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Statistical Features based Optimized Technique for Copy Move Forgery Detection

Publisher: IEEE

S.B.G. Tilak Babu ; Ch Srinivasa Rao All Authors

Abstract: Copy Move Forgery Detection (CMFD) is helpful to detect copied and pasted areas in one image, it plays a crucial role in legal evidence, forensic investigation and in man... **View more**

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Abstract:

Copy Move Forgery Detection (CMFD) is helpful to detect copied and pasted areas in one image, it plays a crucial role in legal evidence, forensic investigation and in many more places. In this paper, CMFD method is proposed using Steerable Pyramid Transform (SPT), Grey Level Co-occurrence Matrix (GLCM) and Optimized Naive Bayes Classifier (ONBC). The suspected image is given to SPT to obtain different orientations, from all suspected image orientations GLCM features are extracted. These features are used to train ONBC as well as to classify ONBC. Wide range of tests conducted on CoMoFoD, MICC_F and CASIA v1.0 databases using proposed algorithm and performance is measured in terms TPR and FNR. It shows robustness over existing algorithms in the literature even the forged image has undergone many attacks.

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Contents

With the rapid advancement of image processing technologies, modifying a digital image becomes simpler even for an amateur forger with the help of some easy-to-use photo editing software, like Adobe Photoshop and Gimp. Copy Move Forgery (CMF) is one of the growing falsifications among different digital image falsifications. CMF happens in a single image, where part of the photo page is replicated and pasted in a separate location. Since the duplicates are created inside the image, the noise structure, the dynamic range, texture and so on will be appropriate in the context of the remaining portion of the picture and this will be more difficult to detect falsification. Many researchers reported on CMFD [1] [2] but they have their own limitations.

Authors

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Design and analysis of High speed wallace tree multiplier using parallel prefix adders for VLSI circuit designs

Yamini devi Ykuntam ; Katta Pavani ; Krishna Saladi All Authors

Abstract: Major operation block in any processing unit is a multiplier. There are many multiplication algorithms are proposed, by using which multiplier structure can be designed. ... **View more**

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Abstract:

Major operation block in any processing unit is a multiplier. There are many multiplication algorithms are proposed, by using which multiplier structure can be designed. Among various multiplication algorithms, Wallace tree multiplication algorithm is beneficial in terms of speed of operation. With the advancement of technology, demand for circuits with high speed and low area is increasing. In order to improve the speed of Wallace tree multiplier without degrading its area parameter, a new structure of Wallace tree multiplier is proposed in this paper. In the proposed structure, the final addition stage of partial products is performed by parallel prefix adders (PPAs). In this paper, five Wallace tree multiplier structures are proposed using Kogge stone adder, Sklansky adder, Brent Kung adder, Ladner Fischer adder and Han carlson adder. All the multiplier structures are designed using Verilog HDL in Xilinix 13.2 design suite. The proposed structures are simulated using ISIM simulator and synthesized using XST synthesizer. The proposed designs are analyzed with respect to traditional multiplier design in terms of area (No. of LUTs) and delay (ns).

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Contents

At present, the technology is advancing very rapidly in very short duration of time. The circuits being design have some billions of components with low area, high speed and low power consumption. Hence area, speed and power plays crucial role in the design of any circuit [1], [2]. In order to satisfy the current trend demand a circuit must be designed with low area and less delay constraints. Arithmetic units are major blocks in any processing units which perform various arithmetic operations [3]. Multiplication operation is important among all arithmetic operations. Several multiplication algorithms are studied in literature survey of multiplier designs like Binary multiplier, array multiplier, Booth's multiplier, Dadda multiplier, Wallace tree multiplier [4]. Wallace tree multiplier is advantageous in different types of multipliers[5].

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Renewable Source DCMicrogrid Connected BLDC Water Pumping System with Adaptive Control Techniques

Publisher: IEEE Cite This PDF

B. Rajani ; K Bapayya Naidu All Authors

Abstract: Microgrid the multiple renewable sources like PVA, battery, supercapacitors, connected DC microgrid system operating a BLDC motor with the application for pumping water i... **View more**

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Abstract:

Microgrid the multiple renewable sources like PVA, battery, supercapacitors, connected DC microgrid system operating a BLDC motor with the application for pumping water is proposed. The PVA integrated DC-DC converter is controlled by different control techniques which include conventional PI controller compared to fuzzy and ANFIS control modules. A comparison of peak value generation at DC link voltage along with BLDC motor speed comparison with different controllers is observed in this paper. The proposed model is modeled in MATLAB Simulink environment with time-domain analysis using 'powergui' toolbox with graphs compared for different controllers.

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Contents

I. Introduction

In future generations, there will be a large shift of power generation from non-renewable sources (like diesel generators, coal plants) to renewable sources (like PVA, wind farms, biogas) for clean and green power generation to reduce global warming. The utilization of renewable sources [1] in parallel is a greater challenge as the power generated by these sources are different types (AC or DC) and also are variable for ambient and environmental changes. This makes it difficult to stabilize the power output from these sources and more difficult to make them operate in parallel with power-sharing. To do these different types of power electronic converters are used interconnecting the source and grid to Point of Common Coupling (PCC). The converters may include AC-DC or DCDC or DC-AC converters [4] depending on the type of grid considered. For our analysis, a DC microgrid is considered with PVA, battery and supercapacitor [8] as renewable sources to operate a BLDC motor used for water pumping application. microgrid In older technologies, AC microgrid is utilized which includes grid interconnection. The renewable sources connected to AC microgrid share power along with the conventional source for reliable power-sharing and support to the load in any environmental conditions. The AC microgrid includes many power electronic converters to make the sources operate in synchronization with the grid. These converters need complex control structures with feedback from the grid voltage and current. This increases the losses in the system increases the complexity of the modules, and reduces of the complete system Figure 1 depicts an AC microgrid with multiple renewable sources connected in parallel with the grid.

Authors

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Construction of small twin reverberation chamber for measurement of sound transmission loss

Authors: Ch V S N, Reddi [1]; B Somi, Naidu [2];
Source: INTER-NOISE and NOISE-CON Congress and Conference Proceedings, InterNoise20, Seoul, Korea, pages 990-1987, pp. 1506-1517(12)
Publisher: Institute of Noise Control Engineering

Abstract | References | Citations | Supplementary Data | Suggestions

Acoustics has become fundamental in daily life of human beings. There is increasing in demand for ambient noise control. Hence, there is lot of research marketed in producing good sound absorbing materials meeting to the needs. But, the testing setup for acoustic material property determination is distantly located and costlier in several instances. There is great deal of adequacy to build testing chambers with less space and cost. The present work is intended to build a low cost reverberation chamber for measurement of sound transmission loss coefficient (STC). It consists of two 5 m3 small chambers with base and ceiling in pentagonal shape and inclined to each other. All the walls of both the chambers are constructed in such a way that no two walls are parallel to each other and fully reflective. This is to ensure complete sound diffusivity inside both the chambers. The corners of the chambers are sealed with acoustic sealant and wall panels are separated using neoprene rubber sheets to avoid any air leaks. The chambers are isolated from the ground using nylon wheels to avoid ground vibration transmissions. The chambers are made up of teak wood frames and are treated with glass wool of density 50kg/m and 50 mm thick and covered with plywood sheets which acts like walls. The outer layer of the plywood sheet is covered with fully reflective acrylic sheet. In order to ensure the correctness of measurements as per ASTM E90, Sound diffusivity measurement, Reverberation time measurement as per ASTM C423, Field transmission loss measurement as per ASTM E336 and flanking transmission loss measurement are performed. Measurements made using the twin reverberation chamber adhere to ISO 10140-2:2010 and ISO 101420-4:2010. Samples of size 2' x 2' for various thickness can be tested using the chambers. From the microphones data and using Sabine's equation the sound absorption coefficient is determined. The sound transmission loss coefficient is determined as per ASTM E90 procedure. The results from the constructed reverberation chamber are verified with standard samples.

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INCE Conference Proceedings

Experimental investigation on performance of composite acoustic cement panel using recycled SMB waste

Authors: S R Viswanath, Mantha [1]; Sharnappa, Joladarashi [1]; Reddi, Ch V S N [2]; S R Viswanath, Mantha [3];
Source: INTER-NOISE and NOISE-CON Congress and Conference Proceedings, InterNoise20, Seoul, Korea, pages 1-989, pp. 64-79(16)
Publisher: Institute of Noise Control Engineering

Recycling of E-waste is most viable and sustainable solution for handling environmental pollution which is a major requirement. Surface mounted boards (SMB) comprises of various materials such as Metals and Nonmetals. These boards are considered for E-waste study and this waste after crushing and sieving is used as a partial replacement of sand in cement and fly ash brick manufacturing. In which, sieved surface mounted boards waste in different percentages ranging from 0% ,5%,10%,20% & 25% is used as replacement of sand. Along with these, 3% polypropylene is also used to enhance the compressive strength by maintaining mixture ratio of 1:3 (cement: sand). Compressive strength after 28 days is measured and noticed that addition of 3% polypropylene resulted in increase of compressive strength in the compositions of 0% & 5% SMB sieve but in later compositions its effect is not much seen. Sound absorption coefficient is measured for these samples using two microphone impedance tube test-setup with plane wave excitation as per ISO 10534:2 to determine acoustics properties.

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A detailed review study on acoustic Meta-materials: acoustic cloak

Authors: Naidu, V Simhachalam [1]; Saheb, K Meera [1]; Reddi, Ch V S N [2];
Source: INTER-NOISE and NOISE-CON Congress and Conference Proceedings, InterNoise20, Seoul, Korea, pages 1-989, pp. 288-294(7)
Publisher: Institute of Noise Control Engineering

Meta-materials designed purposefully to reduce broad band noise which is not attainable by natural materials. Basically these are artificial materials. These materials definition is not specific. These exhibit properties which are not available in constituent materials. Properties are derived from physical structure not from their chemistry. Sometimes these are perceived as composites purposefully designed to reduce noise. Existing techniques are filtering, dampening using resonators, muffling can only control certain range of frequencies of broad band i.e. 20Hz-20 KHz but where as in case of Meta materials these can control any range of frequency because of their peculiar property. Performance of existing techniques is low also. Design and development of meta materials is the current work which focus on making different physical structures of specific material and testing for noise level reduction. Iterating on different structures of same material is the concept of Meta material. These materials have now overturned in all views of conventional aspects of sound propagation and manipulation. Performance of cavity acoustics used for broad band noise reduction is to be improved and innovation is required to do such work. Meta materials can be the replacement for the need. These materials can considerably reduce noise with same weight of material which is used in existing technique. Design of Meta material include repeating regular physical structure pattern for the whole component. When sound waves pass through specific structural pattern different frequencies are absorbed which is covering whole range. Where as in case of regular techniques only specific frequency is absorbed. In case of development of Meta material different manufacturing techniques are adopted such as moulding, proto typing etc.

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Comparative Study on Sound Absorption Coefficient of Various Jute Composite Materials

Authors: Naidu, B Somi [1]; Pitchaimani, Jeyaraj [1]; Chintapalli, V S N Reddl [2]; Naidu, B Somi [3];
Source: INTER-NOISE and NOISE-CON Congress and Conference Proceedings, InterNoise20, Seoul, Korea, pages 1-989, pp. 434-449(16)
Publisher: Institute of Noise Control Engineering

Abstract | References | Citations | Supplementary Data | Suggestions

Natural fibre composites are getting attention in noise reduction applications replacing conventional materials. They are being used in passive noise control in which jute is showing its prominence. Though conventional sound absorbing materials are used for passive control, they can be replaced by natural fibres as they are abundantly available and are in expensive. The present work is to test samples prepared from various jute materials with epoxy resin as bonding agent. Jute materials used for study are jute mats 190GSM, 420GSM and felt woven jute composite. Plain jute mat samples are designated as JM composites and samples prepared in combination of jute mat and felt woven jute are designated as JMW. The sound absorbing coefficient study is carried out experimentally using two microphone impedance tube test set up as per ISO 10534-2. Sound absorption comparative studies are carried out on perforated samples and sandwiched samples with air partition. It is observed that layered felt woven jute composites are having higher sound absorption coefficient than jute mat composites when several combinations of these are analysed. This might be due to felt woven jute composites are having lesser density. Maximum noise reduction coefficient of 0.97 at 1250 Hz and 0.96 at 622 Hz 1/3rd octave band frequency is obtained for 190GSM and 420GSM layered felt woven jute composites respectively. The highest NRC recorded among other samples prepared to improve sound absorption coefficient is found to be 0.93 at 922Hz 1/3rd octave band frequency with 10mm air gap and without perforations. The above value recorded for the sample of thickness 20mm, which is prepared with 190HSM jute mat and felt woven jute. A comparison is also established between composite samples and glass wool for thickness of 50mm. In comparison between 190GSM and 420GSM samples, it is advisable to choose 420GSM samples. 420GSM samples are having better bonding and are performing well in low frequency band.

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Enhancing noise control in an acoustic cavity using mis-tuned embedded Resonators and Quarter wave tubes

Authors: Reddi, Chintapalli V S N [1]; Anusha, Palla [2];
Source: INTER-NOISE and NOISE-CON Congress and Conference Proceedings, InterNoise20, Seoul, Korea, pages 990-1987, pp. 1495-1505(11)
Publisher: Institute of Noise Control Engineering

Helmholtz resonators (HRs) and Quarter wave tubes are used in acoustic cavities for low frequency noise reduction. The focus of this paper is to enhance the noise control inside an acoustic cavity using mis-tuned resonators and quarter wave tubes. A non-parallel pentagonal room with rigid wall boundary is considered as acoustic cavity. The acoustic cavity mode frequencies and detuned modes of the resonator and quarter wave tube are calculated using 3D finite element method using commercial software ANSYS and few results are validated using experiments. The analysis is carried out by coupling each of the resonators and tubes to fundamental cavity mode and its split mode, higher order modes of acoustic cavity and their split modes. Similarly, to higher amplitude modes and their split modes. Later, a combination of resonators and tubes tuned to low and medium frequencies are embedded in polyurethane foam and are analysed by coupling to the acoustic cavity . The results shows that the amount of noise reduction inside the coupled acoustic cavity is more when multiple resonators and quarter wave tubes which are tuned to various higher amplitude modes of cavity and their split modes. The noise reduction further enhanced when these are embedded inside PU foam. The analysis also shows the amount of noise reduction inside acoustic cavity depends on the coupling of several of these components tuned to various higher amplitude cavity and split mode frequencies. This study provided a solution to the suppression of split mode frequencies, an unwanted noise that is generated in resonator coupling. The results are verified over various cavity geometries and few are validated using experiments.

Document Type: Research Article

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A Robust Feature Based Approach for Bare-Hand Detection under Practical Non-Ideal Conditions

Songhita Misra ; K. V. Paluri ; R. H. Laskar All Authors

Abstract: Due to easy detection of contact based devices, color-markers or 3D cameras, state-of-art gesture models mostly employs them to make the gesture. Yet, their lack of user-... **View more**

Metadata

Abstract:

Due to easy detection of contact based devices, color-markers or 3D cameras, state-of-art gesture models mostly employs them to make the gesture. Yet, their lack of user-friendliness limits their use in practical scenarios. Use of barehand to make a gesture, however, comes naturally to the user. However, computer-vision based bare-hand detection is a challenging task, affected by multiple environmental factors. Feature based object detection techniques are easy and robust solution to detection under various non-ideal conditions. In this study, an extensive comprehensive study is carried between two purely spectral (color) features and fourteen color-texture features. Models are developed and compared for different image sizes. The Classification models are developed using Naive Bayes classifier (Probabilistic view), Euclidean distance and Chebyshev distance models (Proximity view) and Real AdaBoost classifier. Experimental results showed that only 2 out of the 16 proposed features has performance less than 90% for hand detection under noisy conditions.

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Contents

Human visual system can easily classify objects even after huge intra-class variability and other external variability (presence of car in a crowded place irrespective of its view point change w.r.t. camera). Present work focuses in the development of a feature based system which can provide human vision to computers for detecting bare hand amidst above mentioned environmental and intra-class variations. Vision based systems are evolving as the burning topic of research due to their easiness, lesser computational complexity, and minimal cost. Singha and Laskar in [1], Singha et al. [2], and Misra et al. [3] have developed vision based systems using color-marker as the gesturing device. Correct detection of color-markers are affected by the presence of any imposter markers in the background of the video. Singha et al. [4] have also developed a bare-hand based gesture recognition system, where skin filtering methods and motion detection (three frame differencing) are integrated together to detect the barehand. The three frame differencing is motivated from two frame differencing process used in [5] for hand tracking, assuming that the background is static. The factors which effects the 2D detection of bare-hand are, lack of depth information, human hand shape that creates large within-class variation, skin color variation, uneven lightening, complex background, and occlusion. For initial motivation, 400 test images are fed in system [4] to observe its efficiency. The images are corrupted by positional variation, uneven illumination, and complex background. The experimental analysis showed that the integrated skin-filtering method is not adequate to handle the nonideal conditions and therefore failed detect hands corrupted with uneven illumination, change in appearance, etc. Some of the falsely detected hands using system [4] is shown in Fig. 1. box shows the detected hand and red lines shows the actual hand to be detected. Fig. 1.

Failure of existing system [4] in detecting hands. (a) Hand is under ideal condition. (b), (c), (d), (e), (f) shows hands affected by variations such as positions, illumination, rotation, scale, and complex background, respectively. Yellow bounding

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Laboratory Investigation of Photovoltaic Panel Performance Under the Shaded Condition

Abhishek Kumar Tripathi ; Mangalpady Aruna ; Shashwati Ray ; Satyajeet Parida All Authors

Abstract: The most encouraging use of solar energy is its conversion into electrical energy by using solar photovoltaic (PV) panel. The performance of solar-based PV panel is undou... **View more**

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Abstract:

The most encouraging use of solar energy is its conversion into electrical energy by using solar photovoltaic (PV) panel. The performance of solar-based PV panel is undoubtedly influenced by the quantity of solar radiation, which is reaching on the panel surface. The occurrence of shading over the panel surface is a vital environmental phenomenon which affects the penetration of solar radiation to reach the overall surface area of photovoltaic cells. The shading on PV panels may happen due to trees, the formation of mists, accumulation of dirt elements on the panel surface, close by long-standing structures, shadows of different panels in its region, neighbouring structures and so on. This paper is mainly focused on the study of shading impact on the panel performance. Further, this paper also observed the influence of shading on the variation of surface temperature of the PV panel. The present study shown a significant reduction of 41.40% in the maximum power output (Pmax) of the panel due to 25% shading strength of the single cell in the panel. Moreover, it was also observed that the increase in the percentage shading strength over the panel surface shifts the maximum power point (MPP), of the panel characteristics, towards the lower output voltage, which affects the effective operation of the charge controller. Further, it was seen that the shading impact degrades the performance of the panel as well as in charge of the rise of the surface temperature of the panel. In the present investigation, it was

observed that the temperature of the unshaded cell rises at the rate of 1.753%, due to the shading phenomena over the panel surface.

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Contents

Due to continuous growth in the population and energy demand, it is necessary to find alternate ways of energy generation. In this regard, solar energy (alternative source of energy) could play a vital role. The usage of this alternative energy is capable of reducing the carbon foot print and as a result of this the environmental pollution can be minimized. The usage of solar energy for the generation of electric power not only reduce the carbon footprint but also helps in providing the electric power at remote location. Solar energy is the energy which is coming from the sun in the form of light and heat [1]. In the solar energy system, the conversion of solar power into electrical power is possible with the help of photovoltaic panels. The PV panels are typically made up of silicon semiconductors [2]. Photovoltaic is a technology in which the light energy (in the form of sunlight) is converted into electrical energy. In this technology, whenever the sunlight falls on the cell surface, it excites the electrons of the valence band and these excited electron leaves the valence band in order to enter in the conduction band [3]. Due to this the generation of hole in the valence band occurs and as a result of this photo current starts flowing in the circuit [4]. This generated photo (electric) current by photovoltaic effect is strongly dependent on the incoming solar radiation.

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Laboratory Investigation on the Impact of Coal Dust Deposition on PVPanel Performance

Abhishek Kumar Tripathi[1], Sandeep Prasad[2] and Shashwati Ray[3]

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Abstract

The generation of electric power through solar photovoltaic panel is highly sensitive towards its operating environment. Dust is one of the important operating parameters which affect the performance of photovoltaic panel. The aim of this study is to understand the effect of dust mass deposition on the output power of the solar photovoltaic panel. In order to conduct this study a filed collected coal dust was used in different mass on the surface of photovoltaic panel and its output

Reconfigurable Pulse-Width Modulation Control of DC-DC Converter

Publisher: IEEE Cite This PDF

Debashish Mohapatra ; Bidyadhar Subudhi ; Subhransu Padhee All Authors

Abstract: In this paper, digital control of a DC-DC switching power converter using a Field Programmable Gate Array (FPGA) is presented. The FPGA system development is carried out ... **View more**

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Abstract:
In this paper, digital control of a DC-DC switching power converter using a Field Programmable Gate Array (FPGA) is presented. The FPGA system development is carried out using Very High-Speed Integrated Circuit Hardware Description Language (VHDL), whose parameters can be easily changed as per user requirement by editing the predefined generics in the VHDL code. The digital controller comprises of Xilinx Analog to Digital Converter(XADC) and Xilinx Microblaze soft processor core. The digital controller developed using the FPGA development board has been tested on classical synchronous buck and boost converter operating in continuous conduction mode (CCM).

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Contents

DC-DC converter finds widespread application in a variety of applications where regulated power supply is required. The traditional approach to control the DC-DC converter is to implement a proportional-integral and derivative (PID) type controller along with a pulse-width modulator (PWM) unit. The main challenges of designing a controller for power converters are (a) manage the input and output energy, (b) offer higher precision, resolution, and (c) decrease cost. The hardware implementation of the controller is most important to achieve the goals mentioned earlier. The computational power and flexibility of controllers need to be tapped to achieve the overall objectives. The most common processors used in real-time embedded control for industrial applications are ASIC, microcontrollers, DSPs, and FPGA. Each of the processors has its advantages as well as disadvantages [1]. Conventionally Application Specific Integrated Circuit (ASIC) based analog controllers were used for controlling the DC-DC converter. Though ASIC provides much higher bandwidth for a controller, there are some inherent limitations in ASIC design. The limitations are (a) a larger number of passive, active components and other associated parts, (b) poor computational ability, (c) aging of components, and component performance are dependent on temperature and (d) difficult to reconfigure. To counter these limitations of ASIC based implementation, power electronics design professionals are adopting digital controllers. The digital controller is of an obvious choice because of several features such as lower power consumption, immune to any variation in analog components, and aging of components, reprogrammable, and compact size [2]. Digital controllers are often built using software programmed microprocessor units. In this approach, the processor executes a series of instructions to perform the desired computation. The main feature of the software-based approach is that logic computation can be changed without changing the hardware. The limitation of such an approach is the clock speed of the processor. Reconfigurable computation fills the gap between ASIC based approach and software-based approach by providing a higher degree of flexibility in both hardware as well as software level. In Ref. [3], the authors have outlined the comparison of the implementation of PID controllers using FPGA based multiprocessor system-on-chip (MPSOC) and multi-core microcontrollers (MCUs). The processors are used to develop hardware-in-loop (HIL) simulations. The digital controller improves the dynamic response of the DC-DC converter. Using a digital controller, different adaptive and soft-computing based controllers can be implemented, which further improves the steady-state as well as transient state response of the converter [4]–[7]. One of the widely used reconfigurable devices is a field-programmable gate array (FPGA). FPGA fabric contains three major components, such as combinational logic, interconnect, and I/O pins [8]. FPGA based design provides many advantages over hardware and software-based approaches such as higher

Real-Time Data Acquisition, Measurement and Monitoring Module for Electric Power Network

Publisher: IEEE

Debashish Mohapatra ; Bidyadhar Subudhi ; Pravat Ray ; Subhransu Padhee All Authors

Abstract: This paper provides a step by step design and implementation details to acquire, measure, and monitor different parameters (voltage, voltage phasor, frequency, rate of ch... **View more**

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Abstract:

This paper provides a step by step design and implementation details to acquire, measure, and monitor different parameters (voltage, voltage phasor, frequency, rate of change of frequency (ROCOF)) of an electric power network. A prototype setup has been developed, and it has been tested in real-time, both in steady-state as well as the transient state. The voltage phasors are calculated using a 64-point discrete Fourier transform (DFT), and the mean square error (MSE) of the voltage phasors are low. Low-cost microcontroller and open-source software platforms have been used to develop this prototype.

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Contents

Synchronized phasor measurement units (PMU) provide current, voltage, and phase angle measurements of an extensive power system synchronized with time (μs accuracy). The timestamped information on the phase is called synchrophasor. The time synchronization is made possible with the advent of global positioning system (GPS) and sampled-data processing techniques. The data of different PMUs are transmitted to a phasor data concentrator (PDC) or vector preprocessor through a high-speed communication network [1]. With rapidly developing technology, PMU technology has seen rapid progress, and several standards and calibration procedures are defined by the IEEE and National Institute of Standards and Technology (NIST) [2].

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Compact and Errorless 16-Region Error Correction Scheme for Antilogarithm Converter

Publisher: IEEE Cite This PDF

Durgesh Nandan ; Kaushal Kumar ; Jitendra Kanungo ; Ritesh Kumar Mishra All Authors

Abstract: In numerous applications, the utilization of logarithm multiplier becoming popular due to hardware efficiency and errorless design. In logarithm multiplier, an error crea... **View more**

Metadata

Abstract:

In numerous applications, the utilization of logarithm multiplier becoming popular due to hardware efficiency and errorless design. In logarithm multiplier, an error created at the time of logarithm and antilogarithm conversion. Various designs for error correction circuits are available in the market which promises to make antilogarithm conversion efficient but there is scope to make it accurate and fast. In this article, we proposed the compact and errorless 16-region error correction scheme for antilogarithm converter which gives better results in terms of hardware overhead as well as accuracy as compared to the reported literature. By using the proposed method, it makes logarithm multiplier efficient, more accurate and more use full for signal, image and speech processing applications.

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Contents

I. Introduction

All of the computer arithmetic, multiplier design is the most demanding and area thirsty research area [1]. Due to that reason, a lot of research happens to make multipliers more accurate and efficient. In the last decades, the logarithm-based multiplier has gained significant attention for compact and accurate hardware architecture of Digital Signal Processing (DSP), Field Programmable Gate Array (FPGA) mapping of speech processing algorithm, Image processing, and Machine learning algorithms [2]–[4]. When, around us, we look to observe that in daily life the electronic gadgets like signal processing devices, embedded and Internet on Things (IoT) devices are essential parts. All battery and power operated hand-held portable devices which are used in our day to day life requires efficient, errorless and low power arithmetic operations [1]–[11]. As it is a well-known fact that real-time signal processing applications required efficient and accurate hardware architecture to perform well. At filtering operations mainly arithmetic calculations are to be performed. Out of all arithmetic components, multiplication consumes 60% hardware and power approximately. A lot of research efforts have been directed in the past 60 years to design an efficient and accurate multiplier according to product requirements. Especially, FIR, FFT and DCT techniques want an efficient multiplier design for performing well. But the multiplication process has always area thirsty. Logarithm operation provides the solution to this problem. A simple pictorial representation of logarithmic based multiplication is represented in Figure 1. It shows that logarithm-based multiplications can be performed by using three steps. At first binary inputs, get converted into logarithm by using Binary to Logarithm (B to L) converter. In the second step, all logarithm value gets added by using standard arithmetic. At last, added logarithm value gets converted into the binary value by using Logarithm to Binary (B to L) converter also known as antilogarithm converter. Many researchers proposed many methods regarding the logarithmic and antilogarithmic conversions in recent years. The way of implementing logarithmic and antilogarithmic converters mainly decides the hardware architecture, accuracy, and performance [12]–[14]. So, an efficient and accurate binary to logarithmic and vice-versa converter need to make arithmetic operation speedy with

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PAPER • OPEN ACCESS

Coordinate Access System for Live Video Acquisition

B. Annapurna[1], T Rama Reddy[2], Ch. V. Raghavendran[3], Raushan Kumar Singh[4] and Vedurai Veera Prasad[5]

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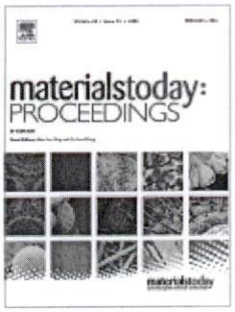
Abstract

Biometric systems are the most advanced access technology developed so far in the 21st century. It does not even require to carry key cards or passwords in mind. Today most of the commercial and private entries are protected by biometric recognition systems like fingerprint scans facial



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Electronic applications of multi-walled carbon nanotubes in polymers: A short review

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Abstract

In today's nano scale regime, a smart electronic device is attractive and has a primary role for majority of the world's research community, particularly scientific and engineering community. Quasi one-dimensional carbon materials are an ideal material for flexible and wearable electronic applications. Significant progress has been made in developing electronics using carbon-based polymer composites. The incorporation of micro-materials and carbon nanomaterials in polymer has been attempted since the 1990s and has shown a number of improved properties. In this review, the performance of the polymer composite with nanophase carbon materials is explored and their applications are discussed. In recent years, a wide range of carbon nanomaterials are used to transmit electrical signals for potential applications such as electronics, chemical sensors, mechanical sensors/actuators, and smart materials. Moreover, we have also discussed carbon-based materials, especially multi-walled carbon nanotubes, that are applied on a substrate using some printing technology for flexible electronics, and the progress of CNT-based RF antenna, textile, electromagnetic and interference shielding, and sensor applications has been reported.

Keywords

Multi-walled carbon nanotubes; Electromagnetic and interference shielding; CNT-based RF antenna; Textile; Sensor applications

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Creep rupture in carbon nanotube-based viscoplastic nanocomposites

2022, International Journal of Plasticity

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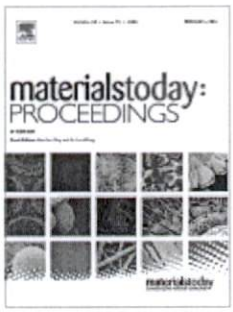

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Materials Today: Proceedings
Volume 27, Part 2, 2020, Pages 1733-1737

Study of microstructure and mechanical properties of aluminium alloy (AA-6351-T6) using friction stir welding

Pramod Kumar [a, d], Rajesh Kumar [b], Bidesh Kumar Hembram [c], M. Murugan [a], Abdul Arif [a], M. Veerababu [a]

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Abstract

The current study investigates the effect of welding speed on the mechanical and microstructural properties in similar friction stir welding of Aluminium Alloy (AA-6351-T6). The contribution of intense plastic deformation and high-temperature exposure within the stirred zone during friction stir welding results in recrystallization and development of texture within the stirred zone and precipitate dissolution and coarsening within and around the stirred zone. Based on micro-structural characterization of grains and precipitates, three distinct zones, stirred (nugget) zone, thermo-mechanically affected zone (TMAZ), and heat-affected zone (HAZ).The micro-structural changes in various zones have significant effect on post weld mechanical properties.

Keywords

FSW; Recrystallization; Thermo-mechanically affected Zone; Microhardness; Heat affected Zone; Tensile strength

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The Influence of Keyhole Dynamic Behaviors on the Asymmetry Characteristics of Weld During Dissimilar Materials Laser Keyhole Welding by Experimental and Numerical Simulation Method

2022, SSRN

Numerical investigation of residual stresses in circumferential and longitudinal welded joints

2022, International Journal of Advanced Technology and Engineering Exploration

Numerical analysis of weld bead formation process in the dissimilar material fiber laser welding

2021, Journal of Laser Applications

Experimental and numerical analysis on TIG arc welding of stainless steel using RSM approach

2021, Metals

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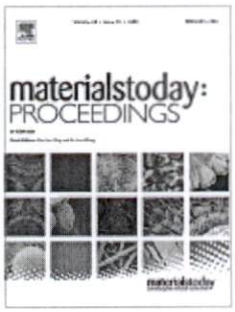

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Investigation of numerical modelling of TIG welding of austenitic stainless steel (304L)

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Abstract

Welding is one of the most commonly joining processes used in industry at widespread. Austenitic stainless steel are application in fabrication pressure vessels. Thin sheets of 304L can be welded by pulsed Tungsten Inert Gas (TIG) joining process. The current study investigates the numerical modelling of pulsed TIG welding of austenitic stainless steel using ANSY APDL. Double ellipsoidal heat source have been used for modelling the pulsed TIG welding. The objective of the present investigation is to study the effect of varying welding current on the temperature distribution curve. Temperature profile affects the microstructure, mechanical properties and the residual stresses developed in the welded joint during TIG welding. It has been observed that the peak temperature increases with increasing welding current.

Keywords

TIG welding; Welding current; 304L; Temperature distribution; FEM, peak temperature

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Rapid slurry formation technique as a possible route to produce aluminium based self- healing alloy

2021, Materials Today: Proceedings

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Design and Reliability Study on Fixture for Normal and Underwater Friction Stir Welding

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Third International Conference on Computing and Network Communications (CoCoNet'19)

Efficient Hardware of RGB to Gray Conversion Realized on FPGA and ASIC

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[b]Aditya Engineering College, Surampalem, AP, India

Abstract

RGB to gray conversion is an integral part of various computer vision applications such as face detection, object detection and surveillance systems. The resource required for the real time implementation of all these applications decreases to a great extent if computation is performed on gray images, which has 8 bit wide pixel, rather than color images, which has 24 bit wide pixel. In this paper, hardware efficient implementation of RGB to gray image is proposed which is realized on both FPGA and ASIC. FPGA realization is performed on digilent Zedboard having Artix-7 FPGA while the ASIC implementation is performed using Cadence Genus and Innovus tool at 45 nm process technology. ASIC implementation of proposed technique brings about total area utilization of 262 um^2 and ADP of 18.078 $um^2 * ns$ which are respectively 81.42% and 96.55% less contrasted with existing design. The proposed system is seen to operate at high frequency of 3 GHz.

Keywords: ASIC; Computer Vision; FPGA; Gray; Image Processing; RGB

1. Introduction

Image processing plays an important role in various computer vision applications such as remote sensing, surveillance systems, biomedical imaging, object detection, and its localization [1]-[9]. Real-time images are usually composed of three primary colors, i.e., red, green, and blue, popularly known as RGB. Other colors are produced by combining red, green, and blue colors. In various image processing applications, various processings are required to conduct on each pixel. It is not feasible to process RGB pixels because of the high computation complexity and storage requirement. To overcome such issues, the RGB images are first converted into gray images, and then the required processing is carried out. Gray image is a monochrome image consisting of only brightness information. Figure 1 provides a general block diagram of steps involved in the implementation of various computer vision ap-

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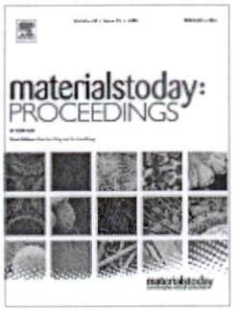
10.1016/j.procs.2020.04.215



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Materials Today: Proceedings
Volume 43, Part 2, 2021, Pages 1819-1824

Biologically synthesized silver nanoparticles from shorea robusta L. plant and associated antibacterial property

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Abstract

Extracts from plants were lately utilized for nano particles green synthesis as they abundantly possess bioactive compounds. These compounds possess nano particles (NP's) due to reduction of the metal ions in a one step green synthesis technique. The present study substantiates for the first time of the facility of Shorea robusta plant parts (leaf and stem) extracts grown under in vitro condition for the biosynthesis of silver nanoparticles (AgNP's). At 472 nm for leaf and 441 for stem of the surface plasmon resonance were found and confirmed the formation of AgNP's. Moreover, SEM images showed that nanoparticles had spherical morphology. Furthermore, particles crystalline nature confirmed by X-ray diffraction studies, possible biomolecules responsible in

bio reduction of Ag ions by FT-IR analysis, Antibacterial attempt confirmed of biosynthesized AgNP's against bacteria. Based on the results, by the plants growing under controlled conditions, it is practicable to create Np's with preferred possessions.

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Keywords

Antibacterial resistance; AgNp's; Biological synthesis; Antibacterial activity; S. robusta; Leaf extract; Stem extract

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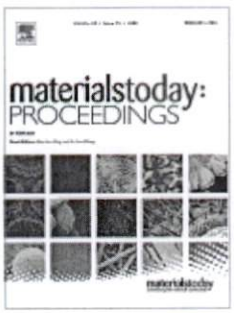

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Materials Today: Proceedings
Volume 45, Part 7, 2021, Pages 5916-5920

Evaluation of solar PV panel performance under humid atmosphere

Abhishek Kumar Tripathi [a] ✉, Shashwati Ray [b], Mangalpady Aruna [c], Sandeep Prasad [d]

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https://doi.org/10.1016/j.matpr.2020.08.775

Abstract

The main aim of this paper is to study the effects of humidity on the PV panel. In this paper, the panel performance was studied in the laboratory under varied humid atmosphere. The PV performance parameters were computed by measuring its output voltage and current, amount of solar radiation incident on the panel's surface and its surface temperature by varying humidity levels artificially in the laboratory. From the studies it was observed that with rising humidity levels, solar insolation and panel power output decrease. With an increment of 50.15% in the humidity level, the panel power output reduces by 34.22%. Moreover, it was found that due to the increase in humidity from 65.40% to 98.20% the panel temperature got lowered by 11.40%.

Keywords

Humidity; Output power; Solar radiation; PV panel; Temperature

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Multi-criteria decision-making approach for the selection of cleaning method of solar PV panels in United Arab Emirates based on sustainability perspective

2022, International Journal of Low-Carbon Technologies

A Review on Factors Influencing the Mismatch Losses in Solar Photovoltaic System

2022, International Journal of Photoenergy

Numerical Assessment of the Effects of Rooftop PVs on Ambient Air Temperature

2021, Advances in Intelligent Systems and Computing

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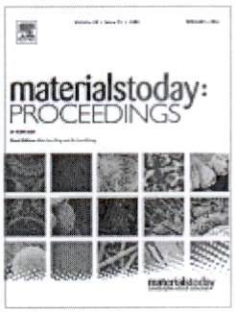

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Materials Today: Proceedings
Volume 37, Part 2, 2021, Pages 2483-2489

Identification of double transmission line shunt faults by using combined DWT and interval type-2 fuzzy logic for digital distance protection

K. Rambabu, K. Bapayya Naidu

Department of Electrical and Electronics Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh, India

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https://doi.org/10.1016/j.matpr.2020.08.297

Abstract

In this paper, a technique for unerring identification of shunt faults on a transmission line is suggested. This technique is based on discrete wavelet transforms and Interval Type-2 fuzzy logic; six line currents are taken at transmission line relay location. The validity of the recommended technique is demonstrated by simulation research using PSCAD/EMTDC. Simulations were achieved for distinctive varieties of faults thinking about extensive variations in the operating conditions. The recommended technique can identify and classify the fault within the half cycle period and the time taken by this method is less compared to conventional fuzzy methods.

Keywords

Fault classification; Transmission line; Type-2 fuzzy logic; Wavelet transform; DWT; PSCAD/EMTDC

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Reconfiguration with DG location and capacity optimization using crossover mutation based Harris Hawk Optimization algorithm (CMBHHO)

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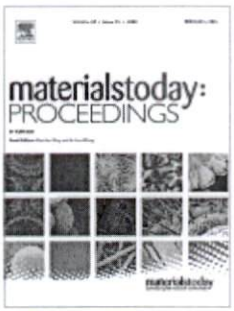

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A decisive evaluation of series connected-hybrid modulated inverter for EV applications

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Photo-voltaic electric vehicular (PVEV) system
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(IPD PWM) in-phase disposed pulse width modulation
Total harmonic distortions
EV Applications
MATLAB

ABSTRACT

Acute Efficiency, extreme power density, prominent reliability is the primal factors for electric propulsion of the hybrid & electric vehicles. This work acquaints the reduced switch count based multilevel inverter operating under RV technique for electric vehicular applications with the use of PV energy source. Presently existing power inverter strategies for HEVs may prefer a DC-DC boost converter to attain the high voltage gain. The running EV inverters have low power density and more expensive and have low efficacy due to the need of bulky inductor eradicate the uneven ripples and current harmonics. A Decisive evaluation of Intended MLI boost Inverter is operating under optimal modulation based HPD, HPOD, HAPOD schemes, it have better features compare to other modulation schemes. The dynamic analysis of intended MLI with the efficient modulation scheme is implemented by Matlab/Simulink environment tool and simulation results are to be conferred.

Selection and peer-review under responsibility of the scientific committee of the International Conference on Newer Trends and Innovation in Mechanical Engineering: Materials Science.

1. Introduction

The automotive industry is rising very apace towards Electric Vehicular requisition; moreover these paradigm shifts presently make to smooth transition through electrical drive components. It is an ever-increasing crave for interfacing renewable energy sources especially for EV due to energy strait, renewable energy systems like photo-voltaic (PV) cell, wind energy sources, fuel cell (FC) sources are utilized in so many industrial applications related to automotive systems [1]. In that PV system are more popular due to vary with relates to requirement and interfaced to electric vehicle by using power conditioning units [2].

A centralised classical series connection of several panels is equipped to obtain DC-link voltage, by utilizing power semiconductor apparatus [3]. Conversion of low DC values into high DC link voltage with the help of extreme range of DC/DC converters and interfaced to drive system using DC/AC such as two-level converter topologies, but it is not required. Multi-level inverters have more expertise to attain high power range/voltage range applications. With the decrement of low dv/dt or di/dt ratio with less distorted outcomes and it may reduction of noise, EMI, need to reduce load side filter. The comprehensive design of MLI is to synthesize the nearby sinusoidal voltage by switching the consequent switches appear several voltage levels respect to switching actions [4]. Morely there are 3 types of multilevel strategies are as follows (Fig. 1);

- Series Connected type MLI Strategy.
- Flying Capacitor type MLI Strategy.
- Diode Clamped type MLI Strategy.

The analogy of FC type and DC type converters and series connected type MLI strategy have their better features due to ease plan and assemble to uniform structure of the converter. As above specified series connected type have more appearance due to no endowment of balancing capacitors &clamping diodes and this series connected converter compel the more number of DC input sources when the corresponding levels increases [5]. Here authors highlighted new converter strategy operated under RV technique with optimal hybrid modulation schemes. The imperative selection theme of the control action for this MLI strategy is conferring to minimize the THD values with respect to switching action. Number of voltage levels may increase the respective harmonized distortions also suppressed in outcome parameters with low switch count.

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2214-7853/
Selection and peer-review under responsibility of the scientific committee of the International Conference on Newer Trends and Innovation in Mechanical Engineering: Materials Science.

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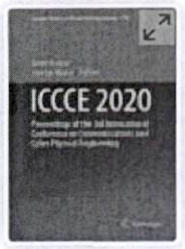

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ICCCE 2020 pp 1007–1017

Impact Study of Internet of Things on Smart City Development

U. M. V. V. Hemanth, N. Manikanta, M. Venkatesh, M. Visweswara Rao & Durgesh Nandan

Conference paper | First Online: 12 October 2020

867 Accesses | **1** Citations

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 698)

Abstract

The Internet of Things (IOT) is the best technology to develop a smart city. This paper gives a piece of brief information about developing a smart city with the help of IOT. It decreases the expenses and providing efficient services, reduces the wastage of time. IoT smart city mostly common problems are parking system, water, smart environment, and drainage system. This paper gives solutions to the above-mentioned problems. IOT can be sent the data and receive the data and it also stores the data. Smart city development using electronic devices, advanced sensors, and thousands of gadgets are used. The Internet of things consists of

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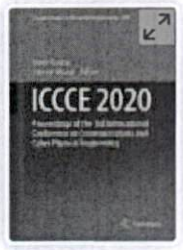

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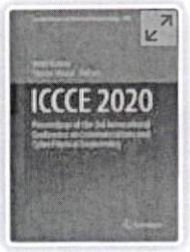

ICCCE 2020 pp 1179–1186

Effective Data Acquisition with Sensors Through IoT Application: A Succinct Study

P. Lakshmi Mounika, A. Konda Babu & Durgesh Nandan

Conference paper | First Online: 12 October 2020

849 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 698)

Abstract

Today the Internet of Things is increasing day-by-day due to its wide applications in many aspects. Internet of Things is identified as one of the emerging techniques in the coming years as technology is turning towards the world of the internet and in smart living. The concept of IoT leaves us in a place of computer networks because it has a wide range of applications from our home to the entire world. In the future, for the increase in demand IoT requires a large necessity from sensors. In this paper we are going to know about WSN usage which is acting as a long-term environment

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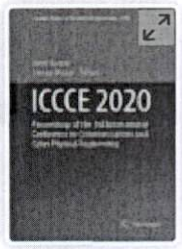

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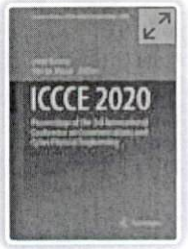

ICCCE 2020 pp 1169–1178

Colour Image De-noising Analysis Based on Improved Non-local Mean Filter

Kanuri Alekya, Konala Vijayalakshmi, Nainavarapu Radha & Durgesh Nandan

Conference paper | First Online: 12 October 2020

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Abstract

In a non-linear filter, open resources filter is a particular scenario that is used to reduce the Gaussian noise in our paper and it performs well to reduce it. The major advantage of non-local means filter is to preserve the limits and particulars of a unique image. In this paper, combined both open means filter and mutual filter to recommend an enhanced filter for colour picture de-noising. Novel influence significance is computed by addition consistency in sequence into the weight to evaluate the parallel of the patch. At the final stage of this paper deals that the proposed method of NLM and

International Conference Computing Vision (IEEE Cat. No. 98CH36271). Narosa Publishing House, pp 839–846

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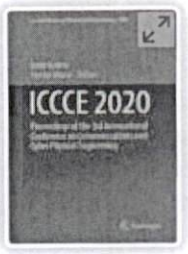

ICCCE 2020 pp 1029–1040

Trends in 6G Wireless Molecular Communications: A Succinct Study

O. T. Ratna Deepthi, P. Sai Bhaktanjana Rao, P. Krishna Veni & Durgesh Nandan

Conference paper | First Online: 12 October 2020

887 Accesses

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Abstract

In this paper, we have discussed the capability of trends in 6G wireless molecular communications (MC) into upcoming generations of wireless networks. While 5G expected to be more significant in 2019, 6G is the burning topic of interest among researchers due to various drawbacks of 5G. Already initiatives have been taken in numerous republics focusing on the conceivable research on 6G machinery. The objective of this paper is to analyse the different aspects of 6G communication networks and motivate further investigation in this field. At first, the advantages of 6G wireless MC has been explained and compared with the traditional

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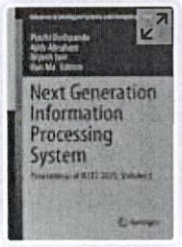

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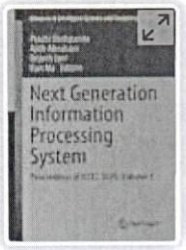

Next Generation Information Processing System pp 100–108

Study of Mechanized Recognition of Driver's Smartphone Exploiting Common Vehicle-Riding Actions

Kadiyala Yaswanth ✉, Rajasekhar Manda & Durgesh Nandan

Conference paper | First Online: 14 June 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1162)

Abstract

Distracted driving due to using smartphone like texting, browsing Web, etc. increases the risk of accidents. To prevent this distracted driving, many suggestions have been proposed, but out of them, none addressed completely and efficiently to prevent this distracted driving. This work presents a concept called as mechanized recognition of driver's smart phone exploiting common vehicle-riding actions to overcome above said deficiency concept. The fusion of the driver's smartphone with phone's sensory provides the information related to rider's actions. This information can be obtained by

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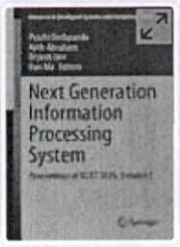

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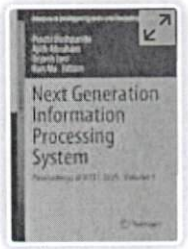

Next Generation Information Processing System pp 109–121

Animal Repellents from Agricultural Fields

P. Sreevardhan, B. Vidheya Raju & Durgesh Nandan

Conference paper | First Online: 14 June 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1162)

Abstract

Crop damages inflicted by animals are one of the biggest challenges throughout the world. Animals such as pigs, monkeys, and many others may cause Spartan damage to crops. They can damage the plants by feeding on plant parts or only by organization more than the field and squashing in excess of the crops. Therefore, animals may easily cause significant yield losses and incite additional financial problems. In order to decrease the problems or damages caused by animals to the farmer which destroys the farm, there are many ways. The ways include haunting the animals, producing the sounds manually, and using chemical compounds for repelling birds and animals; some

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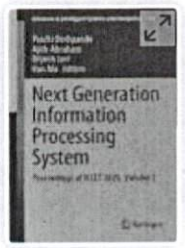

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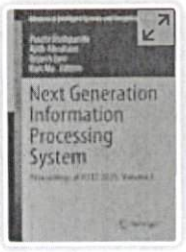

Next Generation Information Processing System pp 143–150

Study on Bicycle-Based Real-Time Information Feedback System by Using IoT

Guthula Hema Mutya Sri, Galla Bharggav, Rajasekhar Manda & Durgesh Nandan

Conference paper | First Online: 14 June 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1162)

Abstract

IoT means connecting, establishing communication between objects by using the Internet. This paper presents a study reports on how bicycling by using IoT becomes an exact health tool and major benefit in terms of health monitor. Nowadays, the bicycle is the most popular exercise in metro cities. At the same time, high-speed Internet and various sensors combination based on IoT devices are widely used. Although, bicycles have all known benefits to health but they fail to provide cyclists person exact health benefits information. If no information, people lose charm to do cycling in the long term. Therefore, this

bicycle record system of ground conditions based on internet of things. IEEE Access **5**, 17525–17533 (2017)

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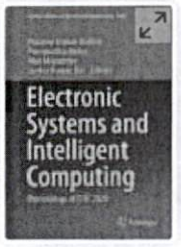

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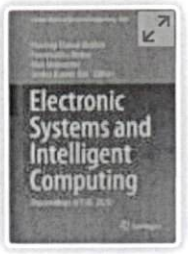

Electronic Systems and Intelligent Computing pp 575–584

Image Fusion: Challenges, Performance Metrics and Future Directions

S. B. G. Tilak Babu ✉, I. Chintesh, V. Satyanarayana & Durgesh Nandan

Conference paper | First Online: 23 September 2020

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Abstract

Image fusion is a technique of fusing multiple images for better information and a more accurate image compared to source images. The applications of image fusion in the modern military, multi-focus image integration, pattern recognition, remote sensing, biomedical imaging, etc. In this paper discussed, advantages and drawbacks of newly arrived existing methods in the transform domain and spatial domain image fusion, universal acceptable flowchart for image fusion obtained from literature, different helpful datasets that are accessible to assess extensively image fusion

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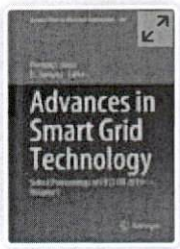

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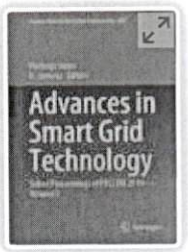

Advances in Smart Grid Technology pp 51–62

Development of Wind Energy Technologies and Their Impact on Environment: A Review

Manyamyuva Naga Satya Suryakiran, Waseemah Begum, R. S. Sudhakar & Sharad Kumar Tiwari

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Abstract

Wind energy is a kind of renewable energy which produces electrical power from wind. Wind turbines are installed at a specific geographical location where there is abundant of wind. There are various environmental effects due to the operation and installation of the wind turbines that cannot be overlooked. In this paper, a status report of wind installation across the globe as well as environmental effects of installation of wind turbine has been discussed.

Keywords

Environmental impact **Global warming**

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Soft Computing: Theories and Applications pp 813–823

A Review on Detection of Breast Cancer Cells by Using Various Techniques

Vanaja Kandubothula, Rajyalakshmi Uppada & Durgesh Nandan

Conference paper | First Online: 30 June 2020

551 Accesses | **1** Citations

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Abstract

This paper discussed a framework for the detection of breast cancer cells by using various techniques. Dangerous cancer is mostly observed in women's breast. The mortality rate can be decreased when breast cancer is detected at an early stage. By using different techniques, breast cancer cells can be detected. From the past decade, to detect and identify the stage of the cancer, computer-aided diagnosis (CAD) system has been initiated. This system consists of different steps like preprocessing, nuclei detection, segmentation, feature extraction, and classification to detect

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Soft Computing: Theories and Applications

Proceedings of SoCTA 2019

Editors: Millie Pant, Tarun Kumar Sharma, Rajeev Arya, B.C. Sahana, Hossein Zolfagharinia

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Sections

Soft Computing: Theories and Applications pp 837–848

Utilization of the Internet of Things in Agriculture: Possibilities and Challenges

P. Mani Sai Jyothi & Durgesh Nandan

Conference paper | First Online: 30 June 2020

584 Accesses | **3** Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1154)

Abstract

Agriculture is the backbone of most of nation. A nation's economy mostly depends upon the growth of agriculture. It is a combination of several processes which include a lot of manpower and hard work. Internet of things (IoT) is the process of connecting several devices over a single network. It ensures the connectivity of several devices. Data can be transferred easily from one device to the other. Hence, the integration of IoT with agriculture seems to be an effective way to improve the productivity of agriculture. It reduces the problems faced by the farmers thereby increasing the profits. Agriculture seems to be a risky job as it mainly

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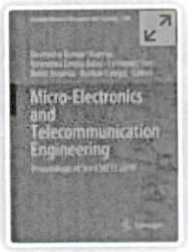

Micro-Electronics and Telecommunication Engineering pp 431–438

Evaluation and Study of IoT Entrances

E. Sai Sravani, A. V. Sreehitha, A. Konda Babu & Durgesh Nandan

Conference paper | First Online: 03 April 2020

566 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 106)

Abstract

The people in the present scenario are leading a busy life which is filled with modern technology that changes rapidly. In such a rapid growth of the human race, technological developments were also increasing rapidly. At the beginning of the twenty-first century, technology turned its focus towards automation which leads to the development of new innovative technology called IoT. But it is a bit harder to implement because IoT is not just connecting hardware devices with the Internet, but it is the interconnection of devices with the Internet that should work with intelligence. To do that, we should require gateways and a cloud to store data. The main key element in the complete success of

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Sections

Micro-Electronics and Telecommunication Engineering pp 439–445

Survey on the Impact of FSM Design for High-Performance Architecture Evaluation

K. Sowmya, P. Bujji Babu & Durgesh Nandan

Conference paper | First Online: 03 April 2020

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 106)

Abstract

In digital signal processing (DSP), the power consumption is more so, to decrease power and latency without affecting the other parameters, and mostly, the filters are designed using finite state machine (FSM). This paper gives a view of the multiplier architectures and its design issues for the expected level of performance. Literature states that the FSM approach is also a good choice in designing the multiplier architectures. In this paper, various design approaches are also described with the HDL modeling language, like in Verilog HDL, in building efficient multipliers. High-speed multipliers like Vedic multipliers are good in terms of speed

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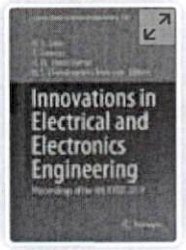

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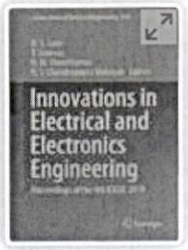

Innovations in Electrical and Electronics Engineering pp 449–461

Necessity of Power System State Estimation: A Generalized Linear State Estimation Solution with Application of PMU Measurements

M. Ravindra, R. Srinivasa Rao, V. Srinivasa Rao, N. Praneeth & Vasimalla Ashok

Conference paper | First Online: 24 March 2020

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 626)

Abstract

This paper presents a review on major blackouts occurred in power grid across the world and importance for the need of state estimation (SE) solution. This work introduces the applications of phasor measurement units (PMU) to reduce the occurrence of blackouts in power system. The blackouts in power system can occur due to overload, light load conditions, heavy storms or due to line outages. The cascade failure due to line outages, i.e., measured as N-1 outages can lead to power system blackout. The necessity of power

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Soft Computing Techniques and Applications pp 183–193

Performance Analysis of Single-Phase VSI Using Variable and Multi-pulse-Width Modulation Techniques

Kurumalla Saithulasi, Panniru Raj kumar, Koppisetti Chandra Mukesh kumar & K. RamBabu

Conference paper | First Online: 28 November 2020

241 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1248)

Abstract

This paper demonstrates the variable pulse-width modulation (PWM) methods for a 1-Φ full-bridge DC-AC converter. The performance of the circuit is estimated from the waveforms of output voltage and current. The harmonic spectral behavior of the modulation methods is also taken into consideration to highlight the merits and demerits of each method. A MATLAB/Simulink platform has been employed to obtain the output waveforms and fast Fourier transform (FFT) analysis.

Keywords

16. Abhilash, T., Kirubakaran, A., Somasekhar, V.T.: A seven-level VSI with a front-end cascaded three-level inverter and flying capacitor fed H-bridge. IEEE Trans. Ind. Appl. **55**(6), 6073–6088 (2019)

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Sections

Soft Computing Techniques and Applications pp 103–109

Control Scheme to Minimize Torque Ripple of SRM

M. Venkatesh, Vijayasri Varshikha Joshi, K. L. Mounika & B. Veeranarayana

Conference paper | First Online: 28 November 2020

248 Accesses

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Abstract

This paper discusses the DTC and DITC scheme for switched reluctance motor. Modeling, controller and simulation have been discussed in this paper. TSK-based fuzzy controller design has been incorporated in switched reluctance motor to control the speed. MATLAB-based simulation has been provided in this paper. From simulation analysis, TSK fuzzy controller provides better performance.

Keywords

SRM **DTC** **DITC** **TSK fuzzy rules**

Fuzzy controller design

search technique. Int. J. Eng. Sci. Technol. **20**(3), 909–921 (2017)

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Soft Computing Techniques and Applications pp 111–120

Simulation and Analysis of Seven-Level Voltage Source Inverter

L. Sri Hansitha Priya, K. Rajesh, U. Satya Sai Polaraju & N. Rajesh

Conference paper | First Online: 28 November 2020

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Abstract

A seven-level inverter topology with the minimum component count is presented in this paper. The presented topology has low switching stress and fundamental frequency operating switches that enhance the efficiency of the configuration. The operating modes of the proposed inverter are analyzed in detail during zero, positive, and negative levels. The proposed topology is gated using fuzzy based sinusoidal Pulse Width Modulation in MATLAB/Simulink environment.

Keywords

Multilevel inverter **Seven-level**

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Cycloconverter Fed Capacitor Start Capacitor Run Induction Motor Drive: Simulation Analysis

Pragada Niharika, Vinnakota Vineetha & K. Durgendra Kumar

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Abstract

This paper provides a detailed explanation of control principle of cycloconverter-fed capacitor-start capacitor-run induction motor. Analog circuitry scheme for gate pulse generation scheme of cycloconverter, and different industrial applications have been discussed in this study. For motor control application, cycloconverter-fed capacitor-start capacitor-run induction motor has been considered in this study. Fuzzy-PD+I based feedback control approach has been used for control which provides better performance than classical PID control approach. MATLAB based

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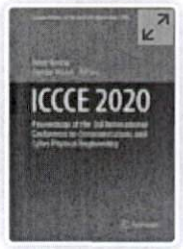

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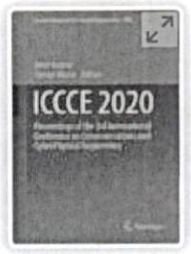

ICCCE 2020 pp 957–963

Systematic Observation on Non-orthogonal Multiple Access for 5th Generation Communication Technology

Muppana Sonika, S. B. G. Tilak Babu & Durgesh Nandan

Conference paper | First Online: 12 October 2020

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Abstract

Non-Orthogonal Multiple Access (NOMA) has become popular optimizing automation that offers huge power, less dormancy and has a high connection to meet vivid opportunities in the fifth —stage of the cable fewer networks. It is a multiple access scheme. Since the rearmost is regarded to be Heterogeneous Networks (Het Nets), the accomplishment of NOMAon5GHet Nets is greatly considered. In this paper, temporarily reveal that the NOMA strategies have grown step by step starting Single-Carrier NOMA (SC-NOMA) into

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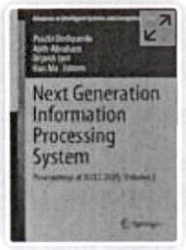

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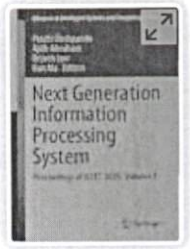

Next Generation Information Processing System pp 132–142

A Clear View on Design of Low-Noise Amplifiers Using CMOS Technology

Lalitha Sowmya ✉, S. Khadar Bhasha & Durgesh Nandan

Conference paper | First Online: 14 June 2020

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1162)

Abstract

A detailed explanation on the design of low-noise amplifier is given in this paper. The wideband low-noise amplifiers are implemented in 0.18 µm CMOS technology. The various designs of low-noise amplifiers, such as the LNAs which reduce power dissipation, occupy less area, and consume less power, are presented in view of this paper. A low-noise amplifier design employs different methods, such as using center-tapped inductors, by interconnecting the stages, which are explained in this paper.

Keywords

Mutual coupling **Low-noise amplifier**

CMOS low-noise amplifier for 3.1–10.6 GHz wireless receivers. IEEE J. Solid State Circ. **39**(12), 2259–2268 (2004)

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Soft Computing: Theories and Applications pp 825–836

Analysis of Security Issues and Possible Solutions in the Internet of Things for Home Automation System

P. Sai Ramya & Durgesh Nandan

Conference paper | First Online: 30 June 2020

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Abstract

Security and privacy are the two main required factors for home automation. Nowadays, human can operate devices using the Internet of things. These are sensor-based and network-based devices. At the same time, the user wants his information to be secured while he is accessing the devices through the Internet. In the process of transmission of data, the hackers could easily breach the security even if there is a minimum possibility. In this paper, the security challenges that a user faces while monitoring and controlling devices are discussed. The challenges are resource and energy constraints, unauthorized access to data

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Soft Computing: Theories and Applications pp 859–867

Analysis of Precision Agriculture Technique by Using Machine Learning and IoT

Y. Sasi Supritha Devi, T. Kesava Durga Prasad, Krishna Saladi & Durgesh Nandan

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Abstract

IoT is one of the best among the emerging technologies. Its scope has into the field of agriculture in which farmers learn to control his farm using IoT. Due to the lack of continuous human effort and optimal climatic conditions, many crops go waste every year. This paper discusses various methods that prevent manual action and added automatic control of the farm by using machine learning algorithms and IoT sensors. For example, support vector machine (SVR) is the method to check the weather conditions in every interval of time and gives data to the farmer and

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Soft Computing: Theories and Applications pp 849–857

Study on Real-Time Face Recognition and Tracking for Criminal Revealing

A. Krishna Chaitanya, C. H. Kartheek & Durgesh Nandan

Conference paper | First Online: 30 June 2020

583 Accesses | **1** Citations

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Abstract

Face recognition describes a surface framework, which is capable of processing image and detection. The proposed paper demonstrates three contributions: the first is to introduce the image representation, known as an integral image, the second application of Ada Boost learning algorithm, and the third is the cascaded framework. This includes observation, bio-metrics and video coding. Here, the primary objective is to implement a real-time system using a field-programmable gate array (FPGA) to track and detect human expression. The expression recognition involves colour-shaped coating separation and image purifying. Moreover,

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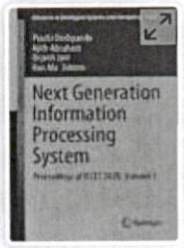

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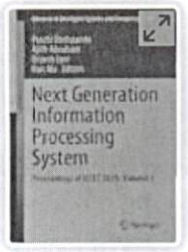

Next Generation Information Processing System pp 223–232

Performance Analysis of Wireless Sensor Network (WSN)

Chevvuri Naga Sridevi, Murrey Neeladri & Durgesh Nandan

Conference paper | First Online: 14 June 2020

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Abstract

In wireless environments, latency and noise must be included in the system plan for continuous control of dispatch vehicles. A compact, wearable, lovable, ergonomically, and at low-cost WLAN node, suitable for detecting a variety of different physical phenomena was the main focus of the research work. It is important to build a large-scale wireless sensor network through an efficient network connection mechanism. For example, ZigBee can assemble a WSN dependent on the bunch tree utilizing a straight-forward system association, address, and steering component. In any case, it cannot offer alluring availability for the hub

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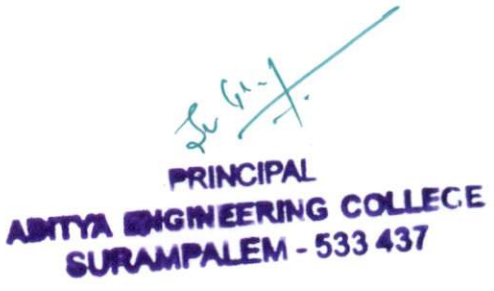

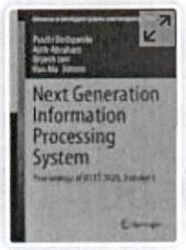

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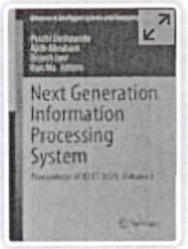

Next Generation Information Processing System pp 122–131

Analysis on High-Performance Full Adders

K. V. S. S. S. S. Kavya, Bujjibabu Penumuchi ✉ & Durgesh Nandan

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Abstract

This paper contains the performance analysis of various available designs of full adders. It is observed that the full adder is designed for 1 bit, and later it is extended for 32 bits also. The circuit is designed by using 180 nm technology at 1.8 V supply and technology using 90 nm at 1.2 V supply using Cadence Virtuoso tools. High speed, low consumption of power, better power–delay product (PDP), layout area, better propagation delay, these are the performance parameters that are compared for various full adders. The circuit performs better in case of improvement of the full adder circuit in terms of parameters like speed and power.

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A Sensitivity Based Approach for Optimal Allocation of OUPFC Under Single Line Contingencies

Srinivasa Rao Veeranki ✉, Srinivasa Rao Rayapudi & Ravindra Manam

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Abstract

In this paper, a sensitivity based approach is proposed for optimal allocation of optimal unified power flow controller (OUPFC) under single line contingency to eliminate overloads on transmission lines. The approach is formulated based on ranking index (RI) and performance index (PI). After outage of a branch element, a unitary variation of power flow (PF) in every transmission line is attained through RI. It is formulated to quantify loading level of network after a given outage. Contingencies are organized in descending order depending on the value of RI. Sensitivity factors are attained by

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