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## Editorial

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Dr. Umesh Chandra Pati obtained BE degree in Electrical Engineering from National Institute of Technology (NIT), Rourkela, India. He received M. Tech. and PhD degrees in Electrical Engineering with specialisation in Instrumentation and Image Processing respectively from Indian Institute of Technology, Kharagpur, India. Presently, he is serving as Associate Professor in Electronics and Communication Engineering Department, NIT, Rourkela, India. His current areas of interest are Image Processing, Signal Processing, Computer Vision and Instrumentation. He has authored/edited two books and published more than 40 papers in international as well as national journals and conference proceedings. He is a member of IEEE.

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This special issue on *Electronic System* of the International Journal of Signal and Imaging Systems Engineering (IJSISE) consists of modified version of the selected papers presented at ICES 2011. This issue contains eight papers that represent the current research in diverse areas of Signal and Image processing.

In the first paper of this issue entitled “A Low Power, Low Jitter DLL Based Low Frequency (250 KHz) Clock Generator”, authors presented an on-chip clock generator of very low frequency of 250 KHz and 50% duty cycle using a Digital Delayed Locked Loop (DLL). The method was implemented under 180 nm process technology and assuming 1.8 V power supply.

The second paper entitled “A comparative analysis of power and delay optimise digital logic families for high performance system design” proposed a high performance system design methodology taking the best average delay on prime. This method is based on the commonly used logical

effort methodology, extended to the least delay to find the transistors sizing.

In the third paper entitled “Mitigation of Scintillation in FSO Using Aperture Averaging of Partially Coherent Input Gaussian Optical Beam”, the propagation characteristics of a free space optical (FSO) communication link using partially coherent Gaussian optical beam has been studied. The combined effect of partially coherent optical beam and aperture averaging at the receiver are compared in this paper for different values of the aperture widths.

The fourth paper of this issue entitled “Analysis and Design of 1GHz PLL for Fast Phase and Frequency Acquisition” designed a mixed signal phase locked loop for faster phase and frequency locking. In this paper, the PLL is designed and synthesised using GPDK090 library of CMOS 90 nm process in CADENCE Virtuoso Analog Design Environment and a five stage current starved voltage controlled ring oscillator is used in the PLL architecture.

The fifth paper entitled “Selection of Wavelet for Image Compression in Hybrid Coding Scheme Combining SPIHT and SOFM Based Vector Quantisation” presents a hybrid scheme combining Kohonen’s Self Organising Feature Map (SOFM) based Vector Quantisation (VQ) coding and Set Partitioning In Hierarchical Trees (SPIHT) coding for compression of images.

The sixth paper entitled “Modified Fractal Rectangular Curve Dielectric Resonator Antenna Terminated in a Bio-Medium” proposed a modified fractal rectangular curve dielectric resonator antenna (DRA) with hole/holes for 2.4 GHz WLAN band and its input and radiation characteristics compared with conventional FRC-1 DRA of same size through simulation studies using CST Microwave Studio software.

An approach for detection of QRS complex in ECG signal is proposed in the seventh paper of this issue entitled “Autocorrelation and Hilbert transform based QRS Complex detection in ECG Signal”. The algorithm is based autocorrelation and Hilbert transform method. In this paper, autocorrelation method is used to determine the duration of one cardiac cycle for a patient specific data and Hilbert transform method is applied to detect the R-peaks point in ECG signal.

The eighth paper of this issue entitled “A Genetic Algorithm based Steganography on Color Images (GASCI)” proposes a Genetic Algorithm based color image authentication/data hiding technique through steganographic approach, termed as GASCI. Genetic algorithm is used to enhance the security level.

Thus, this special issue accumulates contributions from various research domains that address Electronic Systems from different perspectives, including both theoretical and experimental points of view. We hope the readers of this issue will find new ideas and results that will advance their own work.

We extend a personal thanks to all the authors of this issue who made an effort to prepare a paper and contribute significantly for this special issue. We also thank to the reviewers of this issue for their valuable suggestions. My special thanks and gratitude will go to Editor-in-Chief of International Journal of Signal and Imaging Systems Engineering (IJSISE), Prof. Dimitrios A. Karras for his continuous support and help during the publication process. Last but not the least, we would like to thank Mrs Liz Harris for her excellent piece of works to bring out this special issue.