DEPARTMENT OF ECE

Technical magazine

2013-14

Annual Issue	Vol. 6

ADITYA

Institute of Technology and Management

Tekkali-532 201, Srikakulam Dist., AP
Tel: 0845-245666, 245266, 92466 57908
Email: info@adityatekkali.edu.in

Vision of the Institute:

To evolve into a premier engineering institute in the country by continuously enhancing the range of our competencies, expanding the gamut of our activities and extending the frontiers of our operations.

Mission of the Institute:

Synergizing knowledge, technology and human resource, we impart the best quality education in Technology and Management. In the process, we make education more objective so that the efficiency for employability increases on a continued basis.

Vision of the Department:

Create high-quality engineering professionals through research, innovation and teamwork for a lasting technology development in the area of Electronics and Communication Engineering.

Mission of the Department:

1. To offer a well-balanced Program of instruction, lab practices, research & development activities, product incubation.
2. Develop accomplished technical personnel with a strong background on fundamental and advanced concepts, have excellent professional conduct.
3. Enhance overall personality development which includes innovative and group work exercises, entrepreneur skills, communication skills and employability.
4. Ensuring effective teaching–learning process to provide in-depth knowledge of principles and its applications pertaining to Electronics & Communication Engineering and interdisciplinary areas.
5. Providing industry and department interactions through consultancy and sponsored research.

Message from Dr. K. Someswara Rao, CHAIRMAN

At AITAM, we are committed to excellence in everything we do. We strive to mould the students in balancing intellectual and practical skills to become leaders in all the fields of Technical know-how and Management. We have created the finest facilities for the students to make the most of their scholastic pursuits. We are closely aligned with the corporate world which ensures exchange of ideas and experiences that keep our curricula focussed on current developments and challenges in the field of engineering. We are firmly committed to research and consulting activities to contribute to the development of the discipline of engineering. Our vitality lies in our spirit of innovation. Our strength lies in our pragmatic approach. Our success lies in our will to do.

Message Sri L.L. Naidu, SECRETARY

Aditya Institute of Technology and Management is founded to meet the increasing demand for competent engineering graduates. Within a short span of its inception, AITAM has grown to be a premier engineering college of its kind and has won laurels and kudos from the industry. The faculty and staff in AITAM are dedicated to providing first-class education that instils strong and potent basic knowledge for sound practice in science and engineering for the well-being of the society. The Institute offers curricula that nurtures creative thinking and prepares students for productive and rewarding careers. The Institute offers programmes that deepen learning experiences of our students and prepare them for successful careers as engineers.

Message from Prof. V.V. Nageswara Rao, DIRECTOR

Engineering education at AITAM is indeed a rewarding intellectual experience. The Institute prepares the engineering professionals of tomorrow imbued with insight, imagination and ingenuity to flourish as successful engineers. Our programs are attuned to the needs of the changing times. The classrooms are ultra-modern; the library and labs are cutting-edge; and all the members of the faculty are workaholic professionals and masters in their fields. Not surprisingly, our students are recruited by such renowned organizations as HCL, Satyam, WIPRO, INFOSYS, TCS, Visual Soft, Innova-Solutions and InfoTech. The exceptional dedication of our students, faculty and staff, and our collaborations with Industry and other institutions ensure that the Institute is well-poised to create a unique niche in the horizons of engineering education.

Message from Dr. K.B. Madhu Sahu, PRINCIPAL

It is only through knowledge that man attains immortality. Knowledge has to expand or grow to remain as knowledge. The road to excellence is toughest, roughest and steepest in the Universe. The world requires and honors only excellence. Available information has to be directed by wisdom and intelligence to create new knowledge. Promotion of creativity is the new role of education. It is only through creative thinking that the present and future problems can be addressed to find dynamic solutions. Technology should be used to help remove poverty from the world. In fact forty per cent of the world's poor are in India. Confidence leads to capacity. It is faith in oneself that produces miracles. Education at AITAM helps build character, strengthen the mind, expand the intellect and establish a culture of looking at problems in a new perspective. The student is put through rigorous training so that he can stand on his own feet after leaving the portals of the Institute.

Message from Dr. A. S. Srinivasa Rao, H.O.D of ECE

Aditya Institute of Technology and Management (AITAM) is one among reputed technical institutes imparting finest quality education. The Electronics and Communication Engineering Department of this institute over the past twelve years has witnessed strong blend of state-of-the-art infrastructure and intricately intertwined human resource committed to provide professional education with thrust on creativity and innovation. The motivating environment in AITAM for knowledge assimilation, generation and dissemination with a sense of social responsibility, human values and concern for environment has carved a niche for itself among the best technical institutes.

In AITAM especially Electronics and Communication Engineering, it is believed and practiced that excellence is a continuous process and in pursuit of which the institute has made deep forays into contributing world renowned technocrats, successful entrepreneurs, competent leaders, innovative scientists and researchers.

Dear Students,
"A desire can change nothing, a decision can change something but a determination can change everything".

Life is a set of problems. You have to solve problems in the domain areas with strong innovative ideas with scientific knowledge. Your commitment to become an engineer by devoting four year academic journey in Electronics and Communication Engineering of AITAM will be fruitful and enjoyable in every aspect and the experience you gain from here and the moments you spend here will be cherished by you throughout your life.

B.TECH PROJECT ABSTRACTS

Sl. No.	Roll No.	Name of the Student	Project Title
1	10A51A0428	DORA INDRAJA	Detection of vehicle accident information using GPS and GSM.
	10A51A0421	BYRI APPALA NAIDU	
	11A55A0406	KONDRI SRAVANI	
	10A51A0455	KOLA AVINASH	
	10A51A0431	DUMPA PAVAN KUKMAR	

ABSTRACT

Detection of vehicle accident information using GPS and GSM project main idea is to provide hardware and software application for moving systems like cars , trucks which can sense accident information of the vehicle even at remote areas for saving their lives. This application mainly works on GPS and GSM technologies, where GPS system communicates with satellites for finding out the longitude and latitude of the system whereas GSM is used for secure wireless transmission.

In this project a vibration sensor is used as an accident detector. When the vehicle meets with an accident, the vibrating sensors generate the signal. In this system vibration sensors are used for detecting range of collision. Sensor data will be in analog form so it needs to be converted to digital, which is fulfilled through A/D Converter, and this digital data is being sent to microcontroller there it is compared with the threshold values. If it exceeds the threshold values then the user position of the vehicle is calculated using GPS and is transmitted to the relative or hospital through GSM.

The signal is being compared with the threshold values. If the value generated exceeds the threshold it is recognized as accident and the captured GPS information is immediately informed to their relative persons through GSM as a message to mobile. This application has lot of scope for introducing in to real life like providing information to 108 services. This application will help 108 services to track accident sport accurately which can save lives.

Sl. No.	Roll No.	Name of the Student	Project Title
2	10A51A0417	BOINA MRUDULA	Coefficients accuracy effects on FIR filters using fractional Fourier transform.
	10A51A0407	BASA YASASWI	
	10A51A0443	IJJADA SRINU	
	10A51A0453	KARANAM VAMSI KRISHNA	
	10A51A0448	JEERU CHAITANYA REDDY	

ABSTRACT

In practical applications, the filter coefficients achieved through high-level software such as MATLAB must be quantized using finite word length. This may have two effects. First, the locations of zeros are changed; second, due to the location change of zeros, the filter frequency response will change correspondingly. Such effects of filter coefficient quantization will be covered in general, since during practical filter realization, obtaining filter coefficients with infinite precision is impossible. Actually FIR filters have 16 bit coefficients. Filter coefficients are usually truncated or rounded off for the application. This process is known as Quantization. It is also defined as Conversion from a continuous range to discrete levels requires thresholding operation (e.g. truncation or rounding). Here we use FIR filters because it gives better frequency response for higher order compared with IIR filters. Even though FIR filters

require more arithmetic operations, these are stable and exhibits linear phase response. A low pass FIR filter with 24 taps using a Hamming window is designed, and FIR filter coefficients are designed. One sign bit is used, and 7 bits are used for fractional parts, since all FIR filter coefficients are less than 1. We would multiply each filter coefficient by a scale factor of 2^7 and round off each scaled magnitude to an integer whose magnitude could be encoded using 7 bits.
When the coefficient integer is scaled back, the coefficient with finite precision (quantized filter coefficient) using 8 bits, including the sign bit, will be achieved. By clearly viewing the scaled back values with the original value, we may observe the change in the original value. This error is known as quantization error. By using different windowing techniques this error may be reduced by using Fourier transform. It is observed that the stop band performance is degraded due to the filter coefficient quantization. The degradation in the pass band is not severe.
Our idea is to further reduce the quantization error by using FRACTIONAL FOURIER TRANSFORM with different window based techniques like Bartlett, Hanning, Hamming, Kaiser Window.

Sl. No.	Roll No.	Name of the Student	Project Title
3	10A51A0422	CHADUVULA BHARATHI	Estimation of optical signal by using kalman filter algorithm.
	10A51A0460	KOTTAPALLI VISHNU	
	11A55A0401	B. USHA RANI	
	11A55A0412	BD MANOJ KUMAR	

ABSTRACT

The objective of this project is to simulate the kalman filter for best estimation of optical signal even in the presence of noise. In optical communication system as the link length increases signal gets more and more and more distorted. So, it becomes difficult to estimate the signal.

In the design of communication systems receives, a common approach is to model the noise present in the received signals as additive noise due to channel characteristics and receiver electronics. Typically, the noise variance will be same for the various signals levels, leading to matched filter type of algorithm with a threshold with a constant or proportional to average receive power. However, if the noise is multiplicative, so that different signals have different noise variances, then the matched filter is no longer optimal and detector decision algorithm can be derived which results in order of magnitude improvements in the system bit error rate. The optimum detection threshold in this type of system will be a function of bit level means and variance and will not be constant under varying transmission conditions.

Kalman filter is a recursive filter which provides an estimate with minimum mean square. Optical communication system modeling is done with state-space equation. The variances of the noise introduced at various stages (photo detector, amplifier) of the optical communication system are considered. Measurements of the bit error rate at various signal to noise ratios and also at different number of samples in a bit are observed, which represents that an increase in signal to noise ratio or the number of samples in a bit causes the bit error rate to decrease. Estimation of optical signal using kalman filter reduces the BER effectively.

Sl. No.	Roll No.	Name of the Student	Project Title
4	10A51A0451	KANDYANA HEMANTHKUMAR	Analysis of new combination of windows for signal processing..
	10A51A0435	GORAKALA BHASKARARAO	

	11A55A0404	KALEPU SANTOSH KUMAR	
	10A51A0449	NAKKA MANOHAR	

ABSTRACT

A filter is a signal processing element which removes noise in the signal. The fir filters in signal processing are LPF,BPF, HPF and BRF. These FIR filters are designed with conventional windows which have low RSA(relative side lobe attenuation). So rejection of noise from signal affected with noise, from these filters is poor. In this project new combination of windows functions are proposed for FIR filter design using conventional and polynomial windows which improve spectral response of filter than existing windowing techniques in terms of RSA. Here the higher order polynomial windows are used which are derived mathematically and are simulated to analyze RSA. The RSA of combination of higher order polynomial windows (m=3,m=4 where m=order of polynomial windows) and conventional windows are better than the lower order combinations.

Sl. No.	Roll No.	Name of the Student	Project Title
5	10A51A0436	GUDLA HARISH	Obstacle avoidance using image feature extraction
	10A51A0410	BENDI SRINIVASARAO	
	10A51A0440	GUNTAMUKKALA ANIL KUMAR	
	10A51A0414	BODDEPALLI PRIYATHAM KUMAR	
	10A51A0434	GERADA JAYARAM	

ABSTRACT

There are a lot of ways to control a vehicle by using sensors. Here in this case sensors will be used for the identification of an obstacle. When the vehicle is moving, initially we fix the certain distance d from the obstacle and then the vehicle make a move and fix the distance of 'r-d'., after making the vehicle stationary then we will extract the image characteristics of the image from two different camera's. The images obtained from the two camera s are fused by using 'WAVELET TRANSFORM TECHNIQUE'. Once the obstacle characteristics have been computed from input data flow, we can create a workspace of obstacles surrounding the vehicle. After obtaining the map of obstacle, we can obtain the symbolic representation (i.e. shape, position, velocity) of the vehicle surrounding. To do this, objects must be tracked throughout a sequence of consecutive frames in order to estimate their current location. From this we can focus on the areas of interest of image, where we can undergo various image processing techniques.

Sl. No.	Roll No.	Name of the Student	Project Title
6	10A51A0425	CHINTALA MOUNIKA	Design and analysis of plus shape micro strip fractal antenna for wireless communication applications.
	10A51A0402	BADAGALA RAGHURAM	
	11A55A0402	BENDALAM JYOTHSNA	
	11A55A0409	PANDIRI SURESH	
	10A51A0413	BODDEPALLI PRADEEP	

ABSTRACT

The wireless industry is witnessing an volatile emergence today in present era. Operators are looking for systems that can perform over several frequency bands as the demands on the system changes. Some applications require the antenna to be as miniaturized as possible. Fractal plays a prominent role for these requirements. In this a self-similar fractal antenna with plus shape is proposed, studied and implemented. The first iteration plus shapes of order 1/3 of base shape is

designed using CPW fed technique and same procedure is repeated for further iterations. The plus shape fractal antenna is designed on FR-4 substrate with dielectric constant (ε_r) of 4.4 and thickness h=1.6mm. The designed antenna resonates at multiple frequencies with improved return loss, bandwidth and gain. The resonant frequency of the antenna are obtain from 2.1 GHz , 2.41 GHz,2.98 GHz and 3.131 GHz for base, first , second and third iterations respectively. The Proposed antenna is simulated by using the method of moment based with An soft HFSS software and the practical results are measured with the help of Vector Network Analyzer.

Sl. No.	Roll No.	Name of the Student	Project Title
7	10A51A0438	GUDLA SATYANARAYANA	Analysis of Image compression using wavelets
	10A51A0439	GUNNU SARANYA	
	10A51A0415	BODDEPALLI SANTOSH	
	11A55A0410	SHEIK MUSTAFA	

ABSTRACT

This white paper is intended as a guide to understanding how antennas transmit and receive electromagnetic waves. We begin with an explanation of what an electromagnetic wave is, and how it travels. Then, by studying a half wave dipole antenna, we learn how an antenna radiates electric and magnetic fields. We discover how these radiated electric and magnetic fields travel together as electromagnetic waves. Finally, we define polarization and explain its importance in antenna design.

Sl. No.	Roll No.	Name of the Student	Project Title
8	10A51A0437	GUDLA RAVI KIRAN	RMD/MS - MMSE MUD for heavily loaded DS - CDMA system
	10A51A0456	KONDALA PRADEEP KUMAR	
	10A51A0450	KALIPU ASHOK	
	10A51A0427	DIBBA MANOHAR	
	10A51A0411	BODASINGI JEEBAN KUMAR	

ABSTRACT

The Receiver Multiuser Diversity Aided Multistage Minimum mean-square error Multiuser Detector (RMD/MS-MMSE MUD), is investigated in the context of the direct-sequence code division multiple-access (DS-CDMA) that employ in- and Quadrature-phase (I-Q) modulation schemes. A detection scheme is operated in real domain in the principles of successive interference cancellation (SIC). The concept of Noise Recognition Factor (NRF) is proposed for explaining the efficiency of SIC-type detectors and also for motivating to design other high-efficiency detectors. The achievable bit error rate (BER) performance of the RMD/MS-MMSE MUD is investigated for DS-CDMA system of either full-load or overload, when communicating over either additive white Gaussian noise (AWGN) or Rayleigh fading channels for the DS-CDMA. The studies and performance results show that the RMD/MS-MMSE MUD is a highly promising MUD. It has low implementation complexity and good error performance. Furthermore, it is a high-flexibility detector suitable for various communication systems operated in different communication environments

Sl. No.	Roll No.	Name of the Student	Project Title
9	10A51A0442	IJJADA GOWRINAIDU	Implementation of 64 point FFT processor using low cost FPGA
	10A51A0406	BANDARU MOUNIKA	
	10A51A0412	BODASINGI VASANTHI	

	10A51A0433	GEDELA SWATHI	

ABSTRACT

Higher length transforms are obtained by using short length structures. High order FFT are almost implemented into high cost FPGAs, but it is not possible to instantiate higher order FFT with Xilinx IP core. The main objective of this project is to implement 64 point FFT processor by using low cost FPGA, which is split into three stages of 4 point FFT, The proposed architecture is implemented by using verilog HDL XILINX 13.2 In this two kinds of distributions are used, spatial and temporal distribution and compromising analysis was made between them. The performance of the proposed architecture is analyzed in terms of relative error. Furthermore, with low area architecture by using two techniques, optimized radix-4 modification and sharing memory. Firstly, it is modified to process one sample per clock cycle, later the memory is shared to reduce consumed resources and to improve overall latency. Comparison between commercial IP cores and low area architecture shows that the latter presents the best compromise in terms of latency, speed and area.

Sl. No.	Roll No.	Name of the Student	Project Title
10	10A51A0458	KOTHA SRIVATSAVA	A New switching median filter for the removal of impulse noise
	10A51A0445	JAMI NARAYANA RAO	
	10A51A0424	CHEEPURU PRATAP	
	10A51A0441	HANUMATHU SRI VATHSAVA	
	10A51A0454	KARNAYINA NIRANJAN KUMAR	

ABSTRACT

In the process of image acquisition or transmission, digital images often get affected by noise. Noise can seriously affect the quality of images. The most popular approach for impulse noise removal is Standard Median Filter (SMF) and the performance of SMF is improved by adding Switching mechanism called Switching Median Filter (SWMF). This paper introduces a new-algorithm that is “A New Switching Median Filter (NSWMF) for Impulse Noise removal from corrupted images”. In this method SWMF is modified with one more process by using the concept of rank order to improve the noise removal capability. The simulation results show that the proposed method has the better noise removal capability than the SWM method for both gray scale and color images.

Sl. No.	Roll No.	Name of the Student	Project Title
11	10A51A0432	GARA VENKATA LAKSHMIKANTH	Adaptive wavelet thresholding for image denoising and compression
	10A51A0430	DUMMALA HADASSAH RACHEL	
	10A51A0419	BUNGA LAKSHMANARAO	
	10A51A0408	BASAVALA NAVEEN	
	10A51A0416	BODDU KURMARAO	

ABSTRACT

This project basically proposes two operations of an image i.e., de noising and compression. It is an adaptive, data-driven threshold for image denoising via wavelet soft-thresholding. Bayes Shrink is one of the method of Soft thresholding which is used to Denoising and compression. Lossy compression can be used for de noising. The Bayes Shrink threshold can aid in the parameter selection of a coder designed with the intention of de noising, and thus

achieving simultaneous denoising and compression.

Among the techniques related to signal processing, wavelet transform is a very efficient method because it naturally facilitates the construction of spatially adaptive algorithms. The noises like Salt & pepper, Speckle, Gaussian and wavelets like haar, db4, sym, bior are used in this project. The Parameters like Compression Ratio, MSE, and SNR were calculated for the standard images like Lena, Barbara, boat etc with corresponding to the Wavelets as well as Noises. By observing the values we confirmed which noise gives better result compare to others

Speckle noise minimizes or removes the amount of noise occurred in the salt and pepper noisy image. Hence the noise can be completely or approximately reduced in Speckle noise Compare to Salt & Pepper and Gaussian Noises. From this we have to say speckle noise gives the better SNR, MSE and Compression Ratio.

Sl. No.	Roll No.	Name of the Student	Project Title
12	10A51A0444	INJARAPU ANUSHA	Performance analysis of trellis coded modulation using QAM
	11A55A0408	MUNJNI RAMBABU	
	11A55A0403	CHALLA SAILAJA	
	11A55A0411	YARRA SOBHARANI	
	10A51A0457	KORADA VENKATA PREM SAI	

ABSTRACT

Multiple-Input and Multiple-Output (MIMO) technology has attracted attentionin4G, because it offers significant increases in data throughput and link range without additional bandwidth or increased transmit power. MIMO is an important part of modern wireless communication standards such as IEEE 802.11n (Wi-Fi), 4G, and WiMAX. MIMO Technology works with Space-time coding. These are all provide by STTCM. Space-Time Trellis Codes (STTCs) provides high data rate, bandwidth and power-efficient method of communication over wireless channels. STTCs are based on well-defined trellis structures and hence can be decoded using soft-decision decoding techniques at the receiver, such as Viterbi decoding. STTC modulation provides coding, modulation, and transmit diversity for Gaussian channels.

In this project, the performance of the Space time trellis coded modulation in application to MIMO technique is presented. Viterbi decoder is used to simulate the performance of STTCs in a second order diversity (two transmit and two receive antennas) so as to make it perform better to choose the effective parameters that can improve coding gain and bit error rate resulting high performance and thus, extensively applied to wired and wireless channels. Through MATLAB simulations, the performance of SISO TCM is compared with MIMO STTCM (modulation and demodulation using QAM) and showed that BER of STTCM is better than TCM.

Sl. No.	Roll No.	Name of the Student	Project Title
13	10A51A04B2	YENNI MEGHAMALA	Artificial neural network based image compression using back propagation algorithm
	10A51A0469	MATHA SWETHA	
	10A51A04B0	VARANASI UDAYA BHASKARA RAO	
	10A51A0478	PEKALA SATISH KUMAR	
	10A51A0492	S NARESH	

ABSTRACT

Uncompressed multimedia (graphics, audio and video) data requires considerable storage capacity and transmission bandwidth. Despite rapid progress in mass-storage density,

processor speeds, and digital communication system performance, demand for data storage capacity and data-transmission bandwidth continues to outstrip the capabilities of available technologies. Image compression is one of the popular image processing technologies. The emergence of artificial neural networks in image processing has led to improvements in image compression.

The neural networks based image compression technique has high processing speed and produces more accurate results when compared to other compression techniques. In this project a neural network based image compression method is achieved using back propagation algorithm. Back propagation algorithm makes use of multilayer neural networks. In artificial neural networks, back propagation algorithm is used as compressor and it is achieved by dividing the image into blocks. The changes made in the number of pixels in the image with fixed compression ratio produces good convergence, high PSNR and least mean square error.

Sl. No.	Roll No.	Name of the Student	Project Title
14	10A51A0463	KUTIKUPPALA RUPAVATHI	Performance improvement of smart antennas by using adaptive beam forming algorithm
	10A51A0475	PAIDISETTY JAYAKAR	
	11A55A0417	GUTTU SANTOSH KUMAR	
	10A51A0495	SANAPATHI CHARMILA	
	11A55A0419	T. VENKATESH	

ABSTRACT

The fundamental idea behind smart antennas is to improve performance of the wireless communication system by increasing the gain in the desired direction. This beam forming is achieved by using Least Mean Square algorithm. Smart antenna system combines multiple antenna element with a signal processing capability to automatically optimize its radiation and/or reception pattern in response to the signal environment.

In addition to pointing the direction of the main lobe towards the desired use, the smart antenna system can automatically steer one or more nulls of the directivity pattern towards one or several sources of interferences. There are several benefits of using a smart antenna system for a wireless system and some of them are larger covering area, increased SNT and capacity, saving energy for the same performances, providing spatial diversity etc.

Adaptive beam forming technique is analyzed in order to point out the advantages of using smart antennas in wireless communication systems.

Sl. No.	Roll No.	Name of the Student	Project Title
15	10A51A0494	SAMPATHIRAO AMBIKA	Solar tracking system using ATMEL microcontroller
	10A51A0474	PADDA JANARDHANA RAO	
	10A51A04B5	KINTALI RAM BABU	
	11A55A0415	BONELA ANIL KUMAR	
	10A51A0486	RAGHUMADALA SOMESWARA RAO	

ABSTRACT

As we can see now, the earth becomes hot effect of the global warming. Here we can take an advantage from the effect of the global warming. We can use solar energy as an electrical energy to operate an electrical appliance. The problem that we can see now is most of the solar panel that had been use by a user just only in a static direction. If the solar panel located at east and the sun is located at west, the solar panel cannot be charging. So, the project that wants to develop here is called “Solar Tracking System”.

Solar tracking system is the project that used ATMEL microcontroller as a brain to

control the whole system. The LDR (Light Dependant Resistor) had been used to sense the intensity of light at 30 degree each or 180 degree total and sent the data to the micro controller. This micro controller will compare the data and rotate a stepper motor to the right direction. The stepper motor will rotate the solar panel based on the highest intensity of light.

Sl. No.	Roll No.	Name of the Student	Project Title
16	10A51A0462	KUNUKU YAMUNA	Performance analysis of adaptive impulsive noise de - noising techniques
	10A51A0482	POTNURU HARESH KUMAR	
	10A51A0498	SENAPATHI LOKESWARA RAO	
	10A51A0487	RAGOLA TIRUPATHIRAO	
	10A51A0472	KANNEPALLI SEETA MADHAVI	

ABSTRACT

Impulsive noise is also known as salt and pepper noise. Impulsive noise is found in situations where quick transients such as faulty switching take place during image acquisition. Standard median filter has been established as reliable method to remove this noise without harming the edge and image overall contrast. However, the major problem of standard median filter (MF) is that the filter is effective only at low noise densities. The existing noise suppression methods can be categorized into two techniques. One of the techniques is filtering without detection, another one is filtering followed by detection. From the above two techniques filtering followed by detection is best technique. The detection process in noisy image can be done by considering statistical characteristics of noisy images. The simple neural network performs detection depends on threshold, which classifies the pixels as noisy or non-noisy. After completion of the detection process, noisy pixels are subjected to filtering process and non-noisy pixels are left without changing. The result of the paper is compared with standard median filter and progressive switching median filter for the performance analysis.

Sl. No.	Roll No.	Name of the Student	Project Title
17	10A51A04B9	ROKKAM ROOPASRI	Tunable linear phase IIR digital filters
	10A51A04A2	SIVA SHANKAR SALANA	
	10A51A04A7	UNDAVALLI JHANSI MOUNICA	
	10A51A04A5	TEMBURU JEEVANARAO	

ABSTRACT

In general, designing exact linear phase Infinite Impulse Response (IIR) filters is not possible. An approach has been proposed to design a linear phase IIR filters, which uses linear phase high pass and low pass Finite Impulse Response (FIR) filters. In this, generating of IIR low pass filters by dividing linear phase low pass FIR filters characteristics with linear phase high pass FIR filters characteristics and IIR high pass filer generating by dividing linear phase FIR high pass filter with linear phase FIR low pass filter. The magnitude characteristics of two FIR filters i.e., FIR low and FIR high pass filters are such that the pass band of low pass FIR filters is the stop band of high pass fir filters and vice versa, and the transition bands overlap. An attempt is to generate linear phase IIR filter along with tunable characteristics by introducing Fractional Fourier Transforms (FrFT), it is Time-Frequency domain transform and generalization of Fourier Transform .By changing the parameter of FrFT it rotates one plane to another of Time–Frequency domain, by varying the parameter of FrFT of FIR filters whose characteristics are also changing, so that the resulting linear phase IIR filters are tunable.

Sl. No.	Roll No.	Name of the Student	Project Title
18	10A51A04A1	SINGURU SRAVNI	Development of software defined radio based on PSK MODEM
	10A51A0477	PATNAIK SAHITYA SAI	
	10A51A0485	PULATA GOPI	
	10A51A04A6	THOOBA NUZHATH	

ABSTRACT

The aim of this project is to analyze and simulate a Phase shift keying (PSK) modem for Software Defined Radio. According to quality of service these modems are the key part of mobile devices. In order to adapt different wireless standard future radios will need to be implemented on software form.

Software defined radio is a technology that allows wireless devices to change and perform new functions of demand by making software modifications. It can be reprogrammed using software such as digital signal processors and programmable gate arrays to interoperate with different communication protocols of the radio systems. For that purpose we need software radio modem (modulator-demodulator). This modem can be programmed to switch modulation schemes (FSK, PSK).

This project describes the PSK type modems on DSP platforms for Software Defined Radios is implemented. This project exhibits the analysis and simulation of the PSK modem which can be done on MATLAB. This modem plays major role in Software Defined Radio (SDR). The SDR forum is working with a variety of vendors and industry partners to develop a process of standardization to achieve general compatibility between devices.

Here to accomplish the demodulation process in these modem Costas method is designed to receive, extract carrier information & correct the phase and frequency estimates made by the system. Demand of future wireless communication services need better receiving performance with minimum sampling time. The PSK modem features allows & provides minimum sampling time independent of bit rate and reducing receiver memory.

Sl. No.	Roll No.	Name of the Student	Project Title
19	10A51A04A9	VALLURU RAMU	Touch screen based menu display and ordering system for restaurants
	10A51A04B4	K RAJENDRA KUMAR	
	10A51A0473	PADALA DURGAPRASAD	
	11A55A0421	DARAPUREDDI SATEESH KUMAR	
	08A51A04A6	SIRLA JOGA RAO	

ABSTRACT

In today's world automation is there in all areas but there is one field where this technology has not entered yet. It is the menu display & ordering system where so far there is no initiative taken to introduce technology in this area. Touch-screen based advanced menu display is the method by which anyone can select any item of their choice which are in menu display and that order will be transferred to the manager's personal computer using zigbee module and that ordered item will be served to the following customer. Touch screens are most popularly used as interfaces in many applications. Touch screen is the most important component used in this design, apart from which we also use a zigbee module, a graphical LCD, a microcontroller(AT89C52) and also a serial interface MAX232 for interfacing. Compared to traditional restaurant system, by using this system customer gets faster and better services, the restaurant staff may co-operate more efficiently with less working mistakes and enterprise owner thus receives more business profit.

Sl. No.	Roll No.	Name of the Student	Project Title
20	10A51A04A8	VADDI MANI KRISHNA	ADC/DAC Loopback linearity testing by DAC output offsetting and scaling
	10A51A0468	MALAPETA ROJA	
	10A51A0488	RAJAPITHAMAHUNI PERIN KUMAR	
	11A55A0418	SAMPATHI NIRANJAN KUMAR	

ABSTRACT

Analog to Digital Converter (ADC) and Digital to Analog Converter (DAC) are very important components in electronic equipment. The real world signals are analog in nature, these two converting interfaces are necessary to allow digital electronic equipments to process the analog signals. In this project, loopback testing is used, which is a powerful technique for testing the analog-to-digital converter (ADC) and digital-to-analog converter (DAC) pair embedded in a mixed-signal system-on-chip (SoC). The loopback testing is used to achieve required test resolution and the potential fault masking problem and provide a solution to reduce the cost of automatic test equipment (ATE). For ADC testing, the DAC output is scaled down to achieve the required test stimulus resolution and adjust the DAC output offset to cover the ADC full-scale range. For DAC testing, the effective ADC resolution is achieved by scaling up the DAC output.

Sl. No.	Roll No.	Name of the Student	Project Title
21	10A51A0496	SATRAPU PARVATHI	Design and analysis of sierpinski carpet fractal antenna for multiband applications
	10A51A04B7	MANAM HEMANTH KUMAR	
	11A55A0416	CHATURVEDI PEDADA	
	10A51A04A3	TANGUDU THAVITI RAJU	

ABSTRACT

The demand of compact size antennas is increasing day by day. In this project, Sierpinski carpet shape Fractal Antenna, which is operated at multiple bands will be designed. The proposed antenna is designed using Ansoft HFSS software. The return loss, VSWR and radiation patterns of the antenna are to be determined and analyzed. The proposed antenna is designed based on the dimensions given in the HFSS software and fabricated on FR-4 substrate and tested by using vector network analyzer.

Sl. No.	Roll No.	Name of the Student	Project Title
22	10A51A0483	POTNURU NAVEEN KUMAR	Simulation and analysis of array and wallace tree multipliers
	10A51A0476	PAILA DHAMAYANTHI	
	10A51A0467	MADDILA PRATYUSHA	
	10A51A0466	M SANTOSH KUMAR	

ABSTRACT

Multipliers play a very important role in various DSP applications. The design of high speed and low power consumption is very important for various applications which use multipliers. The Wallace tree multiplier is an efficient hardware implementations of digital circuits that multiplies two integers. The computational time required by the Wallace tree multiplier is less compared to array multiplier. Reducing the power dissipation of multiplier is a key to satisfy the overall power budget of various digital circuits. The main objective of this project is to simulate and compare array and Wallace tree multipliers. Here 4x4 and 8x8 Array and Wallace tree multiplier architecture is developed and compared using virology model. Reducing the hardware requirement from Array multiplier to Wallace tree multiplier is done, so

that we can obtain a better multiplier.

Sl. No.	Roll No.	Name of the Student	Project Title
23	10A51A04B3	YERRA SURYALAXMI	Performance analysis of AODV and OLSR routing protocols in a MANET
	10A51A0465	LAXMI DHARAMAHANTI V K SHARMILA	
	11A55A0414	BAGA VYKUNTA RAO	
	10A51A0499	SINGUPURAM VIKRAM	

ABSTRACT

Wireless ad-hoc networks must be capable of self organizing and self-configuring to handle the dynamic nature of the network. Routing protocols try to find the shortest path to the destination. Routing is generally applicable in network layer. Depending on how and when the routes are discovered, the protocols are classified as proactive and reactive routing protocols.

This project investigates the performance of a reactive routing protocol AODV (Ad-hoc On demand Distance Vector) and a proactive routing protocol OLSR (Optimized Link State Routing) in a Mobile Ad-hoc network (MANET). The various scenarios are considered for the randomly distributed network in different ranges and for ring network topology. The performance of network parameters such as throughput and delay will be analyzed with the help of the software OPNET MODELER 14.5. OPNET Modeler is one of the most popular commercial products for simulating and modeling of computer networks and related technologies.

Sl. No.	Roll No.	Name of the Student	Project Title
24	10A51A0471	NAMBURI NEELIMA	Performance analysis of Quadrature carrier multiplexing
	10A51A04B1	VARISA SASIBHUSHANARAO	
	10A51A0470	MENDA ANUSHA	
	11A55A0420	UPPU HARISH	

ABSTRACT

This project implements a multiplexer scheme that used a periodic since like pulse and its orthogonal versions to multiplex analog low pass signals. The sinc like pulse is derived by multiplying a few cosine waves whose frequencies are harmonically related. The highest frequency of the cosine wave is decided based on the time instant at which the first zero crossing of the periodic sinc like pulse is expected. The period of the sinc like pulse is decided by the lowest frequency. The multiplexed signal is generated by adding the double sideband suppressed carrier (DSBSE) modulated signals generated by multiplying message signals and quadrature versions of the periodic sinc like pulse. At the receiver, the message signals are detected using coherent detection. The bandwidth required per signal for this new scheme proposed in this project is more than conventional Quadrature carrier multiplexing (QCM) scheme. By using this new scheme eight signals can be multiplexed using three cosine carriers, but in QCM only six message signals can be multiplexed with three cosine carriers. For the purpose of simulation mat lab simulink tool is going to be used.

Sl. No.	Roll No.	Name of the Student	Project Title
25	10A51A0484	PULAGAM ESWAR REDDY	An OCR - character segmentation using routing based fast replacement paths in reach algorithm
	10A51A04C0	UPPADA GOWTHAM	
	11A55A0413	ANUPOJU CHANTI	

ABSTRACT

An Optical Character Recognition (OCR) system with high recognition rate is challenging to develop. One of the major contributors to OCR errors is smeared characters. Several factors lead to the smearing of characters such as bad scanning and a poor binarization technique. Typical approaches to character segmentation falls into three major categories: image-based, recognition-based and holistic-based. Among these approaches, the segmentation path can be linear or non-linear.

Our project proposes a non-linear approach to segment the characters on grayscale document images. Our method first determines whether characters are smeared together using general character features. The correct segmentation path is found using a Reach Algorithm. This method corrects most of errors produced by segmentation process. We achieved a segmentation accuracy of 95% with less computation time over a set of about 2,000 smeared characters.

This approach is useful in real-time applications for robust OCR with smeared character detection and provides accurate character recognition with less computation time under various recognition scenarios.

Sl. No.	Roll No.	Name of the Student	Project Title
26	10A51A0464	LADE JAYACHANDRA	OFDM based cognitive radio systems for wireless communication systems
	10A51A04B6	KORADA PRUDHVI RAJ	
	11A55A0424	LEKKALA NAGAMANI	
	10A51A0461	KOVVURU MAHESH KUMAR	

ABSTRACT

OFDM is a multicarrier modulation technique that can overcome many problems that arise with high bit rate communications, the biggest of which is time dispersion. The truth is that OFDM offers higher data rates and reliability even for mobile devices, of course under certain constraints. OFDM's underlying sensing and spectrum shaping capabilities together with its flexibility and adaptivity make it probably the best transmission technology for Cognitive Radio systems. OFDM systems can be adapted to different transmission environments and available resources. Some adaptable parameters are FFT size, subcarrier spacing, CP size, modulation, coding, and subcarrier powers. Cognitive radio is a novel concept that allows wireless systems to sense the environment, adapt, and learn from previous experience to improve the communication quality. However, Cognitive radio needs a flexible and adaptive physical layer in order to perform the required tasks efficiently. In order to guarantee the rights of incumbent users, the unlicensed wireless devices must be sufficiently agile to avoid transmissions over spectrum occupied by the licensed transmissions. The main objective of this project is to develop a number of performance enhancing techniques that are applicable to an OFDM-based cognitive radio. A cognitive radio can enable the secondary usage of the unused portions of the licensed spectrum in order to improve spectrum utilization efficiency as well as improve the efficiency of a radio communication as a whole.

Sl. No.	Roll No.	Name of the Student	Project Title
27	10A51A0446	JAMI VAMSI KRISHNA	An effective & precise alert system for kitchen safety management
	10A51A0479	PILAKA PRITHVI RAJ	
	10A51A0497	SEERAPU SHANUMUKHA MANIKANTA REDDY	
	10A51A04A4	TARRA RAMA KRISHNA	

ABSTRACT

The effective and precise alert system for kitchen safety management will continuously check the various parameters of the households.

This project is designed to detect parameters like occurrence of any fire or gas leakage or high temperatures in the house or kitchen and to give alerts to the people if those values cross the threshold limit.

This project uses three sensors; temperature sensor to detect temperature, gas sensor to detect gas leakage, fire sensor to detect fire. A microcontroller 8051 is used to monitor these parameters. If temperature value crosses threshold limit, the fan will be switched on automatically to cool the environment. If any fire is detected then the relay will switches on the water pump. If any gas/fire detected or temperature value crosses threshold limit then intimation will be given to the surrounding people by means of buzzer.

By making use of these kinds of projects we can provide the safety in houses, offices and industries.

Sl. No.	Roll No.	Name of the Student	Project Title
28	10A51A0493	SAGIPALLI MANOHAR	GSM base advanced voting machine
	10A51A0490	REGETI KARUNA SAGAR	
	11A55A0407	L. NAVEEN KUMAR REDDY	

ABSTRACT

The project is aimed to develop SMS based password protected voting machine. Voters can participate in the voting by sending their choice through SMS. If the mobile user is not registered than it will decline the vote. For registered users it will ask for password through sms and after verifying the password it will accept the vote revert back an acknowledgement sms to the voter for successful or unsuccessful of vote.

Using this project we can reduce time, man power, money for elect the politicians. Using this we can also know the result of the each party.

The report consists of a background into the area of 8051 microcontroller and mobile communication, how they are interfaced to each other and AT (Attention) commands set used in communication.

Sl. No.	Roll No.	Name of the Student	Project Title
29	08A51A0443	I. NARESH	Maximum a posterior estimation (MAP) for linear/non - linear and Gaussian / non - Gaussian state space model using particle filtering.

ABSTRACT

Filtering is desirable in may solutions in engineering and embedded systems. But, filtering is the problem of estimating the states of a system as a set of observations becomes available online. This problem is of paramount importance in many fields of science, engineering and finance. To solve it, one begins by modeling the evolution of the system and the noise in the measurements. The resulting models typically exhibit complex linear, non-linearities, Gaussian and Non-Gaussian distributions, thus presiding analytical solution.

In order to overcome this problem many filters came into existence such as kalman filter, Extended kalman filtering, unscented kalman filtering, etc. Particle filtering is an important alternative to the extended kalman filtering. With particle filtering, continuous distributions are

approximated by discrete random measures, which are composed of weighted particles, where the particles are samples of the unknown states from the state space, and the particle weights are "probability messes" computed by using bayes theory, In the implementation of particle filtering, importance sampling plays a crucial role and since the procedure is designed for sequential use, the method is also called sequential importance sampling. Monte carlo methods use statistical sampling and estimation techniques. A major problem with particle filtering is that the discrete random measure degenerates quickly. Degeneracy can be reduced by using food importance sampling functions and resampling state estimation can be view as an optima filtering problem under Bayesan framework. If the state equations are linear and the posterior density is Gaussian, the Kalman filter (EKF) provides an optimal solution. A particle filter algorithm is first described for the state estimation task. The objective of the state estimation task is to estimate the states sequentially given contaminated observations of T.

M.TECH PROJECTS ABSTRACTS

Sl. No.	Roll No.	Name of the Student	Project Title
1	11A51D3801	T. ASHOK BABU	Smart Antenna For Wireless Communications For CDMA

ABSTRACT

Smart antennas are the systems which are useful for wireless environment. Smart antenna systems may revolutionize future communication systems. So far, only the spectrum, the time and the code domain are exploited for communications systems. In the fast, from a signal processing perspective, most wireless networks have been single input and single output (SISO), with the sequential nature of SISO signal processing serving as a bottleneck that limits performance. However, processing multiple signals simultaneously through smart antennas could lead to substantial performance improvement. Using this new approach, researchers are exploring multiple Input and Multiple Output (MIMO) wireless technologies to improve end to end network throughput of multiple flows relative to SISO antennas. Smart antennas are widely used in wireless mobile communications as they can increase the channel capacity and coverage range. The methods discussed in this thesis, suggests solution for the use of smart antennas for wireless communication in the mobile environment.

Sl. No.	Roll No.	Name of the Student	Project Title
2	11A51D3803	K. RAJESH	Secure Communication In Low SNR Regime Over Fading Channels in MIMO

ABSTRACT

In this work we consider MIMO fading channels and characterize the reliability function in the low SNR regime as a function of the number of transmit and receive antennas. For the case when the fading matrix H has independent entries, we show that number of transmit antennas play a key role in reducing the peakiness in the input signal required to achieve the optimal error exponent for a given communication rate. Further by considering a correlated channel model we show that the maximum performance gain is achieved when the entires of the channel fading matrix are fully correlated. Energy efficiency is analyzed by finding the minimum bit energy required for secure and reliable communications. Increased bit energy requirements under secrecy constraints are quantified. Finally, the impact of fading is investigated, and the benefits of fading in terms of energy efficiency are shown. The results we presented in this work can also be applied to the finite bandwidth regime.

Sl. No.	Roll No.	Name of the Student	Project Title
3	11A51D5701	K. DEVADASU	Adaptive Histogram And Inter Channel Correlation Based Video Enhancement

ABSTRACT

Video enhancement algorithm using inter color channel relationship is presented. It is based on the fact that the property of an infrared range image is similar to that of red channel in a visible range color frames. Specifically, the proposed method analyzes the image details, which are mostly resided in dark area and not visible well in the visible range frame, directly from the red channel of the given image. And they are used as a guidance to generate a weighting map for image enhancement. Experiment results show that the proposed scheme produces good outcomes in terms of revealing dark region details and visually pleasant observation.

Sl. No.	Roll No.	Name of the Student	Project Title
4	11A51D5702	M. ANIL KUMAR	Optimized Passive Network For 4g Communication

ABSTRACT

Day to day rapid growth of communication requires high speed data transmission with best Quality of service (QoS) .For upgrading generation in telecommunication we need to focus on differences in technologies in generation like 3G and 4G. In this project we mainly focus on differences between technologies in 3G and 4G. Applying an optimized solution for high data transfer rates and high QoS.

Comparing technologies using 3G and 4G we can observe the major parameter in Bandwidth. To improve bandwidth availability we will choose optical fiber as communication channels. A passive optical network (PON) is a reliable back haul technology, which can provide high bandwidth and is highly cost effective. The combination of 4G with NG-PON creates an access network that is cost efficient, reliable, flexible as well as facilitating mobility and ubiquity. However, this integration has many challenges such as maintaining the QoS of whole network. In this paper, we propose the NG PON as an alternative solution for the point to point fiber in the 4G centralized coordinated Multi-Point (COMP) transmission and reception. This architecture is for joint transmission downlink COMP which benefits from the broadcasting transmission in the downlink of PON.

Sl. No.	Roll No.	Name of the Student	Project Title
5	11A51D5704	S. ALEKHYA	Design of Circular Fractal Antenna for Dual band UWB Applications

ABSTRACT

Ultra wideband characteristics are well suited to short distance applications, such as PC peripherals. Due to low emission levels permitted by regulatory agencies, UWB systems tend to be short range indoor applications. Due to the short duration of UWB pulses, it is easier to engineer high data rates the federal communications commission (FCC) approval of the frequency band in the range of 3.1 to 10.6 GHz in 2002, has motivated both academic and industrial communities to develop compact antennas for UWB radio applications. It is anticipated that UWB technology enables high speed data transmission rate with low power consumption. Low cost UWB antennas are desirable for various applications such as wireless

communications, medical imaging, radar and indoor positioning. The merits of printed antenna such as light weight, small size and low profile make them an attractive candidate for UWB antenna development.

In this study, a simple and compact Ultra wideband (UWB) patch antenna with rectangular slot is presented. The fabricated antenna consists of a rectangular patch tapered from a micro strip feeding structure and a truncated ground plane. The proposed antenna is etched onto a FR4 printed circuit board (PCB) with an overall size of 28mmx 29mmx 1.6mm. The soft HFSS 12 software is used to simulate the proposed antenna and the practical results are obtained by testing the fabricated antenna on Vector Network Analyzer (E5071C). Results indicate that the antenna achieved and UWB impedance bandwidth (s11<-10 dB) ranges from 3.09 to 13.08 GHz. The small antenna exhibits a good voltage standing wave ratio (VSWR) performance and its E-plane and H-plane radiation patterns are stable over the UWB frequency range. The simulated result shows that the designed antenna can achieve a gain between 1.8 and 5.5 dB at 7.3 GHz AND 12.9GHz. The VSWR value obtained at 4.4GHz is 1.02:1. These characteristics make the designed antenna suitable for various UWB application

Sl. No.	Roll No.	Name of the Student	Project Title
6	12A51AD3801	B.VENKATA RAMANA	Enhanced multipath Optimized Link State Routing Protocol for MANET

ABSTRACT

Mobile Ad hoc Networks (MANETs) are dynamic and self-organized temporary networks which include a set of mobile routers and hosts sharing same radio channel using wireless connections exchanging data without a centralized management. Due to limited transmission range of wireless Ad hoc network nodes, multiple hops are usually needed for a node to exchange information with any other node in the network. Thus routing is a crucial issue in the design of MANET. Optimized link State Protocol (OLSR) is a table driven proactive routing protocol, with topology information and routes. Its efficiency depends on multipoint relay selection. Various studies were undertaken to decrease control traffic overheads by modifying present OLSR routing protocol. A novel routing protocol for Adhoc networks named as SR-MPOLSR developed from OLSR, incorporating multi-path strategy and source routing controlling scheme. It raises the throughput and drops the average delay. The proposed method is multi path routing implemented on OLSR protocol. It is proposed to extend SR-MPOLSR by considering link quality of node to determine path using Dijkstra and Floyd algorithms. From that the routing mechanism and the mobility of accessing improves. Multi path routing is implemented `for increasing OLSR performance instead of normal OLSR protocol. Multipath OLSR is implemented for the 50 nodes over the range of 3 square kilometers region in optimized Network Engineering Tool (OPNET) simulation software. The proposed method also implements for the analysis of QoS parameters like throughput, topology changes, route table calculations, total tc message sent, retransmission attempts, WLAN load and end to end delay. The advantages of this routing are fast connectivity and better security.

Sl. No.	Roll No.	Name of the Student	Project Title
7	12A51D3803	M. BALAKRISHNA	Bispectrum based image synthesis algorithm for the detection of underwater obstacles from the sonar images

ABSTRACT

Now a day's underwater navigation is very important in defence applications. For safe navigation of vehicles it is necessary to identify the underwater obstacles in order to avoid collision of vehicles with obstacles. In present scenario the only means for underwater navigation is SONAR which operates based on the principle of acoustics. RADAR cannot be used as navigation device underwater as the radio waves cannot propagate underwater because of conductivity of water. This increased the importance of SONAR. SONAR generally gives the obstacle information as 2D images which contain lot of noise, So it is very essential to separate the obstacle information from the noise. In order to achieve the above said task, a new bispectrom based method is proposed in thus project. Firstly the segmentation methods are to be implemented on the images and later these segmented images information is combined into a single image using the frequency and phase components based on bispectrum method. The performance analysis is to be done using PSRN & execution time.

Sl. No.	Roll No.	Name of the Student	Project Title
8	12A51D3804	M. SANTOSHI	Dynamic channel Gain Parameter based Resource allocation Strategy for Cellular system

ABSTRACT

Future mobile communication systems will be designed to support a wide range of data rates with complex quality of service matrix. It is becoming more challenging to optimize the radio resource management and maximize the system capacity whilst meeting the required quality of service from user's point of view. Traditional schemes have approached this problem mainly focusing on resources within a cell and to large extent ignoring effects of multi cell architecture. This work addresses the influence of multi cell interference on overall radio resource utilization and proposes a novel approach, setting new direction for future research on resource scheduling strategies in a multi cell system. It proposes a concept called load matrix (LM) which facilitates joint management of interference within and between cells for allocation of radio resources. Earlier works have presumed the channel gain parameter in formulation of matrix. This work will dynamically assign that parameter and form the matrix. Simulation results show significant improvement in the resource utilization with respect to throughput and packet loss.

Sl. No.	Roll No.	Name of the Student	Project Title
9	12A51D3805	P. V. KRANTHI KUMAR	An Automated Threshold Selection using Wavelet Based PSO for Image Compression

ABSTRACT

Image compression addresses the problem of reducing the amount of data required to represent the digital image. Compression is achieved by the removal of one or more of three basic data redundancies known as coding redundancy. Inter pixel redundancy and psycho visual redundancy Recent research in transform based image compression has focused on the wavelet transform due to its superior performance over other transforms. In the recent survey, image is subjected to wavelet decomposition to obtain wavelet coefficients and then applied Hard and Sort thresholds for neglecting certain wavelet coefficients by manually selecting global and local threshold values. Here, the manual threshold selection becomes very difficult because it depends on the type of image and its statistical properties like mean and variance. Here we proposed

automated threshold selection scheme using Particle Swarm Optimization which maintain trade of between PSNR and compression ratio. The results will be compared by using multi level wavelet decomposition by adaptively selecting level dependent and independent thresholds, Once the basic threshold selection is done using PSO, the wavelet coefficients are thresholded using hard and soft thresholding are quantized and coded with Huffman encoder. The source decoder portion will be implemented to find PSNR between original image and reconstructed image for a particular compression ratio. The above work will be implemented using MATLAB 2009.

Sl. No.	Roll No.	Name of the Student	Project Title
10	12A51D3806	P.THIRUPATHI NAIDU	High speed RC4 Algorithm based on true dual port ram by using Verilog HDL

ABSTRACT

Earlier an efficient of the Rivest Cipher4 (RC4 stream-cipher) algorithm has been performed in terms of running time and security. RC is one of the most widely accepted stream cipher for encryption and decryption speed and efficiency. In contrary to previous design, the working of Modified RC4 consists two parts: Key Scheduling Algorithm (KSA) and Pseudo Random Number generator algorithm (PRGA). The performance analysis of the modified RC4 algorithm performed in terms of running time, security and randomness. The proposed architecture True Dual Port RAM RC4 algorithm is used for both encryption and decryption as the data stream is simply XOR with the generated key sequence. The proposed design TDP RAM based RC4 algorithm used Block RAM (BRAM) implementation to reduce the area and to increase the speed of operation hence throughput. The design uses one 256 bytes TDP RAM for final key stream generation and it takes 2 clock cycles per byte. It supports a variable key length of from 1 byte to 256 bytes and achieves 71.39MB/s throughput at 142.78MHz operating frequency. It aims to support the Wifi protected Access (WPA) security in the wireless LAN system based on IEEE 802.11 standard. The TDP RC4 algorithm is implemented in Verilog HDL. The proposed design is targeted on XC4VGX12-12SF363 Xilinx FPGA and met the operating frequency of 142.78MHz.

Sl. No.	Roll No.	Name of the Student	Project Title
11	12A51D5701	B. VANITHA	Leakage power reduction in CMOS circuits using leakage control transistor technique

ABSTRACT

Power dissipation is an important consideration in the design of CMOS VLSI circuits. High power consumption leads to reduction in the battery life in the case of battery powered applications and affects reliability, packaging and cooling costs. The power dissipation in CMOS (complementary metal oxide semiconductor) circuits mainly constitutes of dynamic and static powers. In the past (for technology processes with feature size larger than 1um), the dynamic power consumption is constituted for more than 90% in the circuit's overall power consumption, whereas the static power is negligible when compared to the dynamic power dissipated. But this situation is changing in the present as we are entering into deep-submicron technologies. In the present deep-submicron technologies, in order to reduce the mighty dynamic power consumption in VLSI circuits, the power supply is being scaled down, since the dynamic power dissipated is directly proportional to the square of the supply voltage. As the

supply voltage. As the supply voltage is scaled down, hence the threshold voltage also needs to be reduced, leading to the increase in the sub threshold leakage current and hence static power dissipation. Efficient leakage control mechanisms are crucial for saving power. LECTOR is a static power reduction technique which significantly cuts down the leakage current without increasing the dynamic power dissipation. In the proposed technique, we introduce two leakage control transistors (a p type and a n type) within the logic gate for which the gate terminal of each leakage control transistor (LCT) is controlled by the source of the other. In this arrangement, one of the LCTs is always "near its cutoff voltage" for any input combination. The basic CMOS gates using implementation of LECTER technique using LCT gates, AOI, 3 to 8 decoder, 4xl multiplexers and static RAM memories. The various capacities SRAM consider 1-bit SRAM, 512-BIT SRAM and 1kb SRAM. This increases the resistance of the path from V_{dd} to ground, leading to significant decrease in leakage currents. Further this technique overcomes the limitations posed by other existing methods for leakage reduction.

Sl. No.	Roll No.	Name of the Student	Project Title
12	12A51D5702	G. DEEPAK	A new class of Infinite Impulse response (IIR) Filters

ABSTRACT

The design of Infinite Impulse Response (IIR) is of two types in Literature, They are Butterworth Digital IIR filters and Chebyshev Digital IIR Filters which are derived from Analog IIR Filters by Different Laplace to Z –Transformation Techniques, out of which most Efficient Techniques are Differentiation Approximation, Al-Alaoui and Bilinear Transformations. For the proposed differentiator an attempt is made to develop Digital IIR low pass. High pass and band pass Filters from novel S-Z Transformations which will be derived from FIR Windows. The performance of the proposed S-Z Transformation is verified by the comparison of Differentiators and Integrator procedures.

Sl. No.	Roll No.	Name of the Student	Project Title
13	12A51D5703	DIVYA MOKARA	Design of OFDM based acoustic communication system using FPGA

ABSTRACT

The need for underwater wireless communications exists in a broad range of applications, such as sensor-based, disaster prevention, and assisted navigation, speech transmission between divers, collection of scientific data recorded at ocean-bottom stations. Wireless underwater communications can be established by transmission of acoustic waves. Underwater communication requires high-speed data rates over a relatively long distance, in terms of kilometers in a shallow water environment. Signal degradation caused by multipath propagation and high temporal and spatial variable of the channel conditions poses many challenges to design the underwater acoustic communication system over underwater acoustic signals. In this project, it is proposed to use an OFDM multi carrier modulation scheme to ensure high data rates, high bandwidth efficiency and at the same time overcome all the drawbacks of underwater channel effects such as strong multi-path, extremely high ISI, Doppler spread etc., to avoid the adversities of underwater channel. In this project FPGA is chosen to implement the OFDM communication system due to its reconfigurability. Finally, the functionality is implemented and tested in FPGS.

Sl. No.	Roll No.	Name of the Student	Project Title
14	12A51D5704	K. YARRAYYA	The Power Optimization of Linear Feedback Shift Register Using Fault Coverage Circuits

ABSTRACT

Test Pattern generation has long been carried out by using conventional Linear Feedback Shift Registers (LFSR's). LFSR's are a series of flip-flop's connected in series with feedback taps defined by the generator polynomial. The seed value is loaded into the outputs of the flip-flops. The only input required to generate a random sequence is an external clock where each clock pulse can produce a unique pattern at the output of the flip-flops. This random sequence at the output of the flip-flops can be used as a test pattern. The number of inputs required by the circuit under test (CUT) is a measure of the switching activity of the logic inside the chip which depends largely. On the randomness of the applied input stimulus. Reduced correlation between the successive vectors of the applied stimulus into the circuit under test can result in much higher power consumption by the device than the budgeted power. A new low power pattern generation technique is implemented using a modified conventional Linear Feedback Shift Register (LFSR). A new fault coverage test pattern generator using a linear feedback shift register (LFST) called FC-LFSR can perform fault analysis and reduce the power of a circuit during test by generating three intermediate patterns between the random patterns by reducing the hardware utilization. The goal of having intermediate patterns is to reduce the transitional activities of Primary Inputs (PI) which eventually reduces the switching activities inside the circuit under test (CUT) and hence power consumption is also reduced without any penalty in the hardware resources. The power reports shows that the proposed low power LFSR consumes less power (12.19mw) during by taking the benchmark circuit C17, with and without fault confirm the fault coverage of the circuit being tested.

Sl. No.	Roll No.	Name of the Student	Project Title
15	12A51D5706	K. NARESH	A Novel Architecture for Radix-4Pipelined FFT Processor using Vedic Mathematics Algorithm

ABSTRACT

The FFT processor is a critical block in all multi-carrier systems used primarily in the mobile environment. The portability requirement of these systems is mainly responsible for the need of low power FFT architectures. In this study, and efficient addressing scheme for radix-4-64 point FFT processor is PRESENTED. It avoids the modular addition in the address generation: hence, the critical path is significantly shorter than the conventional radix-4 pipelined FFT processor by modifying its operation sequence. The complex multiplier is one of the most power consuming blocks in the FFT processor. A significant property of the proposed method is that the critical path of the address generator is independent from the FFT transform length N, making it extremely efficient for large FFT transforms. The results confirm the speed and area advantages for large FFTs. Vedic Mathematics is the ancient methodology of Indian mathematics which has a unique technique of calculations based on 16 Sutras (Formulae). A high speed complex multiplier design (ASIC) using Vedic is presented. The idea for designing the multiplier and adder subtract or unit is adopted from ancient Indian mathematics "Vedas". On account of those formulas, the partial products and sums are generated in one step which reduces the carry propagation from LSB to MSB. The implementation of the Vedic mathematics and their application to the complex multiplier ensure substantial reduction of propagation delay in comparison with DA based architecture and parallel adder based implementation which are

most commonly used architectures. This project proposed the hardware implementation of VLSI architecture for High Speed VLSI Design of complex multiplier using vedic Mathematics that have been modified to improve performance. This project was implemented in Verilog the coding is done in Verilog HDL and the FPGA synthesis is done using Xilinx Spartan library. The main advantage of implementation using Hardware based High speed VLSI Design of complex Multiplier using vedic methamatics its inherent speed over software based methods.

Sl. No.	Roll No.	Name of the Student	Project Title
16	12A51D5707	KARRI RAJESH	Design of low area branch penalty free Pipelined Processor Architecture

ABSTRACT

In MIPS (Microprocessor without interlocked pipelined stages) pipelined processor each instruction will take four cycles to complete their task. But a branch instruction will take more that four clock cycles to complete their task. This reduces the performance of the processor. Branch prediction techniques are used to reduce the performance penalties that are caused by branch instructions. But these techniques do not completely eliminate the penalties that are caused by branch instructions. But these techniques do not completely eliminate the penalties that are caused by branch instructions. In this project an efficient architecture for pipelined processor that eliminates the branch penalties with minimum hardware resources is designed and simulated in Xilinx 10.1 tool using Verilog hardware description language.

Sl. No.	Roll No.	Name of the Student	Project Title
17	12A51D5708	B. VANITHA	Performance analysis of FRFT based adaptive filters with LMS algorithm

ABSTRACT

Fractional Fourier Transform function (FrFT) is a generalization of Fourier transforms (FT). Finite Impulse Response (FIR) filters are implemented based on Fractional Fourier transform domains, then modified filters characteristics somewhat tunable when compare with existing FT based FIR filters. So, in our proposals implementation is made on the FrFT FIR filters for different windows like Rectangle, Bartlett, Hamming, Hamming, and Kaiser, based on the adaptive algorithms, and the performance of the proposed filters is made by SNR values of the different obtain filters for given noisy sinusoidal inputs.

Sl. No.	Roll No.	Name of the Student	Project Title
18	12A51D5709	B. VANITHA	FPGA Implementation of viterbi Algorithm for Decoding of Convolution codes

ABSTRACT

Convolutional code is a coding scheme used in communication systems including deep space communication and wireless communication. It provides an alternative approach to block codes for transmission over a noisy channel. The clock codes can be applied only for the block of data. The Convolutional coding has an advantage over the block codes in that it can be applied to a continuous data stream as well as to blocks of data.

Viterbi Decoder employed in digital wireless communication plays a rife role in the

overall power consumption of trellis coded modulation decoder. Power reduction in Veterbi Decoder could be achieved by reducing the number of states. A pre-computation architecture with T-algorithm was implemented for this purpose, and when we compare this result with full Trellis Veterbi Decoder, this approach significantly reduces power consumption without degrading decoding speed. Convolutional encoding with viterbi decoding is a powerful Forward Error Correction (FEC) technique that is particularly suited to a channel in which the transmitted signal is corrupted mainly by additive white Gaussian noise (AWGN). It operates on data stream and has memory that uses previous bits to encode. The Viterbi Aogorithm (VA) is proposed, used for decoding a bit stream that has been encoded using FEC code. The convolutional encoder adds redundancy to a continuous stream of input data by using a linear shift register. A pre compute architecture with Veterbi Algorithm is implemented for this purpose, Viterbi (Convolutional) encoder and Viterbi Decoder are designed and implemented using FPGA technology, which are the essential blocks in digital communication systems. It is particularly suited to a channel in which the transmitted signal is corrupted mainly by AWGN. The viterbi Decoder of Constraint length 7 and code rate ½ is considered. The design is implemented using verilog on Xilinx Spartam 3E and advanced Spartan 6 board and the results and comparisons are presented.

Sl. No.	Roll No.	Name of the Student	Project Title
19	12A51D5710	MANOJ KUMAR GOUDA	Design of Multi Core Processor using Multi Threading Technique

ABSTRACT

As personal computers have become more prevalent and more applications have been designed for them, the end user has seen the need for a faster, more capable system to keep up. Speedup has been achieved by increasing clock speeds and, more recently, adding multiple processing cores to the same chip. Although chip speed has increased exponentially over the years, that time is ending and manufacturers have shifted toward multi core processing. However, by increasing the number of cores on a single chip challenges arise with memory and cache coherence as well as communication between the cores. A multi core processor is a processing system composed of two or more independent cores. One can describe it as an integrated circuit to which two or more individual processors (called cores in this sense) have been attached. This thesis discuss the advantage in the transition from non pipelined processor to single core pipelined processor, and the transition from single core pipelined processor to multi core pipelined processor. It begins with the discussion of implementation of a non pipelined processor. Secondly we discuss the process of converting it into a pipelined processor and the shared memory issues are discussed. Finally provides the design details of all the phases of a multi core processor with quad port memory design, including performance achievement achieved by this transition. The design is done on Xilinx Spartan (6slx45csg324-3 FPGA and it performance characteristics are analyzed. The designed Quad core performance issues like area. Speed and power dissipation are also presented.

Sl. No.	Roll No.	Name of the Student	Project Title
20	12A51D5711	N. VYDEHI	A Low power VLSI Design of an all Digital Phase Locked Loop

ABSTRACT

The phase locked loop is a familiar circuit for high frequency applications and very short interlocking time. Now a day the applications requires a low cost, low power and high speed

Phase locked loops. All Digital Phase locked loop (ADPLL) satisfies all the above requirements. ADPLL is implemented and analyzed in this project. In this work the required ADPLL is implemented by using Nyquist rate phase detector and the implemented design is synthesized in Xilinx ISE software. Simulation results prove that ADPLL has high speed of operation and resource utilization on FPGA proves that ADPLL has simpler structure.

Sl. No.	Roll No.	Name of the Student	Project Title
21	12A51D5712	P. LAVANYA	High efficient carry select adder using zero carry look ahead adder

ABSTRACT

In the design of Integrated circuit area occupancy plays a vital role because of increasing the necessity of portable systems. Adders are used vastly in digital systems. Carry select adder is a fast adder used in data processing processors for performing fast arithmetic function. Carry select adders have great scope reducing area power consumption and delay. The simple and efficient gate level modification helps to reduce the area and power of Carry select adder. Linear CSLA have been developed using ripple carry adders (RCA). In this project, the proposed design of 16-bit carry select adder using zero carry look ahead adder (ZCLA) is compared with modified version of SQRT CSLA. The ZCLA architecture consist of BEC(2 bit, 3bit, 4 bit, 5bit, 6bit) which can reduce the number of gates leads to reduction of area and delay compared with SQRT CSLA and simulation results are observed using XILINX software.

Sl. No.	Roll No.	Name of the Student	Project Title
22	12A51D5713	P. SUDHAKAR	Optimization of ID and 2D Cellular Automata for PSEUDO Random number generator

ABSTRACT

The implemented ID binary cellular automata with wrap around at the edges (i.e. a ring). The default update rule used is rule 30 discovered by Stephen Wolfram. Rule 30 is an update rule that when applied to the CA will produce a class III, a periodic, chaotic behavior. The response with respect to rule 2 and rule 90 is also verified on Xilinx Spartan 3E FPGA and this can be applied for modeling PRNG. This paper also discusses the correlation between ID and 2D cellular automata. Cellular automata concept was first introduced by von Neumann von Neumann for the proposal of modeling biological self reproduction. The primary interest was to drive a computationally universal cellular space with self reproduction configurations. Afterward, a new phase of activities was started by Wolfram who pioneered the investigation of Cellular automata as a mathematical model for self-organizing statistical systems. Wolfram was proved that the randomness of the patterns generated by maximum-length Cellular automata is significantly better than other widely used methods, such as linear feedback shift registers. The intensive interest in this field can be attributed to the phenomenal growth of the VLSI technology that permits cost-effective realization of the simple structure of local neighborhood Cellular automata Wolfram.

Sl. No.	Roll No.	Name of the Student	Project Title
23	12A51D5714	R. SANTOSH	Area Efficient Higher Order FIR

			Filter Design using Improved Distributed Arithmetic with Look up Tables

ABSTRACT

When the DA (Distributed Arithmetic) algorithm is directly applied in FPGA (field programmable gate array) to realize FIR (finite impulse response) filter, it is difficult to achieve the best configuration in the coefficient of FIR filter, the storage resource and the computing speed. According to this problem, the paper provides the detailed analysis and discussion in the algorithm, the memory size and the look up table speed. Also the corresponding optimization and improvement measures are discussed and the concrete hardware realization of the circuit is presented. The results of simulation and test show that this method greatly reduces the FPGA hardware resource and the high speed filtering is achieved. The design has a big breakthrough compared to the traditional FPGA realization. Distributed Arithmetic is most preferred area efficient technique. In this technique, partial products of filter coefficients are pre computed and stored in lookup Table (LUT) and the filtering is done by shift and accumulates operations on these partial products. However, the scale of the LUT will increase exponentially with the co efficient. If the co efficient is small it is very convenient to realize. While the co efficient is large, it will take up a lot of storage resources of FPGA and reduce the calculation speed. The paper presents the improvement of the DA algorithm by reducing the LUT size and delay using Ofset Binary Coding Algorithm.

Sl. No.	Roll No.	Name of the Student	Project Title
24	12A51D5715	S. SRIDHAR	Implementation of Hybrid model Image Fusion Algorithm

ABSTRACT

Image processing techniques primarily focus upon enhancing the quality of an image or a set of images and to derive the maximum information from them. Image fusion is such a technique of producing a superior quality image from a set of available images. It is the process of combining relevant information from two or more images into a single image wherein the resulting image will be more informative and complete than any of the input images. The fused image of the Existing image fusion algorithm with pattern selective approach using Laplacian pyramid transform was assessed by using MATLAB and it gives images with less Mean Square Error (MSE), less peak signal to noise ratio, low structural content, low normalized cross correlation, low normalized absolute error. To improve the quality of output image an algorithm is proposed by using Laplacian pyramid and gradient pyramid methods from pyramid transform and Haar method from wavelet transform. This algorithm creates new images further image processing applications like enhancement, segmentation, edge detection and etc., this algorithm has several applications in intelligent robots, manufacturing industry, military and remote sensing applications. The fusion algorithms were assessed based on some image quality metrics using MATLAB.

Sl. No.	Roll No.	Name of the Student	Project Title
25	12A51D5716	Y. SRAVANI	Performance analysis of block PSO for Image De-Noising using Wavelet Transform

ABSTRACT

Image de-noising is one of the fundamental problems in the field of image processing

needed for improving the image quality before performing different high-level vision tasks. Numerous wavelet based de noising methods were utilized for performing image de noising process. In such works, there is a lack of analysis in selecting the appropriate threshold value. Moreover, such analysis leads to the determination of static threshold value. The basic formulate exist if we treat noisy image as a single image without dividing it into clocks. We can also check the performance of the conventional methods by dividing the noisy image into different block sizes and then applying dynamic methods to choose proper threshold value. Proposed an advaptive image de noising technique by dividing the noisy image into blocks then applying wavelet transform on it and then by applying Particle Swarm Optimization (PSO) technique to select proper threshold values. The performance of the image de noising technique is evaluated by comparing the result of proposed technique with the conventional soft thresholding technique in terms of peak signal to noise ratio (PSNR).

Faculty publications

ANALYSIS OF BIOLOGICAL SIGNALS USING WAVELET COEFFICIENTS FOR FINDING THE CARDIAC DISEASES & THEIR SEVERITY

P. SIRISH KUMAR, M. BALA KRISHNA & M. CHAITANYA KUMAR Assistant Professor, Department of Electronics and Communication Engineering, Aditya Institute of Technology and Management (AITAM), Tekkali, Andhra Pradesh, India

Abstract:

Our paper deals with feature extraction of Bio Medical signals using the continuous wavelet transform CWT and corresponding coefficients. We analyze the signal features, in various points of time and at different localization levels with multiple scales of the cwt. In this paper we have analyzed the digital data collected using the electrocardiogram for finding the heart disease considering data sets of twenty different disease cases using mat lab. Firstly we have filtered the ecg data for hum noise and muscle noise, using a series of filters and applied the zero cross algorithm for finding the no of zero crossings and the heart rate of each disease case. We have applied wavelet transform and found the wavelet 3D plot which is the representation of the wavelet coefficients, which helps for estimating the cardiac disease from the wavelet 3D plot of the patient's electrocardiogram.

KEYWORDS: ECG, Wavelet, Feature Extraction, Hum Noise

PERFORMANCE ANALYSIS OF MEDIAN FILTERING APPROACHES FOR IMAGE DENOISING IN THE PRESENCE OF IMPULSIVE NOISE

Dasari Yugandhar AITAM E.C.E Department, Tekkali, Andhra Pradesh, India S.K.Nayak Berhampur University, Electronic Science Department, Berhampur, Odisha, India

Abstract:

Impulsive noise is also known as salt and pepper noise. Impulsive noise is found in situations where quick transients such as faulty switching take place during image acquisition. Standard median filter has been established as reliable method to remove this noise without harming the edge and image overall contrast. However, the major problem of standard Median Filter (MF) is that the filter is effective only at low noise densities. In our proposed method, adaptive median filter and modified median filtering approaches are implemented and these are compared with different methods to find median for the given data called median of ungrouped data (MUD) also known as standard median filter approach, median of grouped discrete frequency data distribution (MGDFD) and median of grouped continuous frequency data distribution (MGCFD). Our proposed methods performs better in removing low to high density impulsive noise with detail preservation and gives better visual quality and better peak signal to noise ratio(PSNR). Keywords: Image de-noising, MUD: median of ungrouped data, MGDFD: Median of grouped discrete frequency data, MGCFD: Median of grouped continuous frequency data. PSNR: Peak Signal to Noise Ratio

PERFORMANCE ANALYSIS OF HAAR WAVELET-BASED BPSK OFDM SYSTEM WITH REDUCED PAPR

Sanapala Uma Maheshwara Rao, Laxmi Vandana, Jayalaxmi Anem

AITAM,E.C.E Department, Tekkali, Andhra Pradesh, India

Abstract:

Orthogonal frequency division multiplexing (OFDM) is the most popular modulation technique in modern wireless communication systems. Even though there are many advantages of OFDM, it has two main drawbacks: High peak-to-average power ratio (PAPR) and frequency offset. In this paper the issue of PAPR in OFDM is discussed. Due to the large number of subcarriers used, OFDM systems have a large dynamic signal range with a very high peak-to-average-power ratio (PAPR) which makes OFDM sensitive to nonlinear effects. This paper proposes a novel Haar-Wavelet based BPSK OFDM system. The Haar Wavelet transformation decomposes the data symbol sequence like half of the data symbols are zeros and the rest are $\sqrt{2}$ or $-\sqrt{2}$ and we can have the PAPR reduced by 3dB at most, compared with the conventional OFDM system. In this paper we propose a novel decoding algorithm for the proposed OFDM system, derive the bit error rate performance in theory. We compare cumulative distribution function for PAPR for the proposed OFDM v/s conventional OFDM and finally we compare the BER performance of our proposed OFDM system with the conventional one.

SATELLITE CLOCK ERROR AND ORBITAL SOLUTION ERROR ESTIMATION FOR PRECISE NAVIGATION APPLICATIONS

MNVS Santosh Kumar Aditya Institute of Technology and Management, E.C.E Department, Tekkali, Andhra Pradesh, India

Abstract:

Global Positioning System (GPS) is a satellite-based navigation system that provides a three-dimensional user position (x,y,z), velocity and time anywhere on or above the earth surface. The satellite-based position accuracy is affected by several factors such as satellite clock error, propagation path delays and receiver noise due to which the GPS does not meet the requirements of critical navigation applications such as missile navigation and category I/II/III aircraft landings. This paper emphasizes on modelling the satellite clock error and orbital solution (satellite position) error considering the signal emission time. The transmission time sent by each satellite in broadcast ephemerides is not accurate. This has to be corrected in order to obtain correct satellite position and in turn a precise receiver position. Signal transmission time or broadcast time from satellite antenna phase center is computed at the receiver using several parameters such as signal reception time, propagation time, pseudorange observed and satellite clock error correction parameters. This corrected time of transmission and broadcast orbital parameters are used for estimation of the orbital solution. The estimated orbital solution was validated with the precise ephemerides which are estimated by Jet Propulsion Laboratory (JPL), USA. The errors are estimated for a typical day data collected on 11th March 2011 from dual

frequency GPS receiver located at Department of Electronics and Communication Engineering, Andhra University College of Engineering, Visakhapatnam (17.73˚N/83.319˚E). KEYWORDS Satellite Clock Error; Satellite Clock Offset; Orbital Solution; Broadcast Ephemerides

Generalization Of Windows Using Discrete Fractional Fourier Transform

P.V.Muralidhar, T.Viswanadham, K.Krishnamraju, and Dr.S.K.Nayak

Abstract:

Generalization of Spectral Parameters like MSLA,HBW,SLFOR of windows like Rectangle, Hanning, Bohman etc is proposed, with help of FrFT based Boxcar window and FrFT based Kaiser Window connection with Al-alouli operator.

Keywords:Fractional Fourier transform, Dirichlet window, Kaiser Window

DESIGN AND ANALYSIS OF ARRAY WEIGHTED WIDEBAND ANTENNA USING FRFT

Adari Satya Srinivasa Rao Department of ECE, Aditya Institute of Technology and Management, India

Abstract:

The beamwidth of a linear array depends on number of elements in the array and frequency of the input signal. The main requirement of wideband beamformer is, the main beam pattern should be constant even there is a change in input signal frequency. Various methods were proposed in literature, one method is called elemental lowpass filtering designed by using Finite Impulse Response (FIR) digital filters. In this paper, the elemental lowpass filtering method was implemented using Fractional Fourier Transform (FRFT) and performance analysis was carried out with array weighting. .

Keywords: Antenna array, wideband antenna, FRFT, array weighting.

ADAPTIVE HISTOGRAM AND INTER CHANNEL CORRELATION BASED VIDEO ENHANCEMENT

V.Lokesh Raju Department of ECE, Aditya Institute of Technology and Management

Abstract:

In this paper we proposed a new algorithm for enhancing the video file by using an inter channel selection method. In this method we have selected only one channel called luminance channel of the total frame to obtain the human visual range of the particular frame. For the efficient enhancement of the videos we have chosen the conversion method from color image to LAB color space. Finally for the contrast enhancement process an efficient and accurate method called adaptive histogram equalization was proposed. The experiment results shows that our method

can efficiently enhance all the video frames and the resultant reconstructed video is much more enhanced than the input video.

Keywords: video frames, indexed image, LAB color space, adaptive histogram equalization.

SECURE COMMUNICATION IN LOW SNR REGIME OVER FADING CHANNELS IN MIMO

K. V. Lalitha Bhavani Department of ECE, Aditya Institute of Technology and Management

Abstract:

In this work we consider MIMO fading channels and characterize the reliability function in the low-SNR regime as a function of the number of transmit and receive antennas. For the case when the fading matrix H has independent entries, we show that the number of transmit antennas plays a key role in reducing the perkiness in the input signal required to achieve the optimal error exponent for a given communication rate. Further by considering a correlated channel model, we show that the maximum performance gain is achieved when the entries of the channel fading matrix are fully correlated. The results we presented in this work in the low- SNR regime can also be applied to the finite bandwidth regime.

Keywords: MIMO, Bandwidth Allocation, Fading, Low SNR

ANALYLSIS OF POLYNOMIAL WINDOWS FOR FIR FILTERS FOR BETTER SPECTRAL RESPONSE

K. Krishnam raju, A. J ayalaxmi, M. Chaitanya kumar Department of ECE, Aditya Institute of Technology and Management

Abstract:

The analysis of time-domain functions is carried out.FIR filters are designed with windowing techniques which will improve spectral response of filter. In this paper new window functions are proposed for FIR filter design using conventional windows and polynomial windows which improve spectral response of filter than existing windowing techniques in terms of RSA(Relative side lobe attenuation).

CONVOLUTION THEOREM FOR FRACTIONAL LAPLACE TRANSFORM

P. V. MURALIDHAR1 , Y. SRINIVASARAO2 & M. S. R. NAIDU3 1,3

Abstract:

A new definition of the fractional Laplace transform (FLT) is proposed as a special case of the complex canonical transform [1]. An attempt is made on the convolution of FLT. This convolution is also generalizes the conventional Laplace transform convolution

KEYWORDS: Fractional Laplace Transform. Fractional Laplace Convolution. Fractional Fourier Transform. Linear Canonical Transform

EFFECTIVE DIGITAL WATERMARKING APPROCH USING COMBINED DWT-DCT

V.Ashok Kumar, P.Sirish Kumar Department of ECE, Aditya Institute of Technology and Management

Abstract:

In this paper, an effective digital image water marking algorithm based on combined Discrete Wavelet and Discrete Cosine Transform (DWT-DCT) is proposed. The proposed system provides imperceptibility and higher effective against common signal processing. A binary water marked image is embedded in certain sub bands of a 3-level DWT transformed coefficients of a host image. Then DCT Coefficients of each selected DWT sub band is computed. A randomly generated two- dimensional key is used to encrypt the watermark this 2D Key Is used to encrypt the watermark. This 2D-key provides security to the image and ownership copyrights. The PN-sequence of encrypted watermark bits are embedded in coefficients of the corresponding DCT middle frequencies providing higher security. In extraction stage the same approach as that of the embedding process used extract the DCT middle frequencies of each sub band. Finally co-relation between midband coefficients and PN-Sequences is calculated to determine watermark bit which again post processed by the two dimensional key generated to drive the actual watermark. Proposed watermarking approach is superior over existing techniques in terms of PSNR and NCC.

MODELING, SIMULATION AND CAPACITY ANALYSIS OF SPATIALLY CORRELATED CHANNEL IN MIMO SYSTEM

P.Sirish Kumar Department of ECE, Aditya Institute of Technology and Management

Abstract:

Future wireless communication systems will utilize the spatial properties of the wireless channel to improve the spectral efficiency and thus increase capacity. Due to the unpredictable nature of the wireless channel, a common approach is to model its effects statistically. These models are partly based on some bulk parameters that describe the characteristics of the channel over larger areas of several wavelengths. Such parameters include shadow fading, angle spread, and delay spread, etc

NOISE REMOVAL IN CARDIAC SIGNAL BY SHADOW DIGITAL FILTERS

A.S.Srinivasa Rao, P.V.Muralidhar, Venkata L N Sastry.D Department of ECE, Aditya Institute of Technology and Management

Kannada Text image, Detecting Edge and Various Edge Detection methods different artifacts which must be removed otherwise it will convey an incorrect information regarding the patients heart condition. One of the ways to eliminate ECG Artifacts is using Digital filters with shadow mechanism. We apply a specific filter which will allow only the desired signal to pass, thus the

noise will be removed efficiently. In this proposed work we calculate the signal to noise ratio of ECG signal by different shadow factors of shadow filters.

ANALYSIS CLONAL ALGORITHM BASED WINDOW USING FRACTIONAL FOURIER TRANSFORM

A.S.Srinivasa Rao, P.V.Muralidhar Department of ECE, Aditya Institute of Technology and Management

Abstract:

An Approximated Exponential Fractional Fourier Transforms (FrFT) Mathematical derivation for clonal algorithm based window is proposed. By control the parameter of FrFT, it is possible to control the Spectral parameters of above windows like Half Bandwidth (HBW), Maximum Side Lobe Attenuation(MSLA) and Side Lobe Fall Of Ratio(SLFOR).This proposed derivation is also holds good for generalization of FrFT with Fourier Transform(FT).

BER ANALYSIS OF HEAVILY LOADED DS-CDMA SYSTEM BY USING RMD/MS-MMSE DETECTION TECHNIQUE

S Umamaheswara Rao Department of ECE, Aditya Institute of Technology and Management

Abstract:

In this Paper it proposes a high efficient and low complexity Multiuser detection algorithm that is capable of achieve the optimum BER performance. It introduces a scheme receiver multiuser diversity by explaining diversity and measurements. The author proposed receiver multiuser diversity aided multistage minimum mean-square error multiuser detector under the Direct sequence code-division multiple access and space-division multiple access systems. In DS-CDMA systems both AWGN and fading channels have been considered and have been considered to analyze the performance of BER in either in overload or full load. Either fading or non fading channels are suitable for detection. The SIC type detector is proposed for explaining the efficiency of noise reorganization factor. The BER performance achieved by the RMD/MS-MMSE MUD converges to the optimum as the system size increases. The simulation results show the proposed scheme performs low complexity implementation and efficient Bit error performance under different systems like DS-CDMA. Keywords- MIMO, DS-CDMA, maximum likelihood, minimum mean square error, Inference cancellation, reliability, multiuser detection.

Editorial Board
Faculty

P.Kameswara Rao
L Rambabu

Students

1. D.Manohar, IV-ECE-A
2. K.Sravani, VECE-A
3. P.Gopi, IVECE-B

ADITYA

Institute of Technology and Management

Tekkali-532 201, Srikakulam Dist., AP
Tel: 0845-245666, 245266, 92466 57908
Email: info@adityatekkali.edu.in