems. The portfolio includes innovations in beamforming metasurfaces, neuromorphic radar, low-latency coding schemes, and indigenous navigation architectures using Indian-made microcontrollers. Several IPs enable resilient wireless communication through overlay synchronization, optical fault monitoring, and authentication against cyber threats. Additional breakthroughs span hypersonic flight intakes, microsatellite thrusters, and autonomous UAV control systems. These technologies offer industry partners licensing opportunities to deploy next-generation communication, sensing, and navigation solutions.

IP Reference Number	IP Title	Faculty Inventor @ IISc
ES-ECE-2024-168	System and method for handling real-time uplink dataflow in a wireless fidelity (wi-fi) network	Anurag Kumar
ES-ECE-2023-143	Method and system for providing multiaccess point coordination in a wireless network	
ES-ECE-2024-051	Method and device for scheduling data transmission in presence of transmission losses and rate guarantees	Chandra R Murthy
ES-ECE-2025-210	A reflection phase based multi- port multi- beam binary holographic meta surface antenna	Debdeep Sarkar
ES-ECE-2024-177	A digitally coded multi-beam intelligent reflecting surface for wireless communication and radar app	
ES-ECE-2023-003	A co-linearly polarized shared radiator based full-duplex antenna with high TX-RX isolation using vias and stub resonator	
ES-ECE-2024-004	System and method for Frequency-modulated continuous wave (FMCV) radar chirp demarcation using hybrid waveforms	Gaurab Banerjee
ES-EE-2023-097	Authenticating messages prior to transmission from a main system to a plurality of subsystems	Gurunath Gurralla
ES-ECE-2024-159	Latent Thompson sampling based mm wave receive beam measurement and selection	Neelesh B Mehta
ES-ECE-2023-149	Method to enhance measurement and reporting in cellular system"	
ES-ECE-2023-054	Optical reconfigurable system for a multi-user optical wireless communication and method thereof"	Varun Raghunathan
ES-DESE-2025-160	Efficient Encoding of Non-Binary Quasi-Cyclic LDPC Codes	Shayan Srinivasa Garani
ES-ECE-2026-012	An optical network monitoring system and a method thereof"	E S Shivaleela
ES-ECE-2024-018	Index modulation based on pilot location for an orthogonal time frequency space based dual function radar and communication system	Sudhan Majhi
ES-ECE-2023-045	Method and system for generating sequences in a code division multiple access (CDMA) system	
ES-ECE-2023-044	Channel estimation and symbol detection in OTFS based systems impaired by noise	
ES-ECE-2023-041	Direct construction of CZCS with flexible parameters for channel estimation in SM -MIMO system	Sundeepr Prabhakar Chepuri
ES-ECE-2024-031	Method and system for antenna selection and beamforming for integrated sensing and communication systems	
ES-ECE-2023-057	Mac-layer, Phy-aware (MLPA), outer-coding scheme for reliable, low-latency communication in 5g advanced and beyond setting"	P Vijay Kumar
ES-ECE-2025-039	Product-code-based outer-coding scheme for reliable, low-latency, 5g-and-beyond cellular communication	