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3.3.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years

AY: 2019-20

| SL NO | NAME OF TEACHER | TITLE OF PAPER | TITLE OF BOOK PUBLISHED | TITLE OF THE PROCEEDING O THE CONFERENCE/WORKSHOP/SYMPOSIA | NAME OF THE PUBLISHER | YEAR OF PUBLICATION (ACADEMIC YEAR) | NATIONAL/INTERNATIONAL | ISBN NUMBER |
|---|---|---|---|---|---|---|---|---|
| 1 | Dr. Asha P Tom | Biodrying Process Variations Based on Air Flow Regulation Strategy | | 7th IconSWM—ISWMAW 2017 | Springer Singapore | 2020 | international | ISBN: 978-981-13-7071-7 |
| 2 | Dr. Sabu George | | Programming in C | | Technostar publications | 2019-2020 | | |
| 3 | Dr.T.D.Subash | | Materialstoday:Proceedings (Elsevier), Vol. 24, Issue.P4 (2020), pp. 1705-2082 | | | | | Issue.P4 (2020), pp. 1705-2082, ISSN: 2214 - 7853 |
| 4 | Dr.T.D.Subash | A Novel Design for a Low-Power High-Speed Robust Supply-Gated-Sleep 6T SRAM Cell | | Materials Today | Materialstoday:Proceedings (Elsevier) | 2020 | International | |
| 5 | Dr.T.D.Subash | FPGA Implementation Of Dynamic Power, Area Optimized, Reversible ALU For Various DSP Applications | | Materials Today | Materialstoday:Proceedings (Elsevier) | 2020 | International | |
| 6 | Dr.T.D.Subash | Photoluminescence investigations of Ytterbium doped Calcium Aluminate nanophosphor synthesized by sol-gel technique (CaAl2O4: Yb) | | Materials Today | Materialstoday:Proceedings (Elsevier) | 2020 | International | |
| 7 | Dr.T.D.Subash | Synthesis of Red-Emitting CdSe/CdS/ZnS Core/Shell/Shell Quantum Dots | | Materials Today | Materialstoday:Proceedings (Elsevier) | 2020 | International | |

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3.3.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years

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| Sl. NO. | NAME OF TEACHER | TITLE OF PAPER | TITLE OF BOOK PUBLISHED | TITLE OF THE PROCEEDING O THE CONFERENCE/WORKSHO P/SYMPOSIA | NAME OF THE PUBLISHER | YEAR OF PUBLICATION (ACADEMIC YEAR) | NATIONAL/INTERNATIONAL | ISBN NUMBER |
|---|---|---|---|---|---|---|---|---|
| 8 | Dr T.D.Subash | A Closed Loop Model of Modified SEPIC Based High Set-up DC-DC Converter | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 9 | Dr T.D.Subash | Study and Analysis of Suppress of Surface Wave Propagation in Microstrip Patch Antenna | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 10 | Dr T.D.Subash | Autonomous Under Water Vehicle Based on Extreme Learning Machine for Sensor Fault Diagnostics | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 11 | Dr.T.D.Subash | Li-Fi: A Revolution in Wireless Networking | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 12 | Dr.T.D.Subash | Intelligent Collision avoidance system for fishing boat | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 13 | RAKESH S | A Novel high-speed low power 9T full adder | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 14 | RAKESH S | SARGeT:Smart Autonomous Robotic Goods Transporter | | Materials Today | Materialstoday Proceedings (Elsevier) | 2020 | International | |
| 15 | RENEESH ZACHARIA | The Design and Implementation of Ultra Lightweight GIFT Cipher for RFID Tags and Nano Sensors | | International Conference on Nano Electronics, Nano photonics, Nano Materials, Nano Bioscience and Nano TechnologyVolume 5 Issue 2,64-74p | International Conference on Nano Electronics, Nano photonics, Nano Materials, Nano Bioscience and Nano Technology Volume 5 Issue 2,64-74p | 2019 | International | |
| 16 | Ms.JYOTHISREE K R | Smart Waste Management System Using IoT | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 17 | Eugene Peter | Synthesis of Red Emitting CdSe/CdS/Zn S Core/Shell/Shell Quantum Dots | | Materialstoday: Proceedings | Elsevier | 2019-20 | International | ISSN 2214-7853 |
| 18 | Eugene Peter | Model of Modified SEPIC Based Based High Step -up DC | | Materialstoday Proceedings | Elsevier | 2019-20 | International | ISSN 2214-7853 |
| 19 | Krupa Ann Kurian | A Closed Loop Model of Modified SEPIC Based Based High Step -up DC DC Converter | | Materialstoday: Proceedings | Elsevier | 2019-20 | International | ISSN 2214-7853 |
| 20 | Dr.T.D.Subash | Materialstoday :Proceedings (Elsevier), Vol. 24, Issue.P4 (2020), pp. 1723-1947 | | | | | | Issue.P4 (2020), pp. 1723-1947, ISSN: 2214 - 7853 |

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3.3.3.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years

AY: 2019-20

| SL NO | NAME OF TEACHER | TITLE OF PAPER | TITLE OF BOOK PUBLISHED | TITLE OF THE PROCEEDING O THE CONFERENCE/WORKSHOP/SYMPOSIA | NAME OF THE PUBLISHER | YEAR OF PUBLICATION (ACADEMIC YEAR) | NATIONAL/INTERNATIONAL | ISBN NUMBER |
|---|---|---|---|---|---|---|---|---|
| 21 | Dr. Asha P Tom | | Biodrying Process Variations Based | Sustainable Waste Management: Policies and Case Studies | Sustainable Waste Management: Policies and Case Studies | 2020 | International | ISBN: 978-981-13-7071-7 |
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| 23 | Ms.Merlin Mary James | BSN-CARE:A secured IOT-Based Modern HealthCAre System using Body Sensor Network | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
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| 25 | Ms.Sneha Mathew | : RETHINKING THE DEVELOPMENT AND IMPLEMENTATION OF | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
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| 27 | Ms.Simy Mary Kurian | Dump in a click - An efficient system for waste disposal. | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 28 | Ms.Sneha Mathew | Blockchain Based Trading in charging of electirc vehicle | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 29 | Ms. Gayathri R Krishna | Blockchain Based Trading in charging of electirc vehicle | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
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| 31 | Ms. Tinu Thomas | Obstacle detection and avoidance in autonomus cars | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 32 | Ms. Ann Mary Jose | Deflouridation of water using Tamarind | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 33 | Ms. Parvathy [illegible] | Deflouridation of water using Tamarind | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |

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|---|---|---|---|---|---|---|---|---|
| 34 | Ms. ParvathyLal | Effect of performence of Baselayer using recycled aggregate and geotextile | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 35 | Ms. Ann Mary Jose | Effect of performence of Baselayer using recycled aggregate and geotextile | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
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| 37 | Ms. Merin Elizabeth Baby | A solution for onstreet parking near Kottayam police parade ground | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 38 | Ms. Merin Elizabeth Baby | Converting Construction into Manufacturing- Modularisation Strategies | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |
| 39 | Mr. Sankar Bose | Converting Construction into Manufacturing- Modularisation Strategies | | International Multiconference on Computing, Communication, Electrical and Nano Technology, | International Multiconference on Computing, Communication, Electrical and Nano Technology, | 2019 | International | |

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**Sustainable Waste Management: Policies and Case Studies** pp 703–716 | Cite as

# Biodrying Process Variations Based on Air Flow Regulation Strategy

Asha P. Tom, Renu Pawels ✉ & Ajit Haridas

Conference paper | First Online: 22 June 2019





## Abstract

Biodrying process is an effective method of exploiting the self-heating nature of municipal solid waste for energy-oriented applications. The current investigation is carried out to study

3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years (10)

| Sl. No. | Name of the teacher | Title of the book/chapters published | Title of the paper | Title of the proceedings of the conference | Name of the conference | National / International | Year of publication | ISBN/ISSN number of the proceeding | Affiliating Institute at the time of publication | Name of the publisher |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dr. Sabu George | Programming in C | - | | - | | 2019-2020 | - | Mangalam college of Engineering | Technostar publications |
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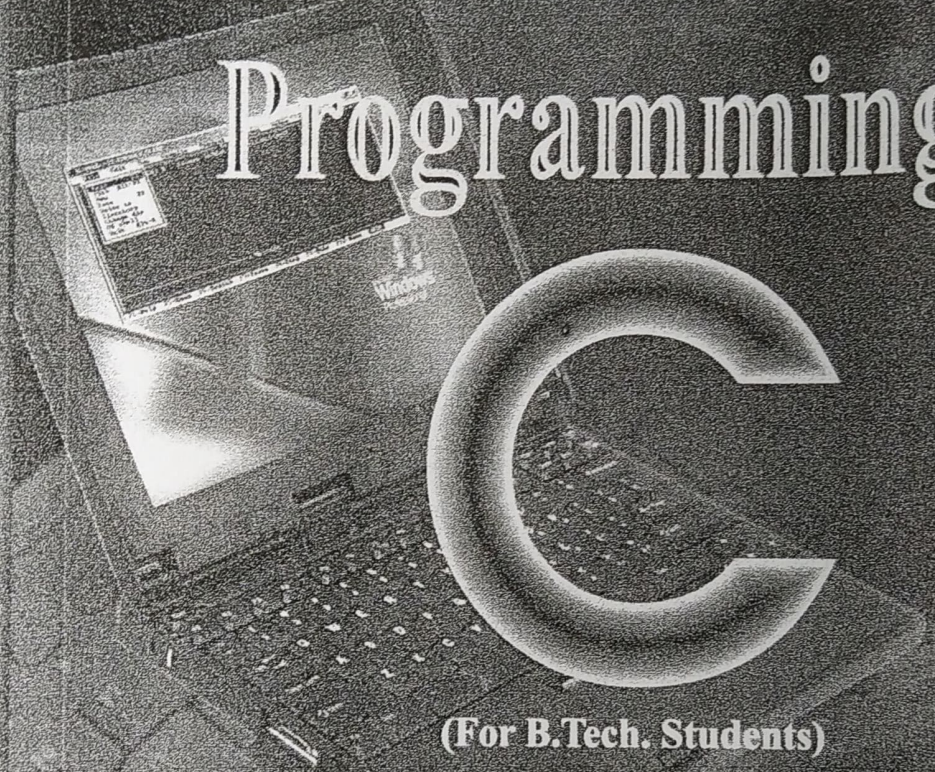

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I2CN-2K19

# A Novel Design for a Low-Power High-Speed Robust Supply-Gated-Sleep 6T SRAM Cell

Smitha Sunil[a], T.D. Subash[b], Resma Chandran V P[c]*

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[b]*Professor,Dept. of EEE, Mangalam College of Engineering, Kottayam, India*
[c]*Assistant .Professor,Dept. of ECE, Mangalam College of Engineering, Kottayam, India*

**Abstract**

In recent, the low-power and high- speed memory is required because of this extensive use in the electronic portable equipments. The power consumption and speed are the major factor for memory design techniques. This paper presents design of the proposed circuit, and the implementation for proposed 6T SRAM with a Transmission gate and supply-gated technology. In this paper the comparative analysis on different parameters of conventional 6T SRAM, existing 6T SRAM and the proposed 6T SRAM are performed. This new approach can reduce the total power and total delay compared to conventional and existing 6T SRAM. All the experimental works are done by Microwind and DSCH 2.7 version software tool.


Selection and peer-review under responsibility of International Multi-conference on Computing, Communication, Electrical & Nanotechnology, I2CN-2K19.

*Keywords:* SRAM, TG, Gated Ground, Gated Supply, Power, and Delay;

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# FPGA Implementation Of Dynamic Power, Area Optimized Reversible ALU For Various DSP Applications

Cissy Jose[a]*,T D Subash[b],Simi P Thomas[c]

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[c]*Asssistant Professor, Dept. Of ECE, Mangalam College of Engineering, Kottayam, India*

**Abstract**

Today electronic products that are using chip as a component are facing severe problems in power dissipation. So most efficient power reducing architectures has to be developed to reduce the costs for maintenance. This is a most important task for embedded based devices, graphical based processor and similar DSP processor which suffers with low power. The core of each and every embedded device and processor uses ALU as the dependable module. It points out that ALU should consume less power and area and must provide high speed of operation with high accuracy. This paper describes design and implementation of ALU using reversible logic gates. Reversible logics are used to reduces power consumption. The aim of this paper is to compare the power consumption and area of conventional ALU and ALU which uses reversible logic gates. Both the architectures have been developed by using Verilog HDL in Xilinx ISE design suite 14.7.


Selection and peer-review under responsibility of International Multi-conference on Computing, Communication, Electrical & Nanotechnology, I2CN-2K19.

*Keywords:* Reversible logic gates,FPGA(Field Programmable Gate Array),Quantum cost

## 1. Introduction

Power consumption is a very important factor in present VLSI technology. Since the density of integrated circuits gradually increases, VLSI circuits need more power and thus dissipates more heat that causes damage to the

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# Photoluminescence studies of Terbium doped Calcium Aluminate nanophosphors ($CaAl_2O_4$: Tb) synthesized by sol-gel method.

M. Freeda[a]*, T.D. Subash[b]

[a]*Assistant Professor, Ponjesly College of Engineering, Nagercoil, Tamil Nadu, India*
[b]*Assistant Professor, Holy Grace Academy of Engineering, Trissur, Kerala, India*

**Abstract**

This paper presents Photoluminescence studies of Terbium doped Calcium Aluminate nanophosphor ($CaAl_2O_4$: Tb), prepared by sol-gel method. The prepared nanophosphor was characterized by using techniques such as XRD (X-ray diffraction), SEM (Scanning electron microscopy), DRS (Diffuse reflectance spectroscopy), PL (Photoluminescence). XRD analysis confirmed, the monoclinic structure, the particle size was found to be 31 nm and is determined by W-H plot method. The optical bandgap (Eg) is found to be 2.7 eV. PL emission is obtained at 395nm, 535 nm corresponds to blue region, green region of the spectrum for 800nm excitation.


Selection and Peer-review under responsibility of Conference Committee Members of International Conference on Computing, Communication, Nanophotonics, Nanoscience, Nanomaterials and Nanotechnology.

*Keywords:* XRD; SEM; PL; W-H plot; sol-gel method.

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# Synthesis of Red-Emitting CdSe/CdS/ZnS Core/Shell/Shell Quantum Dots

Eugene Peter [a]*, T.D. Subash [b]

[a] *Assistant Professor, Dept. of EEE,Mangalam College of Engineering, Kottayam, Kerala, India*

[b] *Professor, Dept. of EEE, Mangalam College of Engineering, Kottayam, Kerala, India*

**Abstract**

CdSe/CdS/ZnS Core/Shell/Shell Quantum Dots is synthesized of using a different surfactant, which is a mixture of octa decyl phosphonic acid (ODPA) and Oleic Acid (OA). An interfused CdSe//ZnS core formation was generated, which showed a significant blue shift from CdSe QDs. The interfused core showed the maximum QY. The CdSZnS shell favourably resulted in a significant red-shift in PL is useful for the fabrication of high power white blight LEDs.



Selection and peer-review under responsibility of International Conference on Advances in Material Science & Nanotechnology, ICMN-2K19.

*Keywords:* LED;Quantum Dot

## 1. Introduction

Efficient solid-state lighting (SSL) offers a high potential for saving energy and protecting the environment [1]. If light-emitting diodes (LEDs) at the targeted efficiency levels are replaced with conventional lighting sources, the global electricity that is consumed for lighting would be decreased by more than 50%, which is equal to the reduction of either 230 typical 500-MW coal plants or 200 million tons of greenhouse gas emission [1,2]. According to the SSL road map, white LEDs were targeted to reach a luminous efficiency (LE) level over 200 lumen per electrical watt until 2020 [3]. To this end, there is a significant worldwide effort to boost the efficiency levels of

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Materials Today: Proceedings 24 (2020) 2062–2072

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I2CN-2K19

# A Closed Loop Model of Modified SEPIC Based High Step-up DC-DC Converter

Krupa Ann Kurian[a]*, T D Subash[b], Eugene Peter[c]

[a]*PG Student[PEPS],Dept of EEE,MangalamColloge Of Engineering,Ettumanoor,Kottayam,India*
[b] *Professor, Dept of EEE,MangalamColloge Of Engineering,Ettumanoor,Kottayam, India*
[c]*Assistant Professor, Dept of EEE,MangalamColloge Of Engineering,Ettumanoor,Kottayam,India*

**Abstract**

Since the output voltage of renewable energy system is low, the use of high step-up switched mode DC-DC converters is imperative. This paper presents a novel SEPIC based high step-up DC-DC converter that uses coupled–inductor (CL) technique and voltage multiplier rectifier (VMR), while the main characteristics of the conventional SEPIC converter is preserved. The proposed circuit comprises of a power switch (S), a CL, an input inductor, four diodes and five capacitors. The Voltage Tripler Rectifier provides a high voltage gain and the converter has a significantly reduced switching loss and diode recovery losses due to the quasi-resonance of the CL along with circuit capacitors. The operation principle, design and steady state analysis are discussed and the simulation results are also presented to justify the analysis.


Selection and peer-review under responsibility of International Multi-conference on Computing, Communication, Electrical & Nanotechnology, I2CN-2K19.

***Keywords:*** DC-DC Converter; SEPIC Converter; Quasi Resonance Operation; High Step Up; Coupled Inductor style,;Voltage Multiplier Rectifier

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ICMN-2K19

# Study and Analysis of Suppress of Surface Wave Propagation in Microstrip Patch Antenna

T D Subha[a], T D Subash[b], K.S.Claudia Jane[c], Devadharshini.D[c],Dhanya .I. Francis[c]*

[a]*Department of Electronics and Communication Engineering, R.M.K. Engineering College, Kundrathur, Chennai-600069 , India*

[b] *Department of Department of Electrical & Electronics Engineering, Mangalam College of Engineering,Ettumanoor,KottayamKerala, India-686631*

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**Abstract**

Due to the compact size planar design and economical aspects microstrip patch antenna are mostly been used for wireless communication. The major disadvantage in the method is that serious hindrances of polarization mismatch and surface wave propagation. The hindrance of the surface wave propagation can be reduced using electromagnetic band gap structure. The main technique involved in this method is the suppression of the surface wave propagation.



Selection and peer-review under responsibility of International Conference on Advances in Material Science & Nanotechnology, ICMN-2K19.

*Keywords:* Microstrip patch antenna, Electromagnetic band gapstructure, circular polarization, metasurface etc.

## 1. Introduction

Microstrip antennas have been designed in 1950's and vast research process has been done to improve the radiation characteristics if the antenna. The term antenna may be placed in a transmitter (or) receiver system that may be used to radiate (or) receive electromagnetic waves [1]. The series hindrances to the radiation mechanism in microstrip patch antenna are the surface waves. Surface waves leads to degradation of antenna radiation and leads to unwanted coupling between antenna elements. The structure of microstrip patch antenna is shown in fig.1.

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*E-mail address:* tdsubha2010@gmail.com


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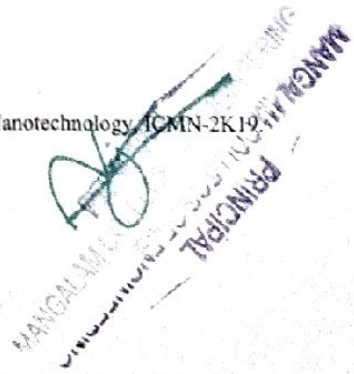

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ICMN-2K19

# Autonomous Under Water Vehicle Based on Extreme Learning Machine for Sensor Fault Diagnosistics

T.D. Subha.[a]*, T D Subash[b], K.S.Claudia Jane[c], Devadharshini. D[d], Dhanya .I. Francis[e]

[a]*Assistant Professor, Department of Electronics and Communication Engineering, R.M.K. Engineering College, Kundrathur, Chennai-600069*
[b]*Professor, Department of Electrical & Electronics Engineering, Mangalam College of Engineering,Ettumanoor, India-686631*
[c-e]*UG Scholars, Department of Electronics and Communication Engineering, St. Joseph College of Engineering, Sriperumbudur, Chennai-602117, India*

**Abstract**

The autonomous under water vehicle (AUV) system uses sensors which have a very important role in this field, even work in very complex environment. In order to improve the reliability of the AUV systems it important to know about the sensor failure diagnostic technology. In this paper two methods has been proposed they are combining phase space reconstruction and extreme learning machine(ELM).They are mostly being used to predict the sensor output in order to achieve the sensor fault diagnosis for AUVS. This stimulation experiments based on sea trial data shows the proposed method can be diagnosed by the sensor faults and recover the signals after the faults occur in a period of time.


Selection and peer-review under responsibility of International Conference on Advances in Material Science & Nanotechnology, ICMN-2K19.

*Keywords:* Autonomous underwater vehicle; sensor faults diagnosis; phase space reconstruction; extreme learning machine.

## 1. Introduction

Over the past few years the development of the Autonomous Underwater Vehicle (AUVS) has been widely applied as one of the important component for the oceanographic survey they are mostly being used for the ocean exploitation and also for the national defence .The important factor that has to be taken into account is to improve the reliability of the vehicle as it has to be operated in unfamiliar environments [1]. On February 16th when the operation was under process called the 383 of the 2005 Antarctic campaign, the AUVS experienced a sensor failure in the autosub2 and also had errors in guiding the main control system issued in advance of the commands [2] and

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Materials Today: Proceedings 24 (2020) 2403–2413

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ICMN-2K19

# Li-Fi: A Revolution in Wireless Networking

T D Subha[a]*, T D Subash[b], N. Elezabeth Rani[c], P. Janani[c],

[a]*Assistant Professor, Electronics and Communication Engineering department, R.M.K. Engineering College, Anna University, Chennai, India*

[b]*Professor, Department of Electrical & Electronics Engineering department, Mangalam College of Engineering, Ettumanoor*

[c]*Student, Electronics and Communication Engineering department, St. Joseph College of Engineering, Anna University, Chennai, India*

**Abstract**

In this paper, the concept and theories of LiFi & VLC (Visible Light Communication) are well explained. Visible light being safe to use for wireless access in such affected environments, also provides illumination. In addition with the misconceptions about LiFi are revealed and also the scope of LiFi in industries and technology are illustrated. To minimize the network traffic, Light Fidelity (LiFi) provides an effective solution to the issues of wireless communication. Since working operations are controlled, lights become LiFi attocells resulting in enhanced wireless capacity for the Internet-of-Things (IoT), 5G and beyond. The architecture of LiFi access point that implements OFDM is investigated. Our detailed study on LiFi can show that this technology can be the pervasive network in future and can create a revolution in telecommunication.



Selection and peer-review under responsibility of International Conference on Advances in Material Science & Nanotechnology, ICMN-2K19.

*Keywords:* PLC;VLC; Attocell;LiFi network modeling;OFDM.

## 1. Introduction

Today's world majorly depend upon the usage of Wi-Fi by smart phones, and their usage is keep on increasing due to demand on higher data rates. In order to obtain a solution, the network organizations develop new technologies like 5G.The problems with RF spectrum and social health are concerned, Optical Wireless Communication (OWC) plays a vital role in modern communication which uses its visible light spectrum in Visible Light Communication (VLC) .According to recent researches, it is predicted that by 2020, $44*10^{21}$(i.e., 44 Zetta) bytes of data will be generated. In the past, wireless data transmission has been achieved through radio frequency (RF) spectrum in the range of 3 kHz to 300GHz. As data volume increases, it is difficult to produce sufficient RF

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# Intelligent Collision Avoidance system for fishing boat

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**Abstract**

Collision of fishing vessels with ships has become one of the major hazards faced by marine fishermen. Due to the lack of a proper communication system, the fishermen at sea do not get any information about the oncoming ships. Ships have radars but sometimes they fail to detect small objects such as fishing boats. This project is designed for avoiding collision between merchant ships and fishing boats at sea. Since there are no proper systems for alarming the fishing boats to avoid collisions, the accidents keep happening and they remain unnoticed. There are no proper communication systems to inform the outside world if an accident occurs. In this project we have developed a collision avoidance system to alert the fishing boats about the incoming ships or objects along with an accident detection system. The proposed system includes Arduino Uno, Ultrasonic and vibration sensor, GPS and GSM modules. The ultrasonic sensor detects the incoming ships or objects and alerts the passengers of the fishing boat. The accident detection system include a vibration sensor which detects the collision and the GPS module finds the location in terms of latitude and longitude and both the data is fed to the Arduino where it is processed and send to emergency responses in the form of a message using the GSM module.


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*Keywords:* GPS, GSM, LCD, Ultrasonic Sensor, Collision Avoidance System

## 1. Introduction

Any time in a ship, chance of an accident occurring, just as there is when we are in a car.. But the distinction between automotive accidents and ship accidents put off is that the latter may end up during a bigger range of injuries or deaths at only once. Generally, ship disasters square measure tagged supported wherever the ship was hit. For example, with a side collision, one ship hits another ship on its side. With a stern collision, one ship

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# A Novel high-speed low power 9T full adder

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**Abstract**

**In modern era, low power high speed applications become one of the prime areas of focus for digital VLSI applications. Addition is a vital arithmetic operation and it acts as the main building block for synthesizing all other operations. A low power high speed full adder is introduced using 9 transistors. It consists of 3 modules, XOR module, sum module and carry module. While comparing with other designs it has a significant reduction in delay, power and hence the power delay product. The circuit is implemented and simulated using Cadence Virtuoso tool. Entire design is divided into three modules. Module 1 consists of modified XOR circuit which has only four transistors. Module 2 and Module 3 are SUM and CARRY design respectively. CARRY OUT of full adder circuit is made up by using Gate Diffusion Input (GDI)logic whereas the SUM is made using another XOR design. The design was implemented using cadence tool and power, delay and PDP are found to be very small as compared with otherdesigns.**


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*Keywords:Cadence Virtuoso tool; Gate Diffusion Input technique; Pass Transistor Logic; Power Delay Product;*

## 1. Introduction

Today's technology demands high speed processor which consumes less power as well as less area. To match these demands, the processor building block must be developed efficiently consists of circuits like adders, multipliers and logical circuits etc. Full adders are building blocks of ALU as they perform the function of addition. They are the fundamentals to carry look ahead adder, ripple adder etc. They find applications in wide range of logical circuits. To increase the efficiency of a processor full adder plays an important role. To meet the consumers, demand of high speed, low area, low power. VLSI industry performs a platform to build and compare the full adder circuits of different technology using different transistors.


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# SARGoT:Smart Autonomous Robotic Goods Transporter

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**Abstract**

In the present condition industrial loading and unloading of heavy loads manually is one of the most important objectives which turn out to be quite difficult, time-consuming and risky for humans. In this modern era robots are being developed for various purposes to accomplish many tasks which seem to be too complex for humans. The advantage of using robots, for industrial purpose have been excellent in terms of speed and efficiency of doing required tasks compared to that of humans. To solve this problem we have designed a robot named SARGoT. This robot has got mainly three features and they are: Path-Tracking. Avoiding Collision, Loading and Unloading heavy industrial goods. The autonomous robot is designed to start its movement from a starting position where goods are loaded on it, then follow a black track and unload goods by itself after reaching a destination place. Infrared sensor has been mounted in the front of the robot so that the sensor can detect path by emitting and receiving signals allowing it to move in the predefined path having left and right turns to carry goods from starting position to the destination position. Arduino Uno has been used for the coding section and the control circuit of the robot has been implemented for controlling the robot's movement within the defined track. The robot has been designed in such a way that it has the ability to avoid collision with any obstacles that come in its way. Ultrasonic sensor has been used in the robot to send the signal and detect the presence of any obstacle that may appear in the robot's track and stop momentarily for certain time until the obstacle move away. Building an industrial robot with moderate Speed, good efficiency in loading and unloading purpose within a short time to ease human suffering has been the main objective of this paper.



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***Keywords***: *Avoiding Collision; Path Tracking; Arduino Uno; loading and Unloading heavy industrial goods.*

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# *The Design and Implementation of Ultra-Lightweight GIFT Cipher for RFID Tags and Nano-sensors*

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***Abstract*— Military as well as government organization are always interested in cryptography, because it is a secure method of protecting data as well as government secrets. But, hackers want to break the cipher (algorithm) and enter into the private space. The Ultra-Lightweight Cryptography has recently emerged as a security for RFID tags, Nano-sensors, Embedded and IoT Devices, because of its efficient and smaller footprint. This paper describes the PRESENT Cipher model as conventional cryptography. Then the proposed model is GIFT Cipher which is simpler and faster compared to conventional cryptography. These ciphers shows both the encryption as well as decryption process by using 128 bit key for 64 bit input data security at hardware level. The design of the models is performed by utilizing Verilog-HDL on Xilinx 14.2 ISE platform and is implemented over Spartan 3A FPGA development board.**

***Keywords*— *Ultra-Lightweight Cryptography, substitution-permutation-network, PRESENT, GIFT Cipher model.***

## I. INTRODUCTION

Cryptographic technologies are the techniques on attack, design and implementation are extensively studied. One of the techniques is "Lightweight Cryptography (LWC)". Lightweight cryptography is a cipher (algorithm) or protocol used for implementation in constrained environments including RFID tags, Nano-sensors, contactless smart cards, health-care devices, PAN networks, Xbee and so on [1]. In hardware implementation system chip size and energy consumption are the important measures to calculate the lightweight factors and in software implementations, less RAM size or the code size are commonly preferable [2].

The lightweight cryptographic design was associated with small implementation size. PRESENT is an example of such proposals, being mainly optimized for "security and hardware efficiency".

This research shows a security scheme in microcontroller embedded devices, based on block ciphers among them, there are many algorithms designed to be implemented in embedded software, specifically in microcontroller type platforms this way it is decided to carry out the implementation of the "Present" lightweight blocking algorithm in addition to conduct the implementation, some tests are made to verify their operation and performance [3],[15].

The algorithm "Present" is a block cipher algorithm of reduced size, the key size is small compared to other algorithms of the same kind, this feature together with its reduced number of rounds makes it an algorithm that balances the use of the microcontroller internal memory with the communication "throughput" speed achieved.

The weak point of PRESENT is to create powerful linear hulls. The designing of GIFT, a new lightweight block cipher, improving over PRESENT in both security and efficiency. GIFT is probably the cipher that suited for very important low-energy consumption uses. Due to its simplicity and natural bit slice organization of the inner data flow, GIFT cipher is very versatile and performs [4].

The rest of the paper is organized as, section II presents Substitution-Permutation Network (SPN), in section III presents the existing PRESENT and proposed GIFT cryptographic technique, section IV shows the simulation results and analysis of proposed work with existing one, section V gives the comparison results. Finally, section VI describes conclusion.

## II. SUBSTITUTION-PERMUTATION NETWORK (SPN)

The substitution–permutation sandwich or a substitution–permutation network (SPN) is used as several mixing layers interleaving substitutions and permutations to build strong block ciphers.

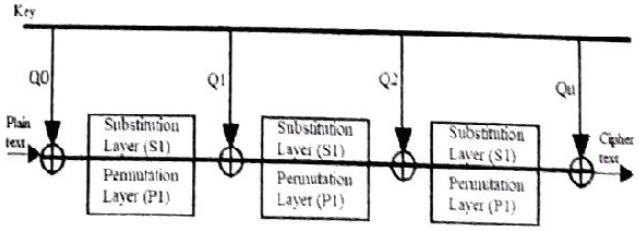


Fig.1. Cipher text creation using *SPN*

The line of substitutions followed by a permutation has good "mixing" properties. SPN is used for performing encryption/decryption procedures [5].

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# *Smart Waste Management System Using Iot*

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***Abstract* — *Waste collection and to dispose is one of the biggest issue that world is facing. This requires huge expenditure and more costing includes manpower, collection bin vehicle cost, fuel cost, and proper ways to dispose it. This factor led the necessity of designing, implementing and executing an intelligent smart waste management system for proper dispose of waste. This paper concentrates on the implementation of Smart waste management using iot computing. This system uses ultrasonic sensor for sensing the level of waste and using Arduino node MCU it will send the data to the server and from which it will analyze the filled level and according to which the collector truck will go for collection as per the optimized route generated. This system provides the efficient solution for the waste management system.***

***Keywords- Smart Waste Management System Using Iot Arduino,LCD Display,GSM Module,Ultrasonic Sensor.***

## I. INTRODUCTION

Internet of Things refers to the network of connected physical objects that can communicate and exchange data among themselves without the desideratum of any human intervention. It has been formally defined as an "Infrastructure of Information Society" because IoT sanctions us to amass information from all kind of mediums such as humans, animals, conveyances, kitchen appliances. Thus, any object in the physical world which can be provided with an IP address to enable data transmission over a network can be made part of IoT system by embedding them with electronic hardware such as sensors, software and networking gear.IoT is different than Internet as in a way it transcends Internet connectivity by enabling everyday objects that utilizes embedded circuits to interact and communicate with each other utilizing the current Internet infrastructure Since then the scope of IoT has grown tremendously as currently it consists of more than12 billion connected devices and according to the experts it will increase to 50 billion by the end of 2020. With the advent of IoT both manufacturers and consumers have benefited., Manufacturers have gained insight into how their products are used and how they perform the real world and increase their revenues by providing value added services which enhances and elongates the lifecycle of their products or services. Consumers on the other hand have the ability to integrate and control more than one devices for a more customized and improved user experience. The proposed system is designed for the immediate cleaning of the dustbins.As dustbin is considered as a basic need to maintain the level of cleanliness in the city, so it is very important to clean all the dustbins as soon as they get filled. We will use ultrasonic sensors for this system. The sensor will be placed on top of bin which will help in sending the information to the office that the level of garbage has reached its maximum level. After this the bin should be emptied as soon as possible. The concept of IoT when used in this field will result in a better environment for the people to live in. No more unsanitary conditions will be formed in the

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# A Closed Loop Model of Modified SEPIC Based High Step-up DC-DC Converter

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**Abstract**

Since the output voltage of renewable energy system is low, the use of high step-up switched mode DC-DC converters is imperative. This paper presents a novel SEPIC based high step-up DC-DC converter that uses coupled- inductor (CL) technique and voltage multiplier rectifier (VMR), while the main characteristics of the conventional SEPIC converter is preserved. The proposed circuit comprises of a power switch (S), a CL, an input inductor, four diodes and five capacitors. The Voltage Tripler Rectifier provides a high voltage gain and the converter has a significantly reduced switching loss and diode recovery losses due to the quasi-resonance of the CL along with circuit capacitors. The operation principle, design and steady state analysis are discussed and the simulation results are also presented to justify the analysis.


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***Keywords:*** DC-DC Converter; SEPIC Converter; Quasi Resonance Operation; High Step Up; Coupled Inductor style,;Voltage Multiplier Rectifier

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# Synthesis of Red-Emitting CdSe/CdS/ZnS Core/Shell/Shell Quantum Dots

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**Abstract**

CdSe/CdS/ZnS Core/Shell/Shell Quantum Dots is synthesized of using a different surfactant, which is a mixture of octa decyl phosphonic acid (ODPA) and Oleic Acid (OA). An interfused CdSe//ZnS core formation was generated, which showed a significant blue shift from CdSe QDs. The interfused core showed the maximum QY. The CdSZnS shell favourably resulted in a significant red-shift in PL is useful for the fabrication of high power white blight LEDs.



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*Keywords:* LED;Quantum Dot

## 1. Introduction

Efficient solid-state lighting (SSL) offers a high potential for saving energy and protecting the environment [1]. If light-emitting diodes (LEDs) at the targeted efficiency levels are replaced with conventional lighting sources, the global electricity that is consumed for lighting would be decreased by more than 50%, which is equal to the reduction of either 230 typical 500-MW coal plants or 200 million tons of greenhouse gas emission [1,2]. According to the SSL road map, white LEDs were targeted to reach a luminous efficiency (LE) level over 200 lumen per electrical watt until 2020 [3]. To this end, there is a significant worldwide effort to boost the efficiency levels of

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