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PROJECT TITLES GUIDE
2009-2010

- Research & Development Program (RDP)
- Final Year Academic Project (FAP) in software and Embedded Technologies
- Application Development Program (ADP)

AN ISO 9001:2008 CERTIFIED R&D COMPANY

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About Stupros

The Stupros, a Subsidiary of Spiro Technologies & consultant Pvt. Ltd. It is an exclusive portal for students. Over a decade, we are furnishing individuals in all technologies and domains by fulfilling their desires in Research & Development sector through efficient training methodologies. All our efforts are focused on students to meet industry requirements.

The global presence and reach attained by Stupros are not only substantiated by its presence, but also by the environment provided for the students. Since our environment is encapsulated with doctorates, professionals and other experts. Accordingly, we created a setting which enables student to recover from the existing learning processes and making them to be an intellect.

In our increasing globalization, Stupros moves forward to unite the desires of students and challenges of the future in R & D sector by improving the agility and enabling students to achieve sustainable growth over their rivalry. For future enhancement, industry based knowledge's are provided for students in various levels. To sum up, we are filling student necessities in all possible ways to make career brighter in their desired field.

SPIRO-Professional Student Process Academy is Subsidiary of Spiro solutions Pvt. Ltd . Over a decade, we are furnishing individuals in all technologies and domains by fulfilling their desires in Research & Development and IT Training sector through efficient training methodologies. All our efforts are focused on students to meet industry requirements. SPIRO-Professional Student Process Academy is a premier provider of IT Training, Research and Development ,Project Training skills across The India ,Singapore and the Malaysia We offer true competency-based programs, we guarantee quality, and we guarantee to lower your costs, all at the same time. SPIRO offers on-site training at your college location as well as a regular schedule of open-enrollment classes at frequent intervals in more than 25 cities Across India. Our courses cover over 60 different subject areas, including programming, Domain Training, Project Training and system administration skills. We offer stand-alone classes in addition to all-inclusive certification training tracks.

We believe that when it comes to training, you need to develop true competence in new skills, not just receive an overview of syntax and techniques. The best way to assure competence is through facilitated hands on practice. Our students spend at least 50% of their time in class performing structured hands on lab exercises that build competence, confidence, and clarity. Founded in 2005 by experienced professionals, SPIRO has served thousands of Institutes and Lakhs of individuals over the six years.

MATLAB

Technology : MATLAB
Domain : IEEE TRANSACTIONS ON IMAGE PROCESSING

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITIMP01	Efficient Surface Reconstruction From Noisy Data Using Regularized Membrane Potentials	This Project recovers smooth surfaces from noisy and sparse data sets. Results in a wide variety of settings are presented, ranging from surface reconstruction on Noise-free point clouds to grayscale image segmentation.	2009
2.	ITIMP02	An Entropy Interpretation Of The Logarithmic Image Processing Model With Application To Contrast Enhancement	The contrast definition has been shown to be consistent with some important physical Laws and characteristics of human visual system. In this project, we establish an information-theoretic interpretation of the contrast definition.	2009
3.	ITIMP03	Sparse Image Reconstruction For Molecular Imaging	In this project Estimates of the hyper parameters for the lasso and hybrid estimator are obtained via Stein's unbiased risk estimate (SURE). A numerical study with a Gaussian PSF and two sparse images shows that the hybrid estimator outperforms the lasso.	2009
4.	ITIMP04	Phase Adaptive Super Resolution Of Mammography Images Using Complex Wavelets	The proposed method exploits the structural characteristics of breast tissues being imaged and produces higher resolution mammography images with sufficient visual Fidelity that fine image details can be discriminated more easily.	2009
5.	ITIMP05	A Robust Hidden Markov Gauss Mixture Vector Quantizer For A Noisy Source	This project proposes a modified hidden Markov Gauss mixture models (HMGMM) procedure specifically designed to improve performance in the presence of noise. The key feature of the proposed procedure is the adjustment of covariance matrices in Gauss mixture vector quantizer codebooks to minimize an overall minimum discrimination information distortion (MDI).	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
6.	ITIMP06	Composition Of A De-warped And Enhanced Document Image From Two View Images	In this project, we propose an algorithm to compose a geometrically dewarped and visually enhanced image from two document images taken by a digital camera at different angles.	2009
7.	ITIMP07	Image Quality Assessment Based On Multi-scale Geometric Analysis	In this project, to target the problems in image quality assessment (IQA), we develop a novel framework for IQA to mimic the human Visual system (HVS) by incorporating the merits from multi-scale geometric analysis (MGA), contrast sensitivity function (CSF), and the Weber's law of just noticeable difference (JND). In the proposed framework, MGA is utilized to decompose images and then extract features to mimic the multi-channel structure of HVS.	2009
8.	ITIMP08	Tomographic imaging of dynamic objects With the ensemble Kalman filter	In this paper, we first rigorously address the convergence of the ensemble Kalman filter (EnKF). Then, the effectiveness of the EnKF is demonstrated in a numerical experiment where a highly variable object is reconstructed from its projections, an imaging modality not yet explored with the EnKF.	2009
9.	ITIMP09	Clustering-based de-noising with Locally learned dictionaries	In this paper, a patch-based, locally adaptive de-noising method based on clustering the given noisy image into regions of similar geometric structure. In order to effectively perform such clustering, we employ as features the local weight functions derived from our earlier work on steering kernel regression	2009
10.	ITIMP10	Interactive natural image segmentation Via Spline regression	The task is formulated as a problem of spline regression, in which the spline is derived in Sobolev space and has a form of a combination of linear and Green's functions. Besides its nonlinear representation capability, one advantage of this spline in usage is that, once it has been constructed, no parameters need to be tuned to data.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
11.	ITIMP11	A fast optimization transfer algorithm for image In-painting in wavelet domains	In this project, we use an optimization transfer technique which involves replacing their uni-variate functional by a bi-variate functional by adding an auxiliary variable. We show that our bi-variate functional is equivalent to the original univariate functional.	2009
12.	ITIMP12	Automatic Segmentation of Pulmonary Segments From Volumetric Chest CT Scans	A completely automatic method is presented to segment the lungs, lobes and pulmonary segments from volumetric CT chest scans. The method starts with lung segmentation based on region growing and standard image processing techniques.	2009
13.	ITIMP13	A hybrid geometric–statistical deformable model for automated 3-d segmentation in brain MRI	The project is a novel 3-D deformable model-based approach for accurate, robust, and automated tissue segmentation of brain MRI data of single as well as multiple magnetic resonance sequences. The main contribution of this study is that we employ an edge-based geodesic active contour for the segmentation task	2009
14.	ITIMP14	Intelligent Thermo graphic diagnostic applied to Surge arresters: a new approach	This project describes a methodology that aims to extract information to enable the detection and diagnosis of faults in surge arresters, using the thermo vision technique.	2009
15.	ITIMP15	Cost-Effective Hidden Markov-Based Image Segmentation	In this project we introduce a procedure to minimize the misclassification cost with class-dependent cost. The procedure assumes the hidden Markov model (HMM) which has been popularly used for image segmentation in recent years. We represent all feasible HMM-based segmenters (or classifiers) as a set of points in the receiver operating characteristic (ROC) space.	2009
16.	ITIMP16	A Fast Multilevel Algorithm For Wavelet-Regularized Image Restoration	This project is a multilevel extension of the popular "Thresholded Landweber" algorithm for wavelet-regularized Image restoration that yields an order of magnitude speed improvement over the standard fixed-scale implementation. The Method is generic and targeted towards large-scale linear inverse problems, such as 3-D de-convolution microscopy.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
17.	ITIMP17	Low Bit-Rate Image Compression Via Adaptive Down-sampling And Constrained Least Squares Up-conversion	In this project, we propose a practical approach of uniform down sampling in image space and yet making the sampling adaptive by spatially varying, directional low-pass pre-filtering. The resulting down-sampled pre-filtered image remains a conventional square sample grid, and, thus, it can be compressed and transmitted without any change to current image coding standards and systems.	2009
18.	ITIMP18	Morphological Background Detection And Enhancement Of Images With Poor Lighting	In this project, morphological transformations are used to detect the background in images characterized by poor lighting. The performance of the proposed operators is illustrated through the processing of images with different backgrounds, the majority of them with poor lighting conditions.	2009
19.	ITIMP19	High-Fidelity Data Embedding For Image Annotation	To achieve the high fidelity of the embedded image, we introduce a visual perception model that aims at quantifying the local tolerance to noise for arbitrary imagery.	2009
20.	ITIMP20	Gradient Estimation Using Wide Support Operators	This project presents a fuzzy topology-based method to facilitate the use of larger gradient kernels. The new method effectively limits the response area around the edge and prevents neighboring objects to affect each other. Synthetic images are used to show the superior noise suppression properties and response characteristics to both step and ramp edges.	2009
21	ITIMP21	Fingerprint enhancement and recognition using Back Propagation Algorithm.	Using Back Propagation Technique the Enhancement and Recognition of a Fingerprint is implemented in MATLAB	2008

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
22	ITIMP22	Design of Digital Bilateral Filter for Image Diffusion	We present a novel Image diffusion algorithm for which the filtering kernels vary according to the perceptual saliency of boundaries.	2008
23	ITIMP23	Digital Image Steganography in Spatial & Frequency Domain	We use human skin tone detection in color images to form an adaptive context for an edge operator which will provide an excellent secure location for data hiding.	2008
24	ITIMP24	Upper surface of the diaphragm estimate using 3D CT Images	We describe a fully automated method by which the position of the diaphragm surface can be estimated by deforming a thin-plate model to match the bottom surface of the lung in CT images.	2008
25	ITIMP25	Digital Image Watermarking and recovery of the secret image	Using DWT we hide and recover a secret data in the low frequency Domain of the Image.	2008
26	ITIMP26	Partial Volume Segmentation in the MR image of Brain	A modified probabilistic neural network (PNN) for brain tissue segmentation with magnetic resonance imaging (MRI) is proposed	2008
27	ITIMP27	Automatic Exudates Detection from the eyes of Diabetic Patients	We propose a novel approach that combines brightness adjustment procedure with statistical classification method and local-window-based verification strategy to detect exudates.	2008
28	ITIMP28	Image retrieval using Color, Texture and Shape	The uniqueness of an image is checked and retrieved using Color, Texture and Shape using MATLAB	2008
29	ITIMP29	Face Detection Using Adaboost algorithm	The face region of 'n' number of persons in an image is detected which will be useful in forensic department.	2008
30	ITIMP30	Color Image Segmentation	The original Color shade of any given input image is obtained on the basis of VIBGYOR	2008

Technology : MATLAB
Domain : IEEE –DIGITAL SIGNAL PROCESSING

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1	ITDSP01	Beam forming With a Maximum Negentropy Criterion	In this paper, we address a beamforming application based on the capture of far-field speech data from a single speaker in a real meeting room. After the position of the speaker is estimated by a speaker tracking system, we construct a sub-band domain beam-former in generalized side-lobe canceller (GSC) configuration.	2009
2	ITDSP02	A Comparison of the Squared Energy and Teager-Kaiser Operators for Short-Term Energy Estimation in Additive Noise	This Project is primarily on the short- and medium-term properties of these two energy estimation schemes, as well as, on their performance in the presence of additive noise. To facilitate this analysis and generalize the approach, we use a harmonic noise model to approximate the noise component. The error analysis is conducted both in the continuous- and discrete-time domains, deriving similar conclusions.	2009
3	ITDSP03	Nonlinear Minimum Variance Estimation for Discrete-Time Multi-Channel Systems	In this project a nonlinear operator approach to estimation in discrete- time systems is described. It involves inferential estimation of a signal which enters a communications channel involving both nonlinearities and transport delays.	2009
4	ITDSP04	Idiolect extraction and generation for personalized speaking style modeling	This Project focuses on text processing for idiolect extraction and generation to model a specific person's speaking style for the application of text-to-speech (TTS) conversion.	2009
5	ITDSP05	Analysis of Emotionally Salient Aspects of Fundamental Frequency for Emotion Detection	This project presents an analysis of the statistics derived from the pitch contour. The results indicate that gross pitch contour statistics such as mean, maximum, minimum, and range are more emotionally prominent than features describing the pitch shape.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
6	ITDSP06	Approximate signal reconstruction using non-uniform samples in fractional Fourier and linear canonical transform domains	In this project approximate signal reconstruction formulae for the class of L2 (R) signals in the fractional Fourier and linear canonical transform (LCT) domains are presented. The results make use of the finite number of non-uniform samples of the signal in fractional Fourier or LCT domains taken at the positions determined by the zeros of the Hermite polynomials.	2009
7	ITDSP07	DSP for coherent single-carrier receivers	In this project we outline the design of signal processing (DSP) algorithms with blind estimation for 100G coherent optical polarization-diversity receivers in single-carrier systems.	2009
8	ITDSP08	Efficient Convex Relaxation Methods for Robust Target Localization by a Sensor Network Using Time Differences of Arrivals	In this project, we consider the maximum likelihood formulation of this time difference of arrival (TDOA) target localization problem and provide efficient convex relaxations for this non-convex optimization problem.	2009
9	ITDSP09	Late reverberant spectral variance estimation based on a statistical model	In this Project a statistical reverberation model is proposed that takes the energy contribution of the direct-path into account. This model is then used to derive a more general LRSV estimator, which in a particular case reduces to an existing LRSV estimator.	2009
10	ITDSP10	A new delay less sub-band Adaptive filtering algorithm for active noise control systems	In this project, we propose a new uniform-discrete Fourier transform (DFT) -modulated (UDFTM)-based adaptive sub-band filtering method that alleviates the degrading effects of the delay and side-lobe distortion introduced by the prototype filter on the system performance.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
11	ITDSP11	An ensemble speaker and speaking environment modeling approach to robust speech recognition	In this project we propose an ensemble speaker and speaking environment modeling (ESSEM) approach to characterizing environments in order to enhance performance robustness of automatic speech recognition systems under adverse conditions.	2009
12	ITDSP12	Observer-controller based digital PLL	In this project, we propose to design the feedback loop in the time-domain by first modeling the DCO and TDC as a noisy plant in state-space form. Based on a Kalman observer of the plant, the proposed approach then generates optimal control signals that accurately account for the additive noise as well as the transport delay in the digital feedback system.	2009
13	ITDSP13	A 99-dB DR fourth-order delta–sigma modulator for 20-khz bandwidth sensor applications	In this project a chip is designed to targeted for high accuracy and wide-bandwidth sensor applications such as the resistor-based current sensors and the Hall-effect sensors in motor control systems.	2009
14	ITDSP14	Illumination sensing in led lighting systems based on frequency division multiplexing	In this project we investigate a frequency division multiplexing (FDM) scheme to distinguish the signals from different LED's, such that we are able to estimate the luminance's of all the LED's simultaneously. oreover, a filter bank sensor structure is proposed to study the key properties of the FDM scheme.	2009
15	ITDSP15	Dual-band band-pass filter design Using a novel feed scheme	A planar dual-band band pass filter based on a novel feed scheme is presented in this project. This scheme provides sufficient degrees of freedom to control the center frequencies and bandwidth of the two pass bands.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
16	ITDSP16	Instantaneous frequency rate estimation for high-order polynomial-phase signals	The asymptotic mean-squared error (MSE) of the Proposed Instantaneous frequency rate (IFR) estimator is obtained via a multivariate first order perturbation analysis. Our results show that the proposed estimator yields a smaller MSE and a lower signal-to noise ratio (SNR) threshold than a popular IFR estimator involving higher nonlinearity.	2009
17	ITDSP17	Performance bound approximation for bearing estimation with bias correction	In this project an Array-based bearing estimation often displays a threshold behavior, that is, below certain signal-to noise ratio (SNR) the estimation mean-square error (MSE) increases dramatically. The simulations show an improved threshold region error prediction compared to the same bounds without bias correction.	2009
18	ITDSP18	A Blind I/Q Imbalance Compensation Technique for Direct-Conversion Digital Radio Transceivers contiguous spectrums	This paper presents a novel gain and phase imbalances I/Q imbalance extraction technique that uses a Cholesky decomposition of the received signal's covariance matrix to extract the exact imbalances of the front-end.	2009
19	ITDSP19	Sampling theorems for signals from the union of finite-dimensional linear subspaces	In this project, we consider a more general signal model and assume signals that live on or close to the union of linear Sub spaces of low dimension. We present sampling theorems for this model that are in the same spirit as the Nyquist Shannon sampling theorem in that they connect the number of required samples to certain model parameters.	2009
20	ITDSP20	Reversible Re-sampling of integer signals	In this project, we prove that signal re sampling based on polynomial interpolation can be reversible even for integer signals, i.e., the original signal can be reconstructed lossless from the re-sampled data. By using matrix factorization, we also propose a reversible method for uniform shifted re-sampling and uniform scaled and shifted re-sampling.	2009

Technology : MATLAB
Domain : IEEE TRANSACTIONS ON COMMUNICATION

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITCM01	Communication Coverage In Wireless Passive Sensor Networks	In this project, RF communication coverage in wireless passive sensor networks WPSN is analytically investigated. The required number of RF sources to obtain interference-free communication connectivity with the WPSN nodes is determined and analyzed in terms of output power and the transmission frequency of RF sources, network size, RF source and WPSN node characteristics.	2009
2.	ITCM02	Rayleigh Fading Networks: A Cross-Layer Way	This paper addresses Rayleigh fading networks, and in particular, wireless ad-hoc and sensor networks over Rayleigh fading channels In particular, we will first study the energy-efficiency and introduce a new parameter, Energy Cost Factor, as the counterpart of Transport Capacity in wireless transmission.	2009
3.	ITCM03	Channel coding for high-speed links: a systematic Look at code performance and system simulation	This project provides a deeper insight into joint error behaviors in high-speed links, extends the range of statistical simulation for coded high-speed links, and provides a case against the use of biased Monte Carlo methods in this setting. Finally, based on a hardware test bed, the performance of standard binary forward error correction and error detection schemes is evaluated, from which recommendations on coding for high-speed links are derived.	2009
4.	ITCM04	Finite-precision analysis of de-mappers and decoders For DPC-coded m-QAM systems	This paper discusses the choice of suitable quantization characteristics for both the decoder messages and the received samples in LDPC-coded systems using -QAM schemes. The analysis involves also the de-mapper block, that provides initial likelihood values for the decoder, by relating its quantization strategy with that of the decoder.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
5.	ITCM05	Spectral correlation of a digital pulse stream modulated by a Cyclo-stationary sequence in the presence of timing jitter	In this work, we systematically derive analytical expressions for the cyclic statistics of digital base band signalling schemes in the presence of timing jitter, under the assumption that the generating wide sense Cyclo-stationary data sequence and the stationary jitter process are statistically independent.	2009
6.	ITCM06	Training design for repetitive-slot-based CFO estimation in OFDM	The proposed power loading schemes consist of allocating more power to activated carriers with higher signal-to-noise ratios. Simulation-based performance results of the maximum likelihood estimator support the Cram´er-Rao bound CRB-based theoretical results.	2009
7.	ITCM07	Efficient detection ordering scheme for MIMO Transmission using power control	In this project, an efficient ordering scheme for an ordered successive interference cancellation detector is determined under the bit error rate minimization criterion for multiple antenna systems using transmission power control.	2009
8.	ITCM08	Novel probabilistic bounds on power level profile of Spectrally-encoded spread-time CDMA signals	In this project we introduce an effective tool to demonstrate signal power behavior of a typical spectrally encoded spread-time (SE/ST) CDMA system using probabilistic approach. It is shown that using suitable distributions, we can also obtain some distribution gain, thereby enhancing the overall system performance.	2009
9.	ITCM09	Near-space wide-swath radar imaging with Multi-aperture antenna	In this project An example near-space SAR system is designed, and its imaging performance is analyzed. Simulation results show that near-space maneuvering vehicle SAR indeed seems to be a promising solution to wide-swath SAR imaging.	2009
10.	ITCM10	Semi-analytic BER for PSK	This project defines an efficient procedure for computing exact semi-analytic BER for modulation formats with circular constellations when the noise component of the decision variable has a circularly symmetric Gaussian distribution.	2009

Technology : MATLAB
Domain : IEEE TRANSACTIONS ON POWER ELECTRONICS

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITPW01	A Bridgeless PFC Boost Rectifier With Optimized Magnetic Utilization	This project is the implementation of a bridgeless power factor correction (PFC) boost rectifier with low common-mode noise. It employs a unique multiple-winding, multi-core inductor to increase the utilization of the magnetic material.	2009
2.	ITPW02	Analysis and Implementation of a Hybrid High-Power-Factor Three-Phase Unidirectional Rectifier	In this project the conception and analysis of a unidirectional hybrid three-phase rectifier suitable for medium and High-power applications are described. The rectifier is composed of a single-switch diode bridge boost-type rectifier in parallel with a pulse-width modulation (PWM) three-phase unidirectional boost Rectifier.	2009
3.	ITPW03	Identification of Feasible Topologies for Multiple-Input DC–DC Converters	This project deals with single-input dc – dc converter topologies that are suitable to be expanded into their multiple input converter versions. It is based on the use of at least one forward-conducting bidirectional blocking switch in each input leg.	2009
4.	ITPW04	Three-Mode Dual-Frequency Two-Edge Modulation Scheme for Four-Switch Buck–Boost Converter	We propose a project in which Four-switch buck–boost (FSBB) converter features low-voltage stress across the power switches and positive output voltage. At buck and boost modes, only two switches are high-frequency switched, so that the total switching loss is reduced.	2009
5.	ITPW05	A Novel Self-Powered Supply for GCT Gate Drivers	In this project, a novel self-powered supply is proposed for the GCT gate driver, where the supply obtains energy from the snubber circuit of the GCT switch and then provides a regulated dc voltage for the gate driver.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
6.	ITPW06	A Compensation Technique for Smooth Transitions in a Non-inverting Buck–Boost Converter	In this project, the effect of the discontinuity due to the effective duty cycle derived from the device switching time at the mode change is analyzed. A technique to compensate the output voltage transient due to this discontinuity is proposed.	2009
7.	ITPW07	Impact of EMC Filters on the Power Density of Modern Three-Phase PWM Converters	An analytical procedure based on the volume minimization of the EMC filters is proposed to estimate the total filter volume as function of the converters' rated power and switching frequency. With this, the minimum volume for EMC filters that allow the converters to comply with EMC standards regarding conducted emissions can be estimated and volume limitations identified.	2009
8.	ITPW08	Multiple-Load–Source Integration in a Multilevel Modular Capacitor-Clamped DC–DC Converter Featuring Fault Tolerant Capability	By virtue of the modular nature of the converter, it is possible to integrate multiple loads and sources with the converter at the same time. Using the modularity feature, some redundant modules can be operated in bypass state, and during some faults, these redundant modules can be used to replace a faulty module to maintain an uninterrupted operation.	2009
9.	ITPW09	Three-Level AC–DC–AC Z-Source Converter Using Reduced Passive Component Count	This paper presents a three-level ac–dc–ac Z-source converter with output voltage buck–boost capability. The proposed converter therefore offers a low-cost alternative to applications that need to ride through frequent input voltage sags.	2009
10.	ITPW10	Digital Combination of Buck and Boost Converters to Control a Positive Buck–Boost Converter and Improve the Output Transients	In this project a highly efficient and novel control strategy for improving the transients in the output voltage of a dc–dc positive Buck – boost converter, required for low-power portable electronic applications is implemented.	2009

Technology : MATLAB
Domain : IEEE TRANSACTIONS ON POWER SYSTEMS

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITPS01	Simulation of Optimal Medium-Term Hydro-Thermal System Operation by Grid Computing	This project presents a model for the simulation of the optimal medium-term operation of a hydrothermal system. System stochastic parameters are modeled by Monte Carlo scenarios, which are solved on distributed processors.	2009
2.	ITPS02	An Integrated Approach for Optimizing Dynamic Transfer Limits at Hydro-Quebec	The proposed approach provides an integrated process for power system operation planning engineers to establish secure transfer limits in a shorter lead time. These limits are optimized for specific power system configurations under constrained operating conditions.	2009
3.	ITPS03	A Filtering Technique for Three-Phase Power Systems	A novel filter for use in three-phase power systems is introduced. When the input to the filter is a balanced three-phase set of signals, the filter suppresses noise and distortions and extracts a smooth three - phase fundamental component. When the input signal to the filter is unbalanced, it extracts the fundamental positive - sequence component of the input signal.	2009
4.	ITPS04	An Adaptive Controller for the Shunt Active Filter Considering a Dynamic Load and the Line Impedance	This brief presents a controller for an active filter to compensate reactive power and current harmonic distortion in a single phase system. The scheme provides a solution in the critical scenario, when the load is composed by a capacitor connected in parallel to a distorted current source.	2009
5.	ITPS05	Selection of Optimal Location and Size of Multiple Distributed Generations by Using Kalman Filter Algorithm	In this paper, a method to determine the optimal locations of multiple Distributed generations is proposed by considering power loss. Also, their optimal sizes are determined by using the Kalman filter algorithm.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
6.	ITPS06	Bewley Diagrams Revisited via Visualization	The project applies the well-known red-green-blue (RGB) coloring method to visualize traveling waves initiated by switching events or faults occurring in power systems. The main contribution of the project is to show that RGB coloring of phase signals reveals essentially the same profile as the one obtained by using the aerial mode of the signals transformed into the modal domain.	2009
7.	ITPS07	An Improved UPFC Control for Oscillation Damping	This project proposes a new control approach for a unified power flow controller (UPFC) for power system oscillation damping. This control is simple to implement, yet is valid over a wide range of operating conditions.	2009
8.	ITPS08	A Wide-Band Multi-Port System Equivalent for Real-Time Digital Power System Simulators	This project describes a method of developing wideband multi-port system equivalents for use with real-time digital power system simulators. The project also introduces an approach for approximating the frequency dependent characteristic of large power networks from readily available typical power-flow data.	2009
9.	ITPS09	Frequency - Adaptive Power System Modeling for Multi - scale Simulation of Transients	A multi-scale power system modeling methodology for the integrative simulation of electromagnetic and electromechanical transients is introduced, implemented and validated. It makes use of frequency-adaptive simulation of transients (FAST) in which the shift frequency appears as a new parameter in addition to the time step size.	2009
10.	ITPS10	A PSO Method With Nonlinear Time-Varying Evolution for Optimal Design of Harmonic Filters	A particle swarm optimization method with nonlinear time-varying evolution (PSO-NTVE) is employed. This PSO-NTVE method is then applied to design optimal harmonic filters in a steel plant, where both ac and dc arc furnaces are used and a static var compensator (SVC) is installed.	2009

VLSI

Technology : VLSI
Domain : CORE VLSI

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITVL01	A Fast Hardware Approach For Approximate, Efficient Logarithm And Antilogarithm Computations	In this paper, we present an approach to compute log ( ) and antilog ( ) in hardware. Our approach is based on a table lookup, followed by an interpolation step. The interpolation step is implemented in combinational logic, in a FPGA, resulting in an area-efficient, fast design.	2009
2.	ITVL02	VLSI Design Of Diminished-One Modulo 2n + 1 Adder Using Circular Carry Selection	Proposed a new circular-carry-selection technique that is applied in the design of an efficient diminished-one modulo 2n +1 adder. The proposed modulo adder in the aforementioned paper consists of a dual-sum carry look-ahead (DS-CLA) adder, a circular carry generator, and a multiplexer, which can reduce both area–time (AT) and time–power (TP) products compared with previous modulo adders.	2009
3	ITVL03	The Design And FPGA Implementation Of Gf(2^128) Multiplier For Ghash	In this paper, we propose a high-speed parallel GF(2^128) multiplier for Ghash Function in conjunction with its FPGA implementation.	2009
4.	ITVL04	Bz-Fad: A Low-Power Low-Area Multiplier Based On Shift-And-Add Architecture	In this paper, a low-power structure called bypass zero, feed A directly (BZ-FAD) for shift-and-add multipliers is proposed. The architecture considerably lowers the switching activity of conventional multipliers.	2009
5.	ITVL05	A Full-Adder-Based Methodology For The Design Of Scaling Operation In Residue Number System	This paper presenting a novel graph-based methodology for designing high-throughput and low-cost VLSI RNS scaling architectures, based completely on full adders (FAs).	2008
6.	ITVL06	FPGA Implementation Of Low Power Parallel Multiplier	In this paper, we present an approach to compute log ( ) and antilog ( ) in hardware. Our approach is based on a table lookup, followed by an interpolation step. The interpolation step is implemented in combinational logic, in a FPGA, resulting in an area-efficient, fast design.	2008

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
7.	ITVL07	Designing Efficient Online Testable Reversible Adders With New Reversible Gate	Proposed a new circular-carry-selection technique that is applied in the design of an efficient diminished-one modulo 2n +1 adder. The proposed modulo adder in the aforementioned paper consists of a dual-sum carry look-ahead (DS-CLA) adder, a circular carry generator, and a multiplexer, which can reduce both area–time (AT) and time–power (TP) products compared with previous modulo adders.	2008

Technology : VLSI
Domain : IMAGE PROCESSING

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
8	ITVL08	Novel Area-Efficient FPGA Architectures For Fir Filtering With Symmetric Signal Extension	This paper presents four novel area-efficient field-programmable gate-array (FPGA) bit-parallel architectures of finite impulse response (FIR) filters that smartly support the technique of symmetric signal extension while processing finite length signals at their boundaries.	2009
9.	ITVL09	Spread Spectrum Image Watermarking With Digital Design	This paper proposes a block based multiple bit spatial domain spread spectrum image watermarking scheme where a gray scale watermark image is represented by less number of binary digits using novel channel coding and spatial biphase modulation principle.	2009
10	ITVL10	A VLSI Progressive Coding For Wavelet-Based Image Compression	Based on the proposed TSIHT coding algorithm, a hardware implementation, called the Progressive Image Encoder (PIE), is introduced in this section. In our work, PIE is designed as a VLSI IP (Intellectual Property) core for the purpose of various image compression applications.	2007

Technology : VLSI
Domain : DIGITAL SYSTEM DESIGN

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
11	ITVL11	A Generalization Of A Fast RNS Conversion For A New 4-Modulus Base	A generalization of a new generic 4-modulus base for Residue number systems (RNS) is presented in this paper. An efficient RNS to binary conversion algorithm and a hierarchical architecture for these bases are also described.	2009
12	ITVL12	Left to right serial multiplier for large numbers on FPGA	A new high precision serial multiplier with Most Significant Digit First (MSDF) is presented. This one uses a Borrow-Save (BS) adder to perform the reduction of large length partials products required by the multiplication of large numbers.	2009
13.	ITVL13	A Compact AES Encryption Core On Xilinx FPGA	This paper presents an Advanced Encryption Standard (AES) encryption core on Field Programmable Gate Array (FPGA). The target device is Spartan-3 FPGA. We have designed an efficient and compact, iterative architecture with input and key, both of 128 bits.	2009
14.	ITVL14	A Fast VLSI Design Of Sms4 Cipher Based On Twisted BDD S-Box Architecture	SMS4 is a 128-bit block cipher used in the WAPI standard for protecting data packets in WLAN. In this paper, various S-box circuit architectures were evaluated firstly and the twisted BDD with m=4 was proved as the fastest one. A fast SMS4 cipher VLSI implementation was completed based on the twisted BDD S-box architecture	2009
15.	ITVL15	An improved RC6 algorithm with the same structure of encryption and decryption	In this paper, we propose an improved RC6 encryption algorithm that have the same structure of encryption and decryption. The proposed algorithm will be useful to the applications which require the same procedure of encryption and decryption such as light mobile devices and RFIDs.	2009
16	ITVL16	A Novel Multiplexer Based Truncated Array Multiplier	This paper presents a novel multiplexer based truncated array multiplier, which has leveraged and improved upon three existing truncation algorithms.	2008

Technology : VLSI
Domain : TESTING

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
17.	ITVL17	A New Low Power Test Pattern Generator Using A Variable-Length Ring Counter	A new built-in self-test (BIST) test pattern generator (TPG) for low power testing is presented in this paper. The principle of the proposed approach is to reconfigure the CUT's partial-acting-inputs into a short ring counter (RC), and keep the CUT's partial-freezing-inputs unchanged during testing	2009
18.	ITVL18	Power optimization of linear feedback shift Register (LFSR) for low power BIST	This paper proposes a low power Linear Feedback Shift Register (LFSR) for Test Pattern Generation (TPG) technique with reducing power dissipation during testing.	2009
19.	ITVL19	Deviation-Based LFSR Reseeding For Test-Data Compression	Linear feedback shift register (LFSR) reseeding forms the basis for many test-compression solutions. A seed can be computed for each test cube by solving a system of linear equations based on the feedback polynomial of LFSR.	2009
20.	ITVL20	Fault Secure Encoder And Decoder For Nano-memory Applications	This paper proposed the encoder and decoder circuitry around the memory blocks have become susceptible to soft errors as well and must also be protected. We introduce a new approach to design fault-secure encoder and decoder circuitry for memory designs.	2009

Technology : VLSI
Domain : COMMUNICATION

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
21.	ITVL21	Hardware Algorithm For Variable Precision Multiplication On FPGA	A hardwired algorithm for computing the variable precision multiplication is presented in this paper. The computation method is based on the use of a parallel multiplier .Our architecture has been tailored to use these efficient resources and the resulting architecture is dedicated to compute the multiplication of operands of sizes ranging from 1×64 bits to 64× 64 bits.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
22.	ITVL22	Superscalar Power Efficient Fast Fourier Transform FFT Architecture	We develop Superscalar Architecture to compute fixed point FFT (Fast Fourier Transform).Some high-speed and time sensitive real time applications demand far better and efficient implementation of FFT and call for improved novel Architectures. This account for bringing in place an embedded custom Hardware for instance FPGA that helps us rally things in Parallel yielding better performance.	2009
23.	ITVL23	A New High-Speed Architecture For Reed-Solomon Decoder	This paper proposes a new VLSI architecture for decoding Reed-Solomon codes with a modified Berlekamp- Massey algorithm. By employing t-folded architecture, we achieve the highest throughput and the resource utilization efficiency without degrading performance on critical path delay.	2009
24.	ITVL24	Low-Power Leading-Zero Counting And Anticipation Logic For High-Speed Floating Point Unit	In this paper, a new leading-zero counter (or detector) is presented. New Boolean relations for the bits of the leading-zero count are derived that allow their computation to be performed using standard carry-look ahead techniques. Using the proposed approach various design choices can be explored and different circuit topologies can be derived for the design of the leading-zero counting unit.	2009
25.	ITVL25	Cost-Efficient SHA Hardware Accelerators	This paper presents a new set of techniques for hardware implementations of Secure Hash Algorithm (SHA) hash functions. These techniques consist mostly in operation rescheduling and hardware reutilization, therefore, significantly decreasing the critical path and required area.	2008
26.	ITVL26	System Architecture And Implementation Of MIMO Sphere Decoders On FPGA	The hardware implementation of MIMO detection becomes a challenging task as the computational complexity increases. This paper presents the architectures and implementations of two typical sphere decoding algorithms, including the Viterbo–Boutros (VB) algorithm and the Schnorr–Euchner (SE) algorithm.	2008

EMBEDDED

Technology : EMBEDDED
Domain : ROBOTICS

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITROB01	Navigation of Mobile Robot Using Global Positioning System (GPS) and Obstacle Avoidance System with Commanded Loop Daisy Chaining Application Method	In this Project, a mobile robot is equipped with GPS navigation system and obstacle avoidance system with low cost mobile structure, GPS module and IR sensors for obstacle detection.	2009
2.	ITROB02	Visual Servo Control of a Three Degree of Freedom Robotic Arm System	This Project deals with a design of robotic equipment which can be used to point a coordinate in a sphere. it is presently a direction to be integrated with the Unmanned Ground Vehicle (UGV) to serve as surveillance unit in the combat hot zone, such as peace keeping mission.	2008
3.	ITROB03	Design and Implementation of a Stair-Climbing Robot	In the project, a robot is designed to move up and-down stairs to provide service for the elders. The robot consists of a main body for moving, a front arm and a rear arm for moving up and down stairs	2008
4.	ITROB04	A New Method of Infrared Sensor Measurement for Micromouse Control to deliver drugs	In this project a tiny robot model is designed in order to find the path in a puzzle and to reach the center of the puzzle avoiding the obstacles. The IR Proximity Sensor is used to detect the obstacle.	2008
5.	ITROB05	Development of a Module Based Platform for Mobile Robots.	Here we design a master slave based robotic instrument which can work on different objectives as directed by the I2C Master. We integrate these modules in the robot system that executes some scenario for the user.	2008

Technology : EMBEDDED
Domain : AUTOMATION

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITAM01	Distributed Sensor for Steering Wheel Grip Force Measurement in Driver Fatigue Detection	Thissmartprojectusesamicrocontroller and a grip sensor connected to it using CAN protocol for a safe drive in case of any tiredness for the driver.	2009
2.	ITAM02	The integrated unit for MEMS based pressure measurement	This project involves a MEMS sensor to calculate the pressure and is connected to the microcontroller through ADC using I2C protocol. The pressure values can be monitored in a PC via UART.	2009
3.	ITAM03	Research on Embedded Data Display Unit Based on CAN Bus	This project uses an ARM processor and a LCD to display the data which is been sent through the Can protocol which would be very efficient system.	2009
4.	ITAM04	Research and Development of the Remote I/O Data Acquisition System Based on Embedded ARM Platform	In this project the various industrial measurement units can be integrated onto an Ethernet bridge using an ARM processor to send info to a server database using an RTOS	2009
5.	ITAM05	Microcontroller Based Standalone PV system for Wireless Sensor Node	This project uses a microcontroller which monitors the power of a active device and enables switch to charge the device only if necessary to improve the life of that device.	2008
6.	ITAM06	CAN bus-Based Distributed Fuel System with Smart Components	In this project a new distributed control system for very high efficient fuel management application is introduced with the help of a CAN enabled microcontroller.	2008
7.	ITAM07	A Low-cost Intelligent Gas Sensing Device for Military Applications	This project uses sensors connected to a microcontroller implemented using the C programming language on that to detect the gas and to intimate the military troops regarding the level of the particular detected gas.	2008
8.	ITAM08	Study on ARM Processor Based Embedded Intelligent Yield System Controller	This system proposes an effective scheduling algorithm for the efficiency improvement of a yielding system using ARM processor with moisture, pressure sensing units.	2008
9.	ITAM09	A simple capacitive security card System	This project uses a simple and reliable capacitive security card system which is been designed and consists of capacitive card reader system, an integrator, rectifying circuit, an 8051 microcontroller and indicators for very safe security system.	2008

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
10.	ITAM10	Research and Design of Industrial Ethernet Intelligent Gateway Based on ARM	This project is going to deploy a system capable of bridging various industrial protocols like CAN, RS232 on to an Ethernet gateway to measure the parameters and communicating with system.	2008
11.	ITAM11	Measuring and Transmitting Vital Body Signs using MEMS Sensor	The Systems proposes an Innovative patient body movement monitoring and intimation system by the aid of an active MEMS sensor. It deals with acceleration of the patient.	2008
12.	ITAM12	ASSIST- Automated System for Surgical Instrument and Sponge Tracking.	The System deploys and operation monitoring system for the usage of surgical tools, sponges and tracking critical missing tools before the event of operation completion for a secure surgery procedure.	2008
13.	ITAM13	Embedded System Used for One Biomedical Application	This project is used as a life saver, which uses parametric sensors integrated to a MCU and a wireless data transfer which will transfer the sensor data continuously and to alarm in case of any abnormality.	2008
14.	ITAM14	Using the CAN Protocol and Reconfigurable Computing Technology for Web-Based Smart House Automation	In this project a network based system is developed to control various home appliances with the help of CAN which gets the command through the Internet to the personal System at home.	2001

Technology : EMBEDDED
Domain : ZIG BEE

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITZB01	Remote-Controllable and Energy-Saving Room Architecture based on ZigBee Communication	This project uses a Zigbee controller which transmits the data regarding the people availability in a room, to a switch which controls the devices n that room. The presence of people room in determined by IR sensors.	2009
2.	ITZB02	Remote power on/off control and current measurement for home Electric outlets based on a low-power embedded board and ZigBee Communication	This project uses a Zigbee which is connected to a microcontroller, to transmit the power details and to cutoff the supply in case of any fluctuations or overload.	2009
3.	ITZB03	A ZigBee and ZigBee-to-IR Device Control Scheme for Single Media Multi Devices	Here the length of IR Transmission is extended with the Zigbee control which can work even when there is no line of sight between the control and controlling device.	2009

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
4.	ITZB04	ZigBee Device Access Control and Reliable Data Transmission in ZigBee Based Health Monitoring System	This paper proposes a reliable ZigBee based wireless data transmission, not to lose the physiological data of the patient, based on health monitoring system with the help of a microcontroller.	2008
5.	ITZB05	Zigbee Wireless Vehicular Identification and Authentication System	In this project the identification of upcoming vehicle is detected by implementing zigbee in both stationary investigating device and the moving vehicle. The vehicle inhabits a zigbee module inside.	2008

Technology : EMBEDDED
Domain : GSM AND GPS

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITGP01	Body Temperature and Electrocardiogram Monitoring Using an SMS-Based Telemedicine System	In this project, the health parameters such as temperature, ECG are monitored using sensors and in case of any abnormality a message is sent to the corresponding person through GSM modem.	2009
2.	ITGP02	Design & Development of a GSM Based Vehicle Theft Control System	In this project, we employ a GSM modem attached with to a microcontroller which controls the engine. If we send a message to the number in the modem we can control the engine even by stopping it.	2009
3.	ITGP03	A Low-Cost Solution for an Integrated Multisensor Lane Departure Warning System	This project deals with location oriented in which the pre determined path of a vehicle is tracked for existence and warned if the vehicle violates the pre determined path. The GPS System is used to track path.	2009
4.	ITGP04	DesignandImplementation of Remote Monitoring System Based on GSM	Here we design a security oriented safety system to monitor any activity in a remote area with the use of a GSM.	2008
5.	ITGP05	Roads Digital Map Generation with Multi-track GPS Data	In this project we develop a Mapping system for roads with the available data from the Global Positioning System	2008
6.	ITGP06	A novel Approach on the Hydrologic Remote Measurement System in Coalmining Industry	In this system, the temperature and Water level information of the ground water around the coal mine could be gathered efficiently. The gathered information can be transmitted through a GSM modem	2008

Technology : EMBEDDED
Domain : RFID

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITRF01	Security Architecture for RFID Application in Home Environment	In this project we develop a smart home environment using RFID Reader and Tags wherein the location of the tagged items are detected for misplacement. An RFID reader is placed in the room and the items for which the location is to be determined is attached with RFID Tags	2009
2.	ITRF02	Hospital Automation System RFID-Based: Technology Embedded In Smart Devices (Cards, Tags and Bracelets)	This project has the objective to present a system for automation of a hospital Clinical analysis laboratory. This uses RFID tags stuck to containers containing patient's collected samples for the correct identification of the patient who gave away the samples.	2008
3.	ITRF03	Intrusion Detection in RFID Systems	Here the originality of an RFID Tag is identified using the data from RFID reader where the information is sent to a PC and analyzed for its privacy statement.	2008
4.	ITRF04	A Blind Navigation System Using RFID for Indoor Environments	In this project path navigation for blind is implemented using RFID Card and reader to sense the correct path using a reader which is with the blind person. RFID cards are located in the correct path in a row	2008
5.	ITRF05	Bus Detection Device for the Blind Using Passive RFID Application	Here a bus recognition system is developed for the blind where RFID comes into act to detect the bus information using the RFID Tag in the bus and an RFID Reader with the blind person	2009
6.	ITRF06	Policy and Role based Mobile RFID User Privacy Data Management System	This project deals with design of a secured RFID systems for the protection of user access and information onto a database by employing user privacy policies and encryption	2008
7.	ITRF08	Automatic control of students' attendance in classrooms using RFID	In this Project we propose architecture and a prototype of a system that uses distributed RFID over Ethernet and automates an entire students' attendance registration system by using RFID in an educational institution environment.	2008

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
8.	ITRF09	Design and Implementation of a RFID-based Power Meter and Outage Recording System	This paper tries to design and implement a RFID-based power meter and outage recording system.	2008
9.	ITRF10	Situation Aware RFID system: Evaluating abnormal behavior detecting approach	This system proposes a Novel idea of a situation aware RFID System for the detection of abnormal, irregulative usage of RFID Tag in a robust shopping system	2006

Technology : EMBEDDED
Domain : WEB BASED

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITWB01	A Web Service-based Alarm Solution in a TeleCare System	The Project describes a strategy to implement an alarm component to assist elderly persons using Web services.	2009
2.	ITWB02	Embedded Web Server for Wireless Sensor Networks	This project presents an implementation of a platform independent embedded web server and its integration into a network of wireless sensor nodes.	2009
3.	ITWB03	An Internet-Based Interactive Embedded Data-Acquisition System for Real-Time Applications	In this project the data from the sensors are collected and accumulated in ARM in real time and the data is sent as SMS through GSM.	2009
4.	ITWB04	Cryptographic authentication on the communication from an 8051 based development board over UDP	This project deal with the design and implementation of a cryptographic protocol that can be used to assure the authenticity of the information broadcasted over UDP from an 8051 based system-on-a-chip to a large number of receivers	2008
5.	ITWB05	Design of Equipment Remote Monitoring System Based on Embedded Web	In this project, we combine the mature technology of Web with the embedded ARM processor and fully utilize the advantages of both in the field of equipment condition monitoring.	2008

Technology : EMBEDDED
Domain : ELECTRICAL

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION	YEAR
1.	ITEEE01	Research on Measuring Equipment of Single-phase Electricity-Stealing with Long-distance Monitoring Function	This project deals with the implementation of a automated electricity stealing detection system involving a novel approach based on 8051 MCU.	2009
2.	ITEEE02	Development of Energy Management and Warning System for Resident: An Energy Saving Solution	This system brings forth an innovative power saving solution for a residential system using electrical parameter manipulation units.	2009
3.	ITEEE03	Sufficient Sunlight Supply for Home Care using Local Closed-loop Shutter Control System	This project projects an ambient control system for limiting the amount of sunlight entering an industrial area by using a sensitive LDR, ADC on an 8051 MCU.	2008
4.	ITEEE04	Design and Implementation of Universal Industry Data Collecting and Controlling System	This project deploys the development of a robust data collecting system for the acquisition of industrial parameters using a low cost embedded 8051 MCU and storage onto an I2C EEPROM.	2008
5.	ITEEE05	PC-based PID Speed Control in DC Motor	In this project the speed of the system is controlled using a PC where the average speed is fed and the DC Motor is made to prevail in the same speed following Proportional Integral Differential algorithm	2008
6.	ITEEE06	Remote power management and meter-reading system based on arm microprocessor	In this project, the energy is measured and the measured value is transferred to ARM processor using RS-485 and the value is displayed in LCD and communicates with the management using GSM.	2008
7.	ITEEE07	The Development of a PLC Based Level Crossing Controller	The use of solid state control offers numerous cost and performance benefits over conventional relay-based technology. The controller safety engg process is being undertaken broadly in accordance with industry-accepted 'Yellow Book' principles, to control safety risk.	2008

Technology : EMBEDDED
Domain : NON-IEEE-ROBOTICS

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NITROB01	Remote RC5 Protocol Controlled Pick and Place Robot.	This project deals with the design of an encrypted control code transmission using IR for Pick and place robot control.
2.	NITROB02	An autonomous security characteristics robot with wireless video monitoring using CCTV	A robot fitted with IR Proximity detectors for scouting a particular area with wireless cctv for video surveillance.
3.	NITROB03	IIT Contesting Micro mouse Robot design with Flood fills Algorithm Implementation	This robot is a maze solving robot with IR sensors to navigate, reach the center of the maze autonomously using Flood fill algorithm.
4.	NITROB04	Flood Fill Algorithm Based Line follower Robot.	This robot is a line following robot with IR line sensors to navigate reach terminus of a line trace autonomously.
5.	NITROB05	Wireless Robot with bidirectional communication for temperature monitoring	This robot is going to operate with Wireless technology. The Robot is responded with the acknowledgement when the command is executed. The environmental temperature is monitored
6.	NITROB06	Voice operated atomic plant monitoring Robot	Here the robot is operated by the voice commands given to the PC. The temperature of the atomic plant is monitored
7.	NITROB07	sovereign robot for light density	This robot is used to move automatically according to the microcontroller programming. And intimate the lack of light.
8.	NITROB08	Autonomous surveillance robot with DTMF navigation	The temperature and density of the gas is monitored with the robot which is going to control by DTM Signal.

Technology : EMBEDDED
Domain : NON-IEEE-ZIGBEE

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NIB01	VB based Voice automation using Zigbee.	This project composes of a VB voice recognition SDK engine based automation signal generation and wireless control transmission using ZigBee.
2.	NIB02	RSA encryption by using Zigbee	In this project, we design a secured wireless data transmission system using RSA Algorithm between systems.
3.	NIB03	Zigbee felicitated Wireless Data Acquisition and Measurement System	In this project, we deal with the wireless data acquisition of electrical parameters using ZigBee onto an 8051 MCU.

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
4.	NIB04	Real Time wireless data measurement and PC interface using Zigbee.	The server client like architecture based control of remote PC is established using a ZigBee transceiver for client end automation and control.
5.	NIB05	A secure wireless Multiple User and Admin Login access system using Zigbee	This system implements a robust technique to make multiple users to access to a PC with wireless authentication based ZigBee and 8051 MCU.
6.	NIB06	Zigbee applied 2.4 GHz File Transfer between systems for efficient Throughput.	In this project the file transfer between two systems is felicitated by Z-Modem Protocol over a ZigBee Wireless channel using 8051 MCU to increase the throughput.
7.	NIB07	PC to PC client based Wireless Zig Bee Bridge for control and appliance automation	The project deals with the data acquisition of parameters using ZigBee onto a PC using a VB GUI which might be used for indicative purpose.
8.	NIB08	Zig Bee enabled Home automation System	The home automation using an industry standard ZigBee protocol is established for the actuation and control of appliances in home with the help of microcontroller unit.

Technology : EMBEDDED
Domain : NON-IEEE-GSM&GPS

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NIGSM01	A PC based remote Industrial Device access and control using GSM.	This project is used for activating and controlling remote area devices by sending commands through GSM
2.	NIGSM02	An Innovative GSM DAQ System with SMS Query	This project presents an innovative GSM DAQ Query and electrical parameter retrieval system using sms.
3.	NIGSM03	Sms based weather report	This project is used for forecasting weather reports like temperatures, wind velocity etc and sending SMS through GSM
4.	NIGSM04	GSM Based Home Automation and Control System using SMS	This project helps us to control the home appliances with the help of SMS command through GSM
5.	NIGSM05	Automatic collision detection and acceleration control using GSM and RF technology	In this project, the collusion of the car gadget is checked and if an accident occurs, it's intimated by a sms.

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
6.	NIGSM06	Electronic code locking using GSM	This project is used as a code locker for controlling the devices through SMS
7.	NIGSM07	Car Theft tracking using GPS	In this project, the location of the bus can be determined by SMS query on a mobile phone by the use of GSM and RF info terminals.
8.	NIGSM08	GPS Based Bus Stop Intimation Using Voice	This system alerts the owner of a car depending on the distance between him and the car using GPS coordinates.
9.	NIGSM09	GPS composed Intelligent Bus location determination with voice briefing	This system informs the passengers on a bus about the bus stop information using voice by GSM, 8051 MCU.
10.	NIGSM10	A Smart GPS automobile accident prevention system by Travel Path Determination	This project is used for activating and controlling remote area devices by sending commands through RF Tx and Rx

Technology : EMBEDDED
Domain : NON-IEEE-PC BASED

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NPC01	An Economical RF based DAQ unit deployment and interface to PC Using VB	A wireless sensory measurement of industrial device parameters and interfacing to PC on VB using RS-232 Port.
2.	NPC02	Ultrasonic based human eye for blind	This project features the use of ultrasonic sensor equipment as a guide stick for blind persons by functioning as an obstacle proximity detector.
3.	NPC03	A Low cost Virtual Instrument design and implementation using 8051 and VB	This project deals with the design and implementation of a measurement system using 8051 micrcontroller and GUI realization on the PC using VB.
4.	NPC04	RFID based ration card	Maintaining the data bases in the ration shop using RFID and microcontroller for easy and secured authentication. The purchase details are enrolled in PC
5.	NPC05	I2C Based Weather Station Recorder	In this project, the weather forecasting parameters such as Wind speed, temperature etc. is recorded on a non volatile I2C Memory chip using 8051 MCU.

Technology : EMBEDDED
Domain : NON-IEEE- RF-ID

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NRF01	RFID Authenticated System Access design on 8051	This project is used as a secured data accessing system in the PC by using an RFID for initiating the access.
2.	NRF02	RFID Based Library Database management and Search tool Implementation	Maintaining the data bases in the library using RFID and microcontroller for easy and secured accessing of books in the library for clear status of the library.
3.	NRF03	RFID protected data acquisition access system with RF Communication	This project is used for a secured wireless data accessing system by using RFID which allows the user to transmit the data through wireless RF TX, RX.
4.	NRF04	RFID enabled Building navigation system for blind with Voice Narration	This project is used to give voice message regarding the building details and the current location of the building to visually handicapped persons using a RFID.
5.	NRF05	RFID automated Ticketing system	This smart project is to use the RFID tag as ticket, till it reaches its recharged value and to alarm the user to recharge the card for further use of that card as ticket.
6.	NRF06	RFID based Engine control system in EMU to defend hijacking	This project is used to control the start of the engine of an EMU by using RFID based authentication to prevent hijacking by unauthorized persons.
7.	NRF07	RFID based license plate registration	An RFID tag is used as a license card from which, information of the driver can be known just by identifying it using an RFID reader and checking it in database.

Technology : EMBEDDED
Domain : NON-IEEE- AUTOMATION

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NIA1	SPI Protocol enabled SD/MMC Card configured wireless Parameter Device Limit setting and alert system.	In this project, we deal with the design of a wireless data acquisition and file entry on an MMC card using RF and SPI Protocols.
2.	NIA2	Can protocol implementation to enable robust serial communication for automotive applications	A long range routed Serial Device control and actuation system implementation using CAN.
3.	NIA3	A Robust Industrial Parameter reading and File Generation on MMC/SD Card using RF.	This project generates a report of wireless data acquisition parameters using RF and saving the file on an MMC card.

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
4.	NIA4	Economical smart card ticketing system using MMC/SD and SPI.	An electronic MMC card is used for credit storage and used as a smart card on an SPI Interfaced Card reader Chip.
5.	NIA5	SPI Protocol Based Real Time Data Acquisition Storage system on SD/MMC Card using ARM7 TDMI Processor	This project employs an ARM7 processor based DAQ system and permanent storage of the information securely on a data card.
6.	NIA6	Automotive Braking System	This project deploys an autonomous robot capable of steering on low speeds avoiding collusion on to a moving vehicle by controlling the speed.
7.	NIA7	DTMF Based Remote appliance Control System using Mobile Phone	The remote switching and enabling of power appliances is controlled by DTMF signals over a mobile phone.
8.	NIA8	CAN base Automated CAR maneuvering System	The unmanned control of a car ride is achieved by the use of proximity sensors onto a CAN controller.
9.	NIA9	Car a.c control system using LM35 sensor	The control of a car temperature process is achieved using an LM35 sensor over an 8051 MCU.
10.	NIA10	Reservoir Water filling system automation using 8051 MCU	This project employs a closed loop water level process control of a reservoir using a Hydrologic Sensor.
11.	NIA11	Residential Security and Voice Intimation using Mobile	Home security based on level crossing, gas, fire detectors are used to trigger alert information with voice call to a cell phone in case of any emergency.

Technology : EMBEDDED
Domain : NON-IEEE- ELECTRICAL

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
1.	NEEE01	I2C-RTC Chip Based Power level indicative Battery charging System	In this project we are going to monitor and store the battery levels In I2C based RTC for exact instants and recharge the battery if its level is below the threshold level
2.	NEEE02	Control of Angular velocity of DC Motor using SMS for Industrial Automation	This project is used to control the speed of the DC motor by sending an SMS through mobile, which is received through GSM modem attached to a microcontroller which in turn controls the DC motor.

S.NO	PROJECT CODE	PROJECT TITLES	DESCRIPTION
3.	NEEE03	DTMF Based Precision Control of Stepper Motor using Mobile	This project is used to rotate the stepper motor very precisely (unit step angle) through cell phone and DTMF circuit which is attached to a microcontroller.
4.	NEEE04	Industrial protection system using temperature, smoke sensors and light dependent resistor	The industrial vulnerabilities such as temperature, smoke and intrusion are rigorously monitored and alert is raised by an RF alarm circuit in case of any abnormality in parameters.
5.	NEEE05	Prepaid electricity billing system using GSM mobile	This project is used for recharging the electricity charges and to intimate the customer regarding the end of the validity in SMS with the help of GSM modem..
6.	NEEE06	Microcontroller based boiler management system and intimation through SMS	This project is used for maintain the pre-determined temperature monitoring and control. If the threshold level is crossed the temperature level is intimated to the control room.
7.	NEEE07	Power level monitoring and voice intimation through mobile.	The voltage, current and power is calculated with corresponding sensors and the normality of each is intimated through voice alert according to the request
8.	NEEE08	Intelligent starter with overload protection.	This project is used for limiting the initial current by varying the resistance. If the current consumption of the motor is too high then the motor will off
9.	NEEE09	Digital power calculation and voice annunciation	The power consumption of the specific device is calculated and it is checked with predetermined threshold values. If the threshold values reaches its limit then the voice alert is given
10.	NEEE10	Intelligent Maximum Demand indicator/controller for industries	In this project we are designing a power regulation and avoiding the limitation violation. The power level is monitored with a controller and shut down when power limit exceeds.

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