Thiagarajar College of Engineering
Madurai-625 015
(A Govt. Aided Autonomous Institution affiliated to Anna University)

About the Department

The Department of Electronics and Communication Engineering started in the year 1978 with the vision "To empower the Electronics and Communication Engineering students with technological excellence, professional commitment and social responsibility".

DST-FIST Supported Department, TIFAC CORE on Wireless Technologies.

* Govt. and Industry Sponsored Projects from DRDO, DRDL, DIT, CDAC, ISRO, RCI, NPMASS, AICTE, DST, UGC.

* Established industry supported laboratories from Agilent, Intel, Free scale, Altera, CISCO and National Instruments. Granted Indian and US patents in the areas of RF, Dental image analysis, Image Analysis and sensors.

Microwave Laboratory Facility

- Agilent vector network analyzer (10KHz -20GHz)
- Agilent spectrum analyzer (9KHz-26.5GHz)
- Agilent vector signal generator
- Orbit FR antenna measurement system
- Anechoic chamber(800MHZ To18GHZ) with CTIA certification
- External antenna range measurement (700MHZ-20GHZ)
- LPKF PCB prototype machine
- EMI / EMC chamber
- EP6 manual analytical RF probe Station (upto 40GHz)
- E4980A-LCR Meter (2MHz)
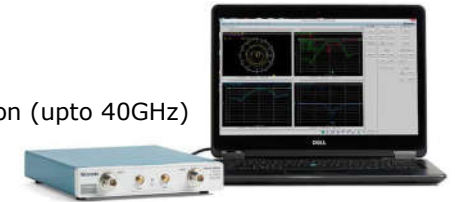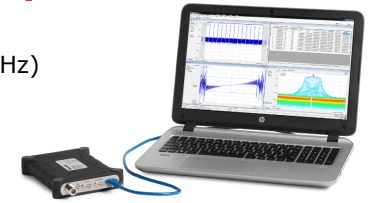
Capabilities

- Design and development and characterization of RF components and system upto 20GHZ for civilian and Defense applications
- RF power measurement up to 26.5GHZ
- CTIA certification for GSM and CDMA and EMI/EMC measurement
- Prototype PCB up to 20GHZ with PTH upto 6 layers
- Cable testing facility-Fault detection and inter modulation distortion measurement up to 20GHZ
- ICNIRP EMF radiation measurement
- Design and EM Simulation of RF MEMS Components
- MEMS Based Switched line and Distributed line Phase Shifter, Tunable Filters
- Varactor based RF MEMS Phase shifters
- MEMS Based reduced size tunable filter
- MEMS Based Tunable Amplifiers

Signal Processing Laboratory Facility

- USRP 2920 kit
- Analog Device DSP processor- ADSP, BF 533, Tiger SHARC
- Texas Instruments DSP processors

Capabilities

- Algorithm development for communication system, signal detection
- channel modeling, estimation, and equalization
- Timing & Frequency synchronization in communication system
- Design Reconfigurable Intelligent Surface (RIS)
- Modeling mmwave communication
- Application development of automotive radar, MIMO radar
- Design of Antijamming algorithm
- speech signal processing, speech enhancement
- medical signal processing

Networking Laboratory Facility

- CISCO routers, switches, LAN kits
- CISCO Router simulators

Capabilities

- Performance Analysis of Wireless Relay Networks in mmWave Communication. Performance Analysis and Mobility Management in CRN
- Performance of Energy Efficient Cooperative Communication in Wireless Networks

Image Processing Laboratory Facility

- CCD Cameras, IP Cameras, PTZ Camera, DSLR Camera, Microscopic camera, Hyperspectral camera and Kinect Camera
- Camera capturing systems and recorders, DJI MAVIC Mini Drone, GPS Receivers, GPUs
- Video analytic software, Remote sensing and GIS softwares, Hyperspectral Image Processing Software
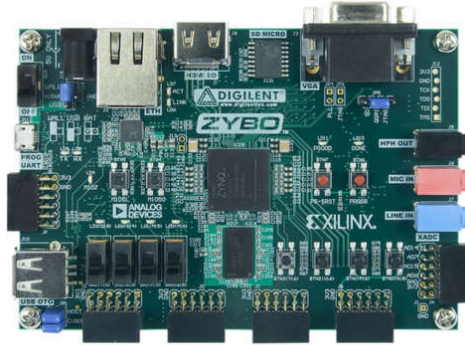
Capabilities

- Image Quality Improvement, Object and face Recognition
- Forensic Dentistry and Cyst Analysis
- Vision based Non-Destructive Testing and Quality Inspection
- Document Analysis, Human Abnormal Behaviour Classification, Person Re identification and People Count/ Crowd Density Estimation
- Idol Documentation Forensics
- Satellite Data analysis, estimations and planning
- Target detection in Radar and X Ray imagery

VLSI Laboratory Facility

- Altera and Xilinx FPGA Boards
- JTAG Emulators
- CPLD Boards
- Cadance Software / PCB Design Software

Capabilities

- FPGA porting of Base Band algorithm, cryptographic algorithm and signal processing algorithm.
- IC layout design for mixed signal circuit
- Device modeling & simulation
- PCB design with multilayer

Embedded system Laboratory Facility

- 8bit, 16 bit Microcontroller boards and programmers
- ARM7 -32 Bit microprocessor boards
- ARM9 Linux portable boards and single board computers
- Freescale microcontroller boards, Texas Instrument MSP430 boards Cypress PSOC boards and Microchip boards
- Intel- ATOM and Galileo IoT framework design board
- 250Msps Data converters boards and USB and JTAG emulators
- Compilers for 8, 16 and 32 bit processors
- Open source Hardware Raspberry-PI boards and sensors boards
- LPKF-E44 PCB proto type fabrication machine
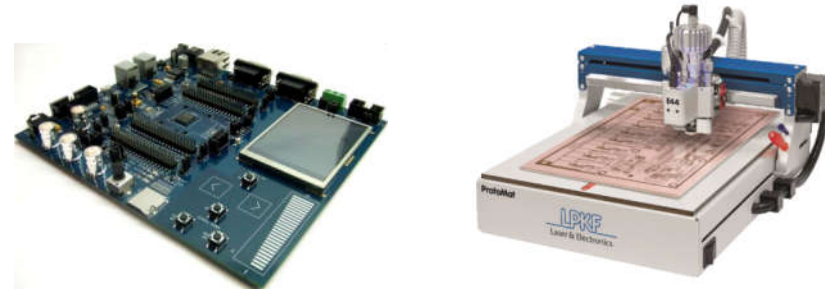
Capabilities

- Analog and digital supported embedded Board design (Starting from PCB)
- DC to DC design. Linear and Switch mode power supply design
- Testing of analog and digital circuit in system and PCB level
- Multidiscipline research experimental hardware design
- multichannel and multi data rate sampling data acquisition system
- Measuring Instruments design
- Servicing and reverse engineering industrial electronic control boards