PROJECTS

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COMPUTER SCIENCE

Blue-Hoc Networking

Blue-Hoc Networking tries to expand the range of bluetooth by involving intermediate bluetooth devices between the source and destination devices by implementing ad-hoc networking, where it spontaneously forms a network that persist as long as needed.

Android SIP Client

Android SIP client is an application for Android OS phones which can be used to make calls to any other phone at a cheaper rate than regular mobile rates using VoIP technology. The application implements some features like call log, balance enquiry and advanced features like phone book synchronization and it works with any VoIP provider.

Implementation of Fully Homomorphic Encryption

Using a fully homomorphic encryption scheme, one can perform arbitrary function over encrypted data, without decrypting it. In other words, a third party can perform computation over secure data without seeing it.

Web Truth Discoverer

The project studies how to find true facts from a large amount of conflicting information on many subjects that are provided by various web sites. A general framework is designed for the problems on veracity that is confirmation of truth, and an algorithm called Truth Finder is invented, which utilizes the relationship between websites and their information.

Implementing ESMTP protocol

In this system, a TCP/IP connection is established between two mail servers and transfer mail using ESMTP. If the receiver supports you as a host on the network, it receives ESMTP mail in the mailbox.

PROJECTS

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ELECTRONICS AND BIOMEDICAL

Neuro Linguistic Robot

The project focuses on the movement of limbs accompanied by event related resynchronisation and synchronisation within the Electroencephalograph. The movement of the robot is controlled by a microprocessor according to the EEG signal.

Speech Trainer Kit Using Laryngeal Vibration

Aims to develop hardware and software tools for speech training for hearing impaired on a multilingual basis. The project consist of the development of a software package for transforming speech signals into images. The laryngeal vibrations are used instead of speech signal.

Powered Wheel Chair

The powered wheel chair, Raman is a fully automated machine that has controls for direction, speed and communication. It is implemented in a cost effective manner. It makes use of a joystick to control the direction of the wheelchair.

Patient Monitoring System using GSM

The project deals with wireless medical diagnostic system that can be portrayed as a model and helps the medical practitioners to monitor the critical parameters of a patient located in a geologically remote location with the help of a global communication medium, that is Global System for Mobile Communication (GSM).

Face as Mouse

This technology performs handsfree cursor control. The system tracks the movement of face to control the mouse pointer. The goal of the project is to create a solution that will be usable for people with disabilities, with little to no cost involved.

ELECTRONICS AND COMMUNICATION

Gesture Recogniser Using FPGA

It implements a system that can recognise hand gestures from live video stream. As an application of the system, a window manager is implemented wherein a user can essentially close, open and move windows using hand gestures.

Telematics GPS/GSM/RIFD Based Vehicle Tracking

The telematics system in vehicles should be able to report the location and enable the optimum assignment of machinery and human resources from the central computer. Information regarding position and speed are transmitted to central control station using GSM technology.

CORDIC Algorithm in FPGA

CORDIC (Coordinate Rotation Digital Computer) is an efficient algorithm to calculate hyperbolic and trignometric functions. It is commonly used in the absence of hardware multiplier.

FPGA Implementation of Viterbi Decoding

A four state Viterbi Decoder for convolutional codes is used here. Viterbi decoder model includes the Branch Metric Block (BM), Add Compare Select Block (ACS), the Trace Back Block, the decoding block and next state block.

Implementation of Adaptive Filter for Optical Signal Processing

An adaptive filter is a digital filter that perform digital signal processing and can adapt its performance based on input signal. MAT lab software is used for execution of the project work.

DSP Based MP3 Player And Voice Recorder

This project is to evaluate and implement header extraction and huffman decoding using TMS320C6713 DSK.

VLSI

Precision CMOS Voltage Regulator For Bioimplantable Applications

A CMOS voltage regulator module is designed to provide a stable and precision voltage source for the implant during stimulation or reprogramming. CMOS require very few devices and dimensions of MOS devices could be scaled down more easily.

Foetal Electrocardiogram for the detection of Foetal Asphyxia

The project mainly focuses on the extraction of foetal ECG (FECG) from the composite abdominal ECG (AECG) signal. The ECG obtained is used for foetal heart rate variability analysis and health of the foetus can be evaluated.

FPGA in Automatic Gain Controller for Hearing Aids.

In this project a computational effective Auditory Compensation System is developed for Digital Hearing Aids. System is implemented in FPGA. For frequency shaping, ANSI S1.11 1/3-octave filter bank is used.

SIGNAL PROCESSING

DSP Implementation of a Voice Recognition System

The developed model provide us with the necessary tools to record, filter, and analyze different voice samples and compare them with the archived sample.

Image Registration Through Histogram Based Image Segmentation.

HAIRIS allows for the registration of pairs of images (multitemporal and multisensor) with differences in rotation and translation, with small differences in the spectral content, leading to a subpixel accuracy.

SYLLABUS

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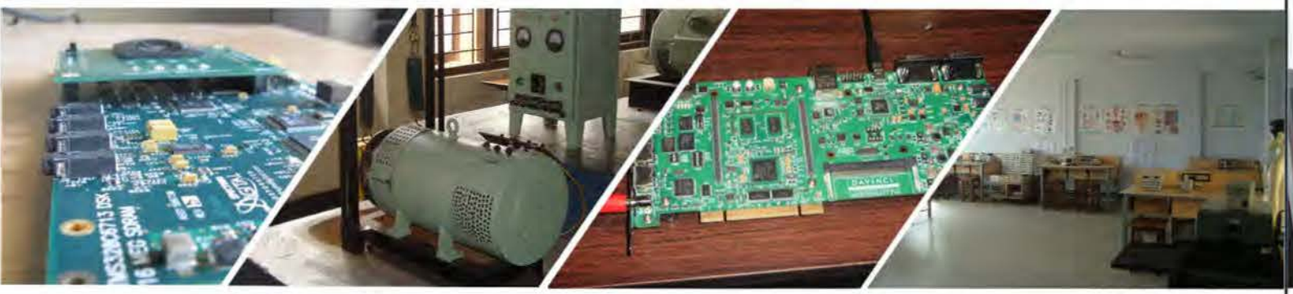

ELECTRONICS & BIOMEDICAL

CORE SUBJECTS

Electronic Subjects

- Digital Electronics
- Control Systems & Engineering
- Integrated Circuits & Systems
- Communication Techniques
- Object Oriented Programing

Biomedical Subjects

- Bio Instrumentation
- Bio Signal Processing
- Bio Sensors and Transducers
- Medical Image Processing
- Telemedicine
- Principles of Radio Diagnosis

ELECTIVES

- VLSI Design
- Modelling of Physiological System
- Embeddedd Systems and Applications
- Artificial Neural Networks
- Computer Communication
- Bio Statics and Design Experiments
- Computer Graphics

LABS

- Digital Electronics Lab
- Basic Electronics Lab
- Microprocessor Lab
- Bio-signal processing Lab
- Medical electronics Lab
- Bio engineering Lab

RESOURCES

- Bipolar catheterization Lab
- Analytic equipments
- Image Acquisition System
- Therapeutic equipments
- Diagnostic equipments

ELECTRICAL & ELECTRONICS

CORE SUBJECTS

- Electric Circuit Theory
- Electrical Machine Design
- Electronics Instrumentation
- Industrial and Power Electronics
- Electrical Measurements and Measuring Instruments
- Electrical Machines
- Power Systems
- Control Systems
- Field Theory
- Fluid Mechanics
- Digital Signal Processing

ELECTIVES

- Control Systems 2
- Computer Communication
- High Voltage DC Transmission
- Neural Network and Fuzzy Logic
- Optimal Control Theory
- Digital Image Processing
- Renewable Sources of Energy
- Flexible AC Transmission

LABS

- Mechanical Workshop
- Electrical Workshop
- Basic Electrical Engineering Lab
- Electrical Measurements Lab
- Digital Electronics Lab
- Power Electronics Lab
- Electrical Machines Lab 1
- Microprocessor Lab
- Advanced Electrical Engineering Lab
- Electrical Machines Lab 2

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ELECTRONICS & COMMUNICATION

CORE SUBJECTS

- Digital Electronics & Logic Design
- Solid State Electronics
- Microelectronics & Integrated circuits
- Digital signal processing
- Digital Communication Engineering VLSI and Embedded Systems
- Control Systems Engineering
- Microprocessors & Microcontrollers
- Electronic Product Design
- Optoelectronics & Communication

ELECTIVES

- Intelligent Systems
- ASIC Design
- Fundamental of RF Design
- Hardware Modelling
- Mixed Signal System Design
- Digital Image Processing

LABS

- Digital Lab
- Advanced Microprocesssor
- Communication Lab
- Digital Communication Lab
- E-Cad Lab
- VLSI Lab

RESOURCES

- LPKF PCB Prototyping Machine
- Edwin Software
- Virtual modelling Systems
- Signal Explorer
- Arbitary Function Generator
- DSP Trainer

COMPUTER SCIENCE

CORE SUBJECTS

- Discrete Computational Structures
- Object Oriented Programming
- Automata Language & Computation
- Data Structures & Algorithms
- Computer Graphics
- Database Management Systems
- Compiler Construction
- Operating Systems
- Analysis & Design of Algorithms
- Computer Networks
- Distributed Computing
- Digital Image Processing

RESOURCES

- Internet connectivity via a 24/7 active 1Mbps leased line and an 8 Mbps broadband connection.
- Dual Processor industry Standard Blade Server containing 6 Server Blades with clusters running Hadoop and Sector/ Sphere and 8 64bit Dual Processor Rack Mounted Server in addition to 3 IBM X series servers.
- Two CUDA processors- Tesla C2XXX and GeForce GTX480.

LABS

- System programming and hardware Lab
- Data Structures Lab
- Network and OS Lab
- Computer Graphics Lab
- Language Processor Lab

ELECTIVES

- Embedded Systems
- Information Retrieval
- Artificial Neural Networks
- Web commerce & Technology

SYLLABUS

model engineering college

SIGNAL PROCESSING

CORE SUBJECTS
- Fundamentals of Spectral Estimation
- Linear Systems Theory
- Advanced Digital Systems Design
- Digital Communication
- Adaptive Signal Processing
- VLSI Architectures for DSP
- Digital Image Processing

ELECTIVES
- Multidimensional Signal Processing
- Biosignal Processing
- Multirate Signal Processing
- Digital Signal Processors
- Digital Control Systems
- Array Signal Processing
- Signal Compression Techniques
- Wavelet Transforms- Theory & Applications
- Artificial Neural Networks
- Advanced Microprocessor Architectures

LABS
- Digital Signal Processing Lab
- DSP Hardware Lab
- Advanced DSP Lab

RESOURCES
- GNU Octave, Scilab, Maple
- TMS 320C 5416 Based Starter Kit
- TMS 320C 6455 Based Starter Kit
- Medical Imaging Software Tool Kit
- TMS 320C 6713 Based Starter Kit
- TI OMAP3530 Processor Based Evaluation Board

VLSI DESIGN & EMBEDDED SYSTEMS

CORE SUBJECTS
- Advanced DSP
- Designing with Microcontrollers
- VLSI DSP Architecture
- Embedded System Design
- High Speed Digital Design

ELECTIVES
- VLSI Circuit Design & Technology
- Electronics System Design
- Analog VLSI
- Electronic Design Automation Tools
- Embedded & Real Time System Design for Testability
- System On Chip Design
- Advanced Microprocessor
- Architecture
  VLSI Circuit Design &
- Technology
  Electronic System Design

LABS
- High Speed Design Lab
- Advanced Microprocessor Lab
- Embedded Systems Lab

RESOURCES
- Xilinx Virtex-4 SX XC4VSX35
- FF668 Device Kit
- Xilinx Virtex-II Pro
- XC2VP30-7FF896 Device Kit
- Xilinx Spartan-III Family's
- XC3S400 Device Kit
- Altera Cyclone I Family FPGA
- EP1C3T144C8 Device Kit

OPTOELCTRONICS

CORE SUBJECTS
- Digital & Optical Signal Processing
- Optoelectronics
- Laser Technology
- Fibre Optics
- Biophotonics
- Optical Communication Theory

ELECTIVES
- Digital Communication
- Modem Optics
- Communication Networks
- Laser Based Instrumentation
- Integrated Optics
- Industrial Photonics
- Advanced Optical Communication

LABS
- Signal Processing Lab
- Optoelectronics Lab
- Fibre Optics Lab
- Optical Communication Lab

RESOURCES
- Fibre Optics Kit
- Optical Bread Board
- Faraday's apparatus.

IMAGE PROCESSING

CORE SUBJECTS
- Digital Image Processing
- Advanced Data Structure & Algorithms
- Pattern Recognition
- Computer Vision
- Computer Graphics

ELECTIVES
- Artificial Neural Networks and Fuzzy Systems
- Data Mining
- Natural Language Processing
- Data Compression
- Medica Language Techniques

LABS
- Image Processing Lab
- Computer Graphics

RESOURCES
- Two CUDA processors- Tesla C2070 &GeForce GTX480
- 15 WiFi hotspots
- Two M. Tech Labs