VLSI - MEMS RESEARCH CENTER

Dr. K. Srinivasa Rao
Professor

Dr. K. Girija Sravani
Assoc. Professor

OBJECTIVES

- Miniaturization of electronicdevices.
- Interfacing of both Electronics and Mechanics.
- Collaboration with private foundaries for fabrication and packaging purpose.
- Development in the VLSI/MEMS sensors through various CAD tools.
- Research work has been performed on various sectors of VLSI/MEMS such as RF VLSI/MEMS, Bio - VLSI/MEMS and smart sensors.

- Modelling
- Design
- Simulation
- Fabrication
- Characterisation

K L University

(Deemed to be University estd, u/s. 3 of the UGC Act, 1956)

(NAAC Accredited "A" Grade University)

KONERU LAKSHMAIAH EDUCATION FOUNDATION

Contents

ABOUT CENTER

Establishment of VLSI-MEMS Research Lab:

Established the state-of-the-art research laboratory to promote the research activities of semiconductor devices and the modelling of Nanoscale transistors for digital, RF, Analog, Sensor applications and Microelectromechanical Systems (MEMS) for RF (L-Band to K-band) and Bio-Sensor Applications since 2017.

Research Areas: Designing, Modeling and Fabrication of Various Nanoscale Devices/Micro-Electro-Mechanical Systems (MEMS) devices by TCAD/ COMSOL / Intellisuite Software Tools and hands-on Experience in Clean Room.

-FinFETs, Dual Gate, Multi Gate FinFET's, SRAM Cell, Memory Cell Design etc.

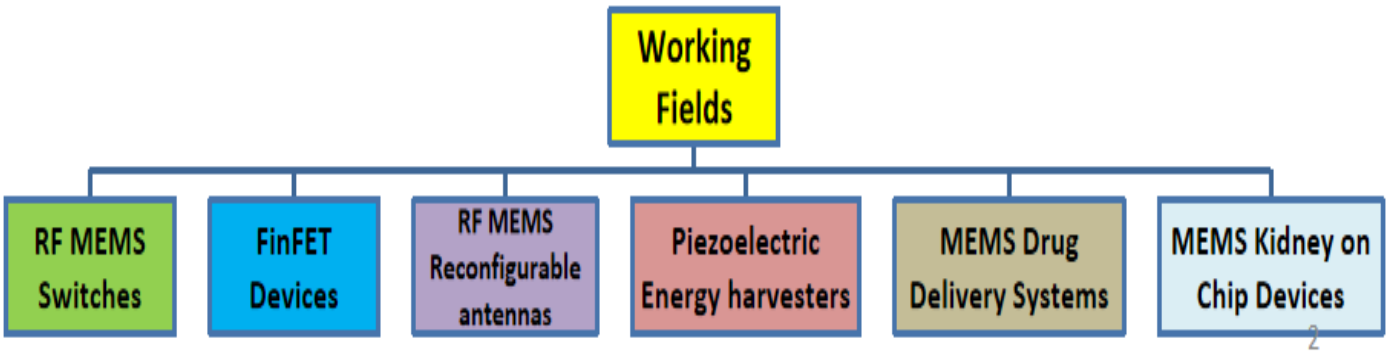
-Micro-Sensors Devices i.e Accelerometers,

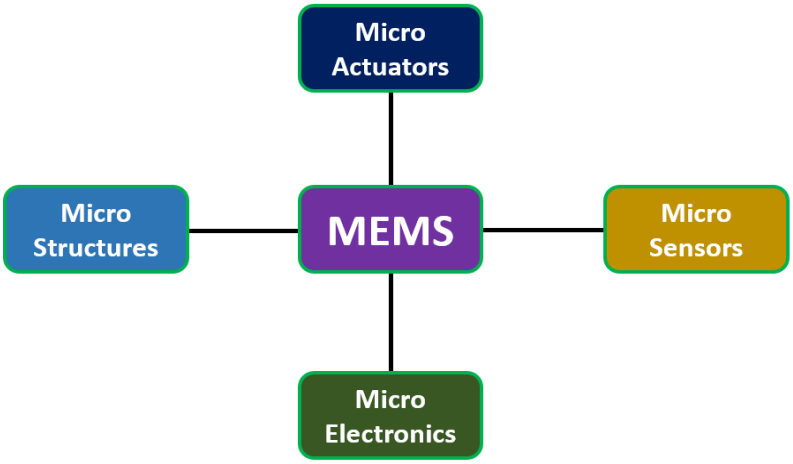
-Bio-Sensors, Drug Delivery Systems, MEMS Pressure Sensors

-RF MEMS Devices, RF MEMS Filters, Reconfigurable Antenna's etc

-Micro-Actuators, i.e Gyroscopes, Composite Transducers,

……Micro mirrors etc.





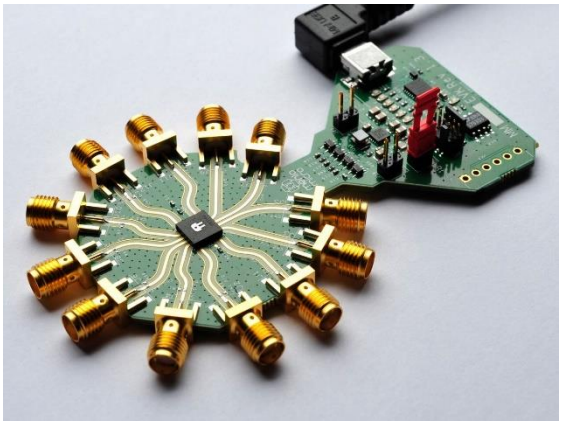
Motto: To promote MEMS field and interdisciplinary research nature in academic & Industry community**.**

"Research is always successful with interdisciplinary"

RESEARCH WORKS:

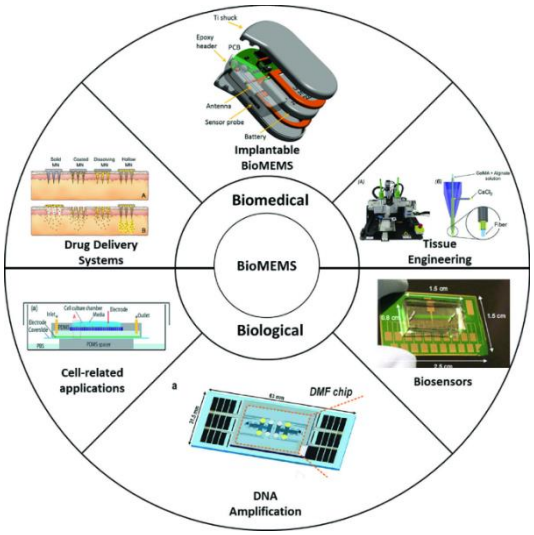
RF MEMS:

- MEMS ACTUATORS
- MEMS INERTALSENSORS
- RF MEMS SWITCHES
- RECONFIGURABLE ANTENNAS
- MEMS FILTERS



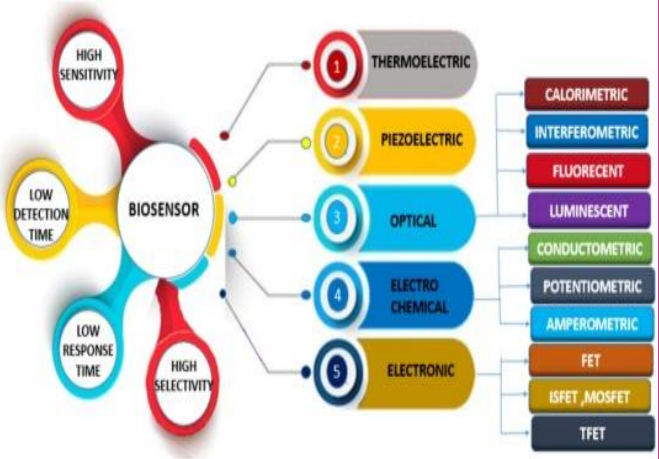
BIO – MEMS:

- AIR BAG SENSORS
- MICRONEEDLE
- MICROCHANNEL
- ENERGY HARVESTERS

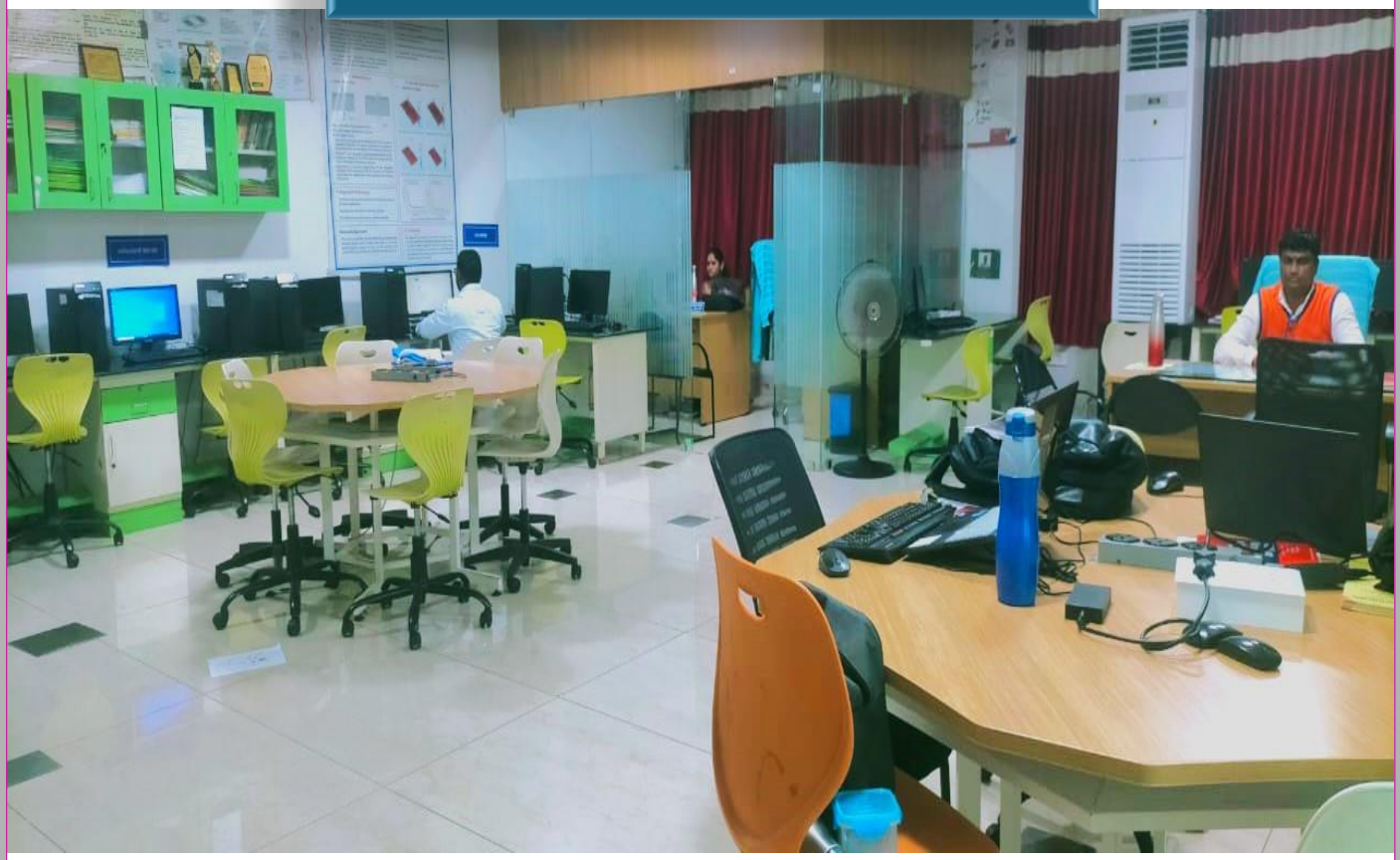


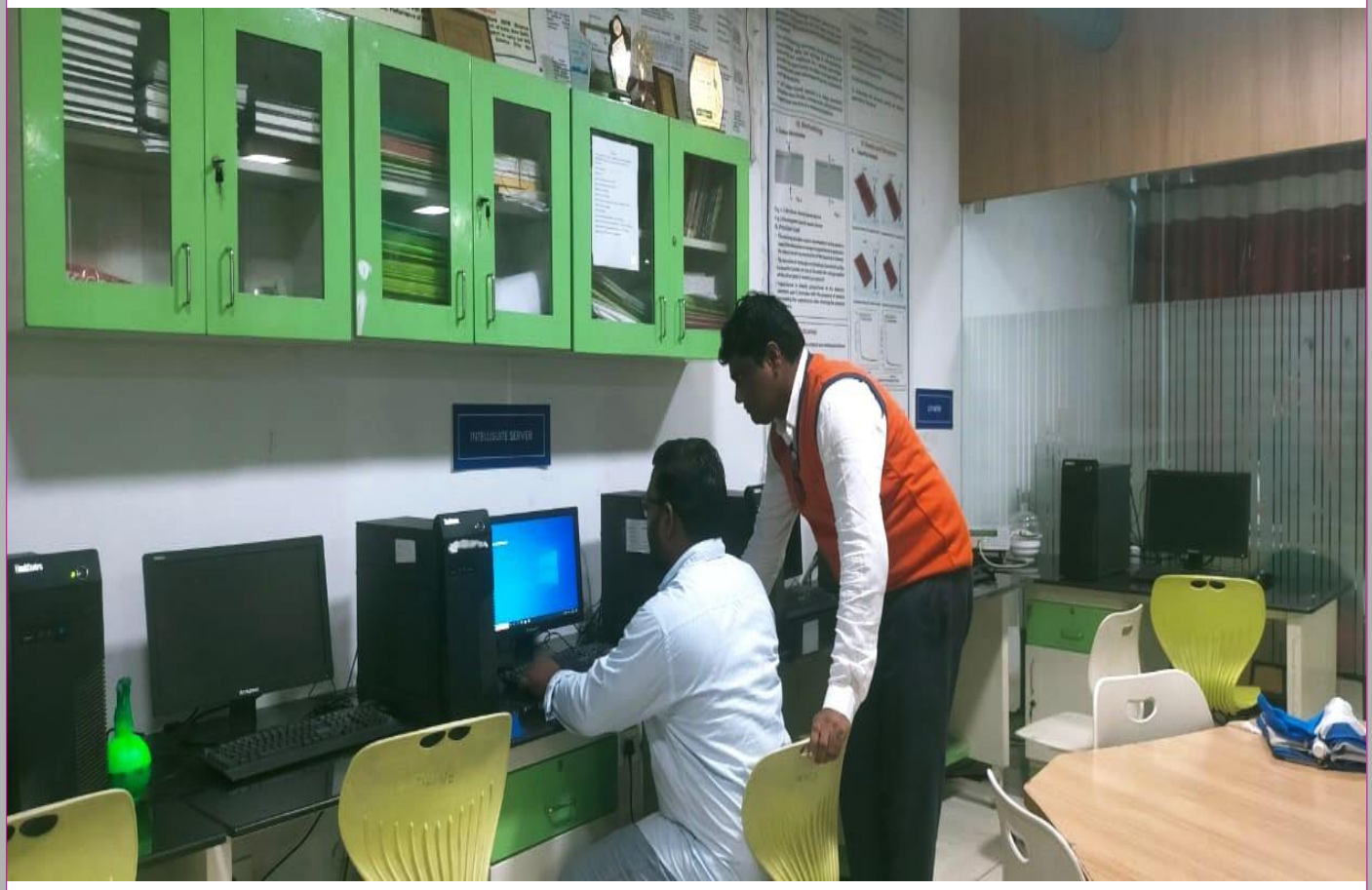
TFET BIO SENSORS:

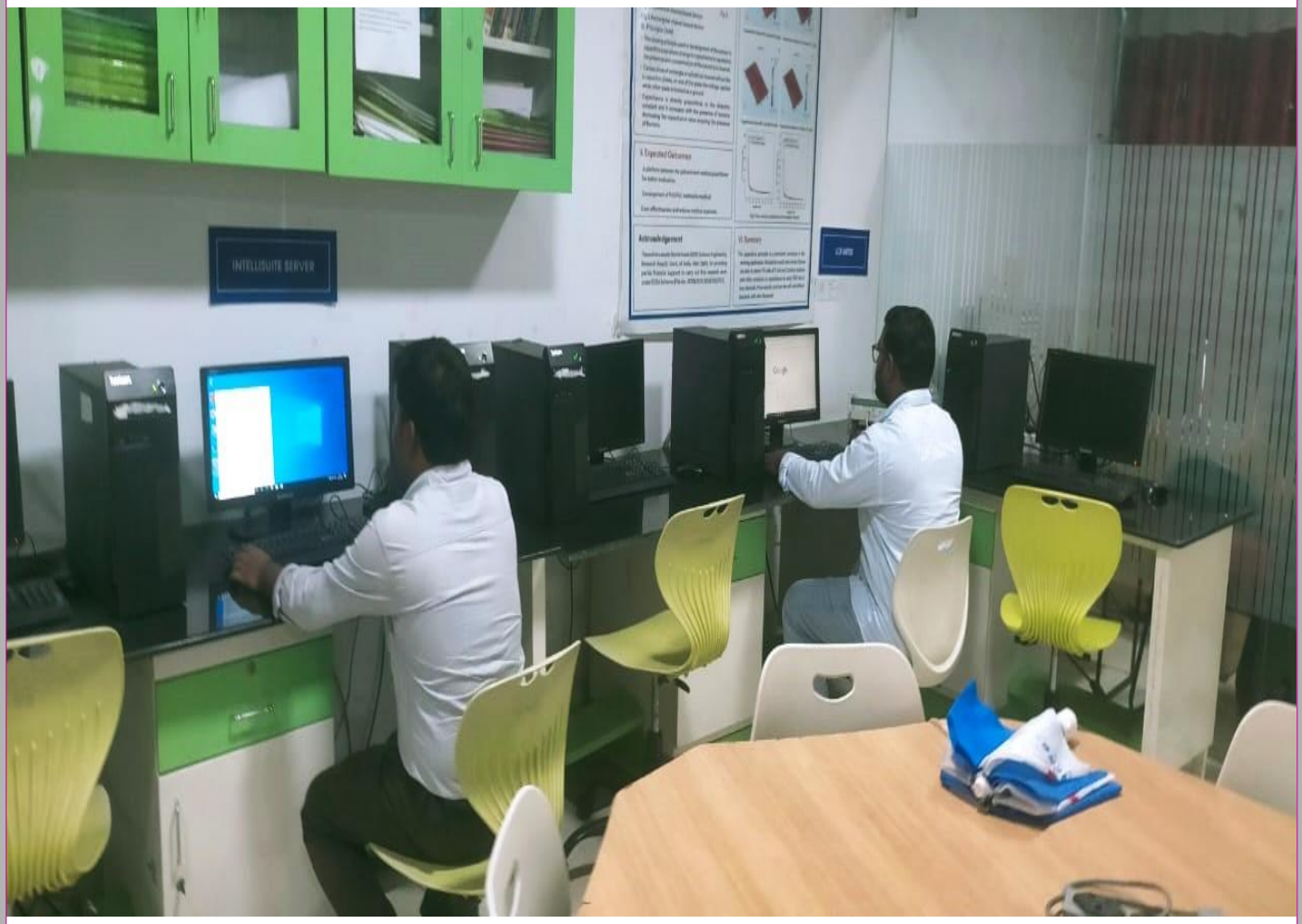
- DM-TFET
- DMDG-TFET
- DMDG-VTFET
- Heterojunction DMDG-VTFET
- Junction less TFET



VLSI – MEMS RESEARCH CENTER




INTELLIGUITE SERVER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Faculty Associated in the Center

Dr. K.Girija Sravani

PUBLICATIONS: 123

Dr. Fazal Noor Basha

PUBLICATIONS: 95

Dr. Hari Kishore

PUBLICATIONS: 134

Dr. K. SRINIVASA RAO

PUBLICATIONS: 238

Dr. P. Sreenivasu Babu

PUBLICATIONS: 42

Dr. G. R. K. Prasad

PUBLICATIONS: 30

Dr. GV. Ganesh

PUBLICATIONS: 42

Dr. B. Balaji

PUBLICATIONS: 30

Dr. N. Sidhaiah

PUBLICATIONS: 32

FUNDED PROJECTS

No. of Funded Projects

- **Project Title**: Design, Simulation, Fabrication and Characterization of MEMS Bio-Sensor for the detection of Cholera and Diarrhea **SERB-ECRA Scheme**
  Principal Investigator: Dr. Srinivasa Rao Karumuri
  Scheme: SERB/ECRA Scheme
  Sanction Amount: Rs.31, 55,000.00
  Duration: 3 years (Nov, 2016- October, 2019)
  Sponsor: Department of Science & Technology, New Delhi

- **Project Title**: Development of wearable MEMS based Sensor for Parkin's Diseases
  Project mentor: Dr. Srinivasa Rao Karumuri **DST-WOS-A Scheme**
  Principal Investigator: Ms.M.Preeti
  Scheme: DST-WOS-A
  Sanction Amount: Rs.28, 00,000.00
  Duration: 3 years (2017-2020)
  Sponsor: Department of Science & Technology, New Delhi

- **Project Title**: A study on distorted structure Nano molecules by Algebraic methods: Applications to fullerene C_{80} and its compounds **UGC-Major Research Scheme**
  Principal Investigator: Dr. Srinivasa Rao Karumuri
  Scheme: UGC Major Project
  Sanction Amount: Rs.11,38,300.00
  Duration: 3 years (201- October, 2019)
  Sponsor: University of Grant Commission, New Delhi

- **Project Title**: Lie algebraic approach to investigate the spectroscopic studies on distorted structure of Nano-bio molecules **DST-Young Scientist Scheme**
  Principal Investigator: Dr. Srinivasa Rao Karumuri
  Scheme: DST, Fast Track Young Scientist Project
  Sanction Amount: Rs.3, 84,000.00
  Sponsor: Department of Science & Technology, New Delhi

Research Grants Received from funding Agencies

As a Coordinator:

- One day National Workshop on "Artificial Intelligence Techniques" held on 24th November 2012 at LBR College of Engineering, Mylavaram, Andhra Pradesh, India.

As a Co-Convener:

- 8th National Level Technical symposium held on 23rd March, 2013, LBR College of Engineering, Mylavaram, Andhra Pradesh, India

As a Convener:

- A Two Day National Level Workshop on "**Industrial Automation-PLC & SCADA**" held on 11th-12th, September, 2014 organized by Department of EIE at LBR College of Engineering, Mylavaram, A.P
  Sponsored Amount: Rs.1,00,000

- DST Sponsored A Two Day National Level Workshop on "**Recent Trends in MEMS for Biomedical and Weather Monitoring Applications**" held on 18th-19th, October, 2014 organized by EIE at LBR College of Engineering, Mylavaram, A.P.
  Sponsored Amount: Rs.1,00,000

- DST Sponsored National Conference on "**Advances in MEMS, VLSI & Instrumentation**" held on Feb 27 & 28th, 2015 Organized by EIE at LBR College of Engineering, Mylavaram, A.P.
  Sponsored Amount: Rs.1,00,000

- **DST Sponsored National Workshop on "Recent Trends in MEMS, NEMS & VLSI" will be held on 9th-10th, March, 2016 Organized by ECE at KL University, Green Fields, A.P, India**
  Sponsored Amount: Rs.1,00,000

- ISRO & DBT Sponsored Two Day National Workshop on "**Recent Advances in RF and Bio-MEMS Devices for Engineering Applications**" held on March, 30th-31st, 2017 Organized by ECE at KL University, Green Fields, A.P, India
  Sponsored Amount: Rs.1,00,000

- SERB Sponsored National Workshop on "**Advances in MEMS Devices for Engineering Applications**" will be held on **15th-16th, September, 2017**, Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India
  File No: SSY/2017/000609
  Sponsored Amount: Rs.1,00,000

- AICTE-ATAL Sponsored 5 Days Faculty Development program on " Challenges and opportunities in VLSI" held on 21st-25th, June, 2021, Organized by Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India
  Sponsored Amount: Rs. 93,0000

- AICTE-ATAL Sponsored 5 Days Faculty Development program on " Artificial Intelligence in VLSI Chip Design" held on 6th-10th, December, 2021, Organized by Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India
  File NO:1613712604-----AICTE-ATAL-HQ-2021-22-341
  Sponsored Amount: Rs. 93,0000

- SERB Sponsored National Workshop on "**Recent Trends in RF MEMS Devices for IOT Applications**" will be held on **15th-16th, September, 2019**, Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India
  File No: SSY/2019/000569
  Sponsored Amount: Rs.1,00,000

- AICTE-ATAL Sponsored 2-weeks Faculty Development program on "**Recent Developments in VLSI Cip Devices for Sensor Applications**" held on 24th, Spet-28th,October, 2022, Organized by Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India
  Sponsored Amount: Rs. 3,00,0000

- SERB Sponsored National Workshop on "**Recent Trends in Semiconductor Device/VLSI Devices and its applications**" will be held on **23rd-27th, Jan, 2023,** Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India
  File No: SSY/2022/000964
  Sponsored Amount: Rs.1,50,000

Faculty Development Program Sponsored by AICTE-ATAL [2021]
Topic: Challenges and Opportunities in VLSI for IoT Applications
File No: 4-39/AICTE-SCRO/FDP/2021-22/85
Sanctioned Total Budget: 93,000 INR
Coordinator: Dr.K.Girija Sravani

Faculty Development Program Sponsored by E-ICT
Topic: Recent Trends in VLSI and MEMS Devices for IoT Applications [2021]
File No: FDP/2021/000276
Total Budget: 1,00,000 INR
Status: Sanctioned\
Co-Coordinator: Dr. K. Srinivasa Rao

National Workshop Proposal Submitted to SERB, New Delhi [2020]
Recent advances in MEMS sensors for biomedical applications
File No : SSY/2020/000390
Convener Name : GIRIJASRAVANI K
Total Budget : 1,00,000 INR
Status : Sanctioned
Co-Coordinator: Dr. K. Srinivasa Rao

Faculty Development Program (FDP) proposal submitted to AICTE, [2024]
National FDP on Machine Learning in VLSI Chip Design
Convener Name : GIRIJASRAVANI K
Total Budget : 7,00,000 INR
Status: Proposal Submitted
Co-Coordinator: Dr. K. Srinivasa Rao

No. of Ph. D Awarded

1. J. Vijayshekar---Jawaharlal Nehru Technological University, Kakinada **(Awarded, 2016)**

2. A. Vanaja--- Lingaya's University, Faridabad **(Awarded, 2017)**

3. T Lakshmi Narayana--- Koneru Lakshmaiah Education Foundation, A.P (**Awarded, 2019**)

4. GV Ganesh--- Koneru Lakshmaiah Education Foundation, A.P (**Awarded, 2020**)

5. Ashok Kumar--- Koneru Lakshmaiah Education Foundation, A.P (**Awarded, 2021**)

6. G Shanti--- Koneru Lakshmaiah Education Foundation, A.P (**Awarded, 2021**)

7. T Phani Siva Sankar--- Koneru Lakshmaiah Education Foundation, A.P (**Awarded, 2022**)

8. Shoukath Vali--- Koneru Lakshmaiah Education Foundation, A.P (**Awarded, 2023)**

9. Ch. Gopichand--- Mizoram (A Central) University, Mizoram (**Awarded, 2023**)

10. G Sai Lakshmi--- Koneru Lakshmaiah Education Foundation, A.P(**Thesis Submitted, 2024**)

11. D Manaswi-- Koneru Lakshmaiah Education Foundation, A.P **(Thesis Submitted, 2024)**

No. of Books (As an Editor)

1. ***Integrated Devices for Artificial Intelligence and VLSI***
   Editors: Suvetha, **Srinivasa Rao Karumuri**, Rahi, Dharmendra Singh
   Publishers: Wiley Publishers (2024-In Press)

2. ***Machine Learning for VLSI Chip Design***
   Editors: Abhishek Kumar, Suman Lata Tripathi, **K. Srinivasa Rao (Editor)**
   First published:14 July 2023
   Print ISBN:9781119910398 |Online ISBN:9781119910497
   |DOI:10.1002/9781119910497

3. ***MEMS and Microfluidics in Healthcare- Devices and Applications Perspectives***
   Editors: Koushik Guha (Editor), **K. Srinivasa Rao** (Editor)
   ISBN: 978-981-19-8714-4 (e book) 2023
   Publishers: Springer Publishers

4. ***Integrated Devices for Artificial Intelligence and VLSI***
   Editors: Balwinder Raj (Editor), Suman Lata Tripathi (Editor), Tarun Chaudhary (Editor), **K. Srinivasa Rao (Editor)**, Mandeep Singh (Editor)

5. *Design and Analysis of Thermal Expansion in Micro-Electro-Mechanical-Syste,*
   ISBN: **978-3-8484-8182-8**
   Publishers: Lambert Academic (2012)

6. ***Design, Analysis and Simulation of Tunable MEMS Capacitor***
   ISBN: **978-3-659-33196-1**
   Publishers: Lambert Academic (2013)

EVENTS ORGANIZED

As a Convener:

Events held in *2024*:

Faculty Development Program (FDP) proposal submitted to AICTE

National FDP on Machine Learning in VLSI Chip Design

Convener Name : **Girija Sravani K**

Total Budget : **7,00,000 INR**

Status : **Proposal Submitted**

Co-Coordinator : **Dr. K. Srinivasa Rao**

Events held in *2023*:

SERB Sponsored National Workshop on **"Recent Trends in Semiconductor Device/VLSI Devices and its applications"** will be held on **23rd - 27th, Jan 2023**, Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India.

File No : **SSY/2022/000964**

Sponsored Amount : **Rs.1,50,000**

Events held in *2022*:

1) AICTE-ATAL Sponsored 2-weeks Faculty Development program on **"Recent Developments in VLSI Cip Devices for Sensor Applications"** held on **24th Sept - 28th October 2022**, Organized by Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India

Sponsored Amount : **Rs. 3,00,0000**

2) SERB Sponsored National Workshop on **"Recent Trends in Semiconductor Device/VLSI Devices and its applications"** will be held on **23rd - 27th, Jan 2023**,

Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India

File No : **SSY/2022/000964**

Sponsored Amount : **Rs.1,50,000**

Events held in *2021*:

1) Faculty Development Program Sponsored by E-ICT

Topic: **Recent Trends in VLSI and MEMS Devices for IoT Applications**

File No : **FDP/2021/000276**

Total Budget : **1,00,000 INR**

Status : **Sanctioned**

Co-Coordinator : **Dr. K. Srinivasa Rao**

2) Faculty Development Program Sponsored by AICTE-ATAL

Topic: **Challenges and Opportunities in VLSI for IoT Applications**

File No : **4-39/AICTE-SCRO/FDP/2021-22/85**

Sanctioned Total Budget : **93,000 INR**

Coordinator : **Dr. K. Girija Sravani**

3) AICTE-ATAL Sponsored 5 Days Faculty Development program on **" Challenges and opportunities in VLSI"** held on **21st - 25th, June 2021**, Organized by Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India

Sponsored Amount : **Rs. 93,0000**

4) AICTE-ATAL Sponsored 5 Days Faculty Development program on **" Artificial Intelligence in VLSI Chip Design"** held on **6th - 10th, December 2021**, Organized by Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India

File NO :**1613712604-----AICTE-ATAL-HQ-2021-22-341**

Sponsored Amount : **Rs. 93,0000**

Events held in *2020*:

National Workshop Proposal Submitted to SERB, New Delhi

Recent advances in MEMS sensors for biomedical applications

File No : **SSY/2020/000390**

Convener Name : **Girija Sravani K**

Total Budget : **1,00,000 INR**

Status : **Sanctioned**

Co-Coordinator : **Dr. K. Srinivasa Rao**

Events held in *2019*:

SERB Sponsored National Workshop on **"Recent Trends in RF MEMS Devices for IOT Applications"** will be held on **15th - 16th, September 2019**, Organized by Microelectronics research Group, Department of ECE at KL University, Green Fields, A.P, India

File No : **SSY/2019/000569**

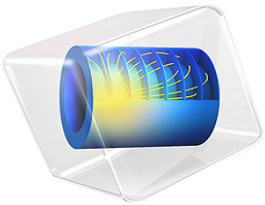
Sponsored Amount : **Rs.1,00,000**

Facilities available in the Center

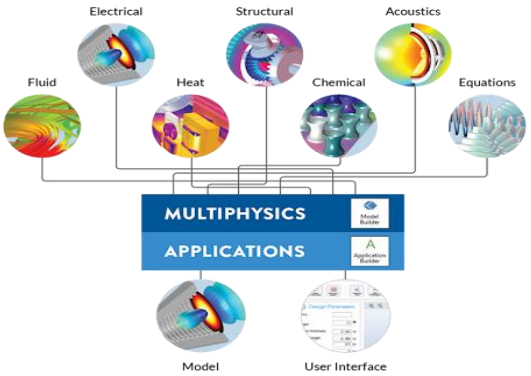
1) COSMOL Multiphysics:

COSMOL Multiphysics is a computational tool used for simulating and analysing complex physical systems. It integrates multiple physics phenomena such as fluid dynamics, heat transfer, and electromagnetics into a unified platform. COSMOL enables engineers and scientists to model real-world problems and optimize designs efficiently.

- **Manufacturer : COSMOL Multiphysics**
- **Version : 5.2**
- **Number of Licenses : 5**



COMSOL MULTIPHYSICS®



2) Intellisuite:

Intellisuite is a suite of software tools used for MEMS (Micro-Electro-Mechanical Systems) and semiconductor device simulation. It includes tools for layout design, process simulation, and device characterization, making it essential for MEMS and semiconductor industries.

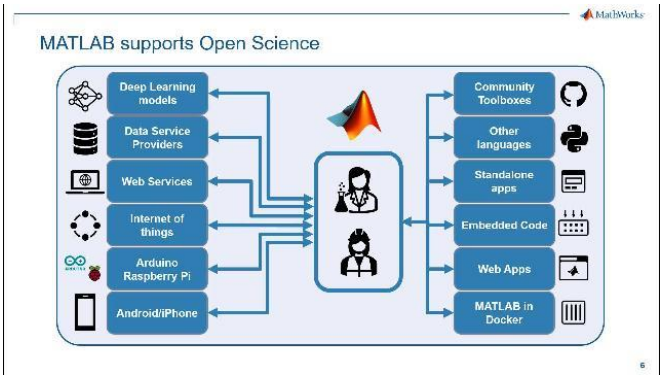
- **Manufacturer : Intellisuite IT Solutions**
- **Version : 8.1**
- **Number of Licenses : 5**

intellisuite
IT SOLUTIONS
Fast and Reliable IT support

3) MATLAB:

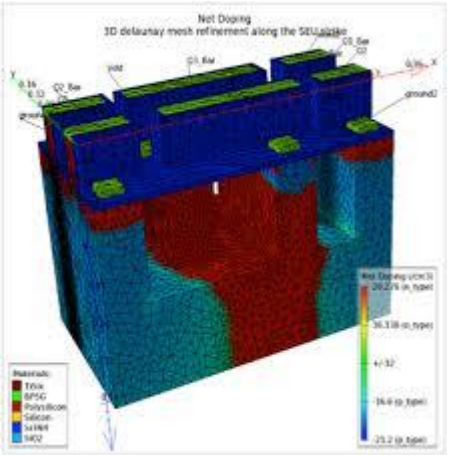
MATLAB is a high-level programming language and computing environment widely used in engineering and scientific research. It offers tools for data analysis, algorithm development, and modelling, making it versatile for various disciplines including signal processing, image processing, and control systems.

- **Manufacturer : MathWorks**
- **Version : R2024a**
- **Number of Licenses : 5**



4) TCAD (Silvaco):

TCAD stands for Technology Computer-Aided Design and is provided by Silvaco. It's used for semiconductor process and device simulation, enabling engineers to simulate the fabrication process and electrical behaviour of semiconductor devices at a detailed level. This aids in optimizing device performance and reliability.



Details of the Equipment

1) LCR Meter:

An LCR meter is a device used to measure inductance (L), capacitance (C), and resistance (R) of electronic components. It typically operates by applying an AC voltage to the component under test and measuring the resulting current. LCR meters are essential tools in electronics for component testing and quality control due to their accuracy and versatility.

a. Quantity: **1**

b. Specification:

c. Manufacturer:

d. Cost:

2) Systems available:

System 1 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 2 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 3 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD, IntelliSuite 8.4 (FEM tool)

System 4 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD, MATLAB

System 5 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 6 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD, MATLAB

System 7 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD, COMSOL Server

System 8 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 9 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 10 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 11 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

System 12 Configurations:

- Processor : AMD A10 PRO-7800B R7, 12 Compute Cores 4C+8G 3.50 GHz
- Installed RAM : 6GB
- Operating System : Windows 10
- Software : Silvaco TCAD

VLSI – MEMS Research Center

LIST OF SCHOLARS

Dr. G. Shanthi

RF MEMS Band Pass Filters

Dr. G. Sai Lakshmi

Bio - MEMS

Dr. SK. Shoukat Vali

RF MEMS Filters

Dr. G. Divya Vani

Robots by Novel VLSI Archtitectures

Dr. K. SRINIVASA RAO

Dr. P. Ashok Kumar

RF MEMS Elements for Reconfigurable Devices

Dr. P. Gopi Chand

RF MEMS Filters

Dr. G. V. Ganesh

RF MEMS

Dr. T. Sivasankara Phani

RF MEMS Band Pass Filters

Dr. D. Manaswi

TFET Biosensor

International Research Collaborators

Dr. R. Umapathi

INHA UNIVERSITY
SOUTH KOREA

Dr. G. Mohana Rani

INHA UNIVERSITY,
SOUTH KOREA

Prof. Aime Lay Edukulle

UNIVERSITY OF
SALENTO, ITALY

Dr. Song Y.S

SEOUL NATIONAL
UNIVERSITY, SOUTH KOREA

Dr. K. SRINIVASA RAO

Prof. Girish Wadwa

UNIVERSITY OF FERRARA,
ITALY

Dr. Chinaaiah

NTU Singapore

Prof. Ameen El-Sinawi

PERTROLEUM INSTITUTE,
ABU DHABI, UAE

Prof. Poenar Daniel Puiu

SCHOOL OF ELECTRICAL & ELECTRONIC
ENGINEERING, NTU SINGAPORE

Dr. Jacopo L

UNIVERSITY OF BOLOGNA,
ITALY

National Research Collaborators

NIT JALANDHAR

NIT, SILCHAR

MIZORAM UNIVERSITY

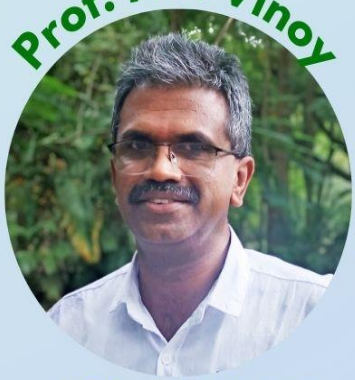
IIT ROORKEE

Dr. K. SRINIVASA RAO

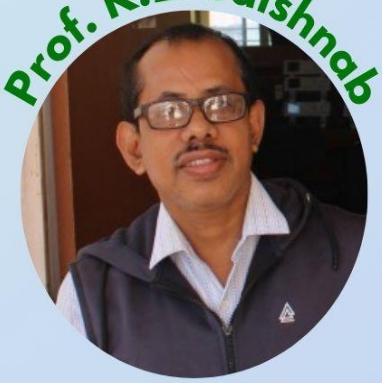
IIT, HYDERADAB

NIT PATNA

BITS PILANI HYDERABAD



IISC, BANGLORE



NIT SILCHAR

LIST OF PUBLICATIONS

Srinivasa Rao, Karumuri

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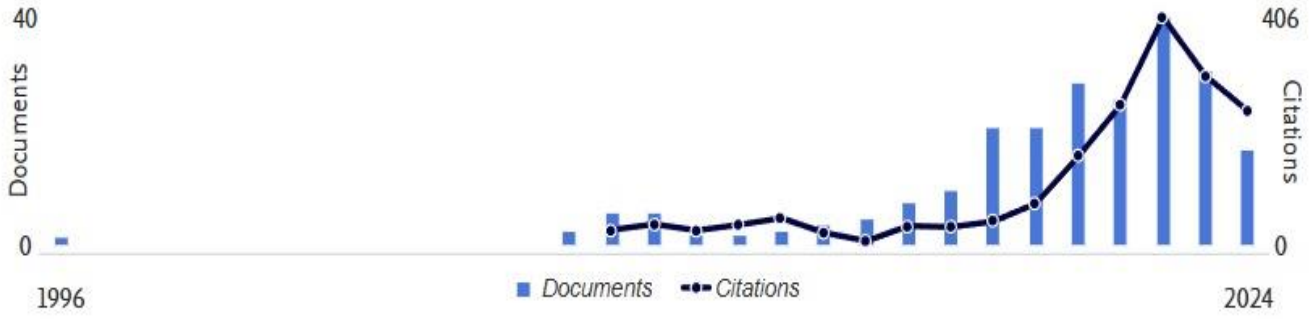

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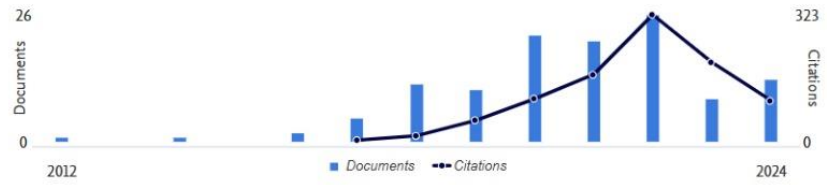

Most contributed Topics 2019–2023

Electric Switches; Capacitive; Microelectromechanical System
58 documents

Micropump; Piezoelectric; Microelectromechanical System
5 documents

Biosensor; Glucose Sensor; Microelectromechanical System
4 documents

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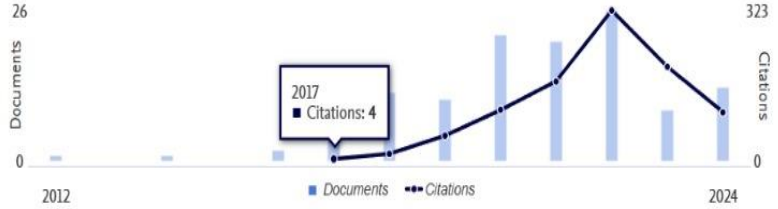

Most contributed Topics 2018–2022

Electric Switches; Capacitive; Microelectromechanical System
63 documents

Micropump; Piezoelectric; Microelectromechanical System
6 documents

Field Effect Transistor; Nanowires; Metal-Oxide-Semiconductor Field-Effect Transistor
3 documents

Publications 2024

1. **Gate Oxide Thickness and Drain Current Variation of Dual Gate Tunnel Field Effect Transistor**

   Cite this Research Publication: Howldar, S. Balaji B., **Rao, K. Srinivasa**

   Publisher: International Journal of Engineering, Transactions A: Basics

   Impact factor: 1.64

   doi: 10.5829/ije.2024.37.03c.09 **Vol:37 Issue: 3**

   ISSN: 1728-1431 **pp: 520**-528

2. **Design and Analysis of Symmetrical Dual Gate Tunnel Field Effect Transistor with Gate Dielectric Materials in 10nm Technology**

   Cite this Research Publication: Buttol S.; Balaji B.; **Srinivasa Rao K**.

   Publisher: International Journal of Engineering, Transactions A: Basics

   Impact factor: 1.58

   doi: 10.5829/ije.2024.37.04a.02 **Vol: 37 Issue:** 4

   ISSN: 17281431 **pp: 588- 595**

3. **High Sensitivity of Dielectrically Modulated Tunnel Field Effect Transistor for Biosensor Applications**

   Cite this Research Publication: P Harika, Girija Sravani Kondavitee, **Srinivasa Rao Karumuri**, Aime Lay-Ekuakille

   Publisher: IEEE Transactions on Nano bioscience **Impact factor:** 3.206

   doi: 10.1109/TNB.2024.3386586

4. **Design and Performance Analysis of high-k Gate All Around Fin-Field Effect Transistor**

   Cite this Research Publication: K. Rohith Sai, K. Girija Sravani, **K. Srinivasa Rao**, B. Balaji, V. Agarwal

   Publisher: International Journal of Engineering, Transactions A: Basics,

   Impact factor: 1.64

   doi: 10.5829/ije.2024.37.03c.04 **Vol:37 Issue:3**

   ISSN: 1728-1431 **pp:** 476-483

5. **Design and Performance Assessment of a Label-free Biosensor utilizing a Novel TFET Configuration**

   Cite this Research Publication: Rapolu Anil Kumar,K.Girija Sravani, and **K.Srinivasa Rao**

   Publisher: Journal of Integrated Circuits and Systems **Impact factor:** 0.48

   doi: 10.29292/jics.v19i1.784 **Vol:19**

ISSN: 18071953 **pp:** 711-720

6. **Novel design of a low power neural amplifier using split push pull balanced high swing OTA for brain machine interface**
   Cite this Research Publication: Nath S.; Kumar N.; Guha K.; Baishnab K.L.; **Rao K.S**.
   Publisher: Microsystem Technologies **Impact factor:** 1.6
   doi: 10.1007/s00542-023-05588-6 **Vol:30 Issue: 2**
   ISSN: 9467076 **pp: 197-207**

7. **Optimizing Cluster Head Selection for E-Commerce-Enabled Wireless Sensor Networks**
   Cite this Research Publication: Gupta D.; Ramesh J.V.N.; Kumar M.K.; Alghayadh F.Y.; Dodda S.B.; Ahanger T.A.; Ilkhamova Y.; **Karumuri S.R.**
   Publisher: IEEE Transactions on Consumer Electronics **Impact factor:** 4.3
   doi: 10.1109/TCE.2024.3360513 **ISSN:** 0098-3063

8. **Design of capacitive pressure sensor for continuous glucose monitoring system**

   Cite this Research Publication: Lakshmi G.S.; **Rao K.S.**
   Publisher: Microsystem Technologies **Impact factor:** 1.6
   doi: 10.1007/s00542-023-05589-5 **ISSN:** 9467076

9. **Geometry-Based Parking Assistance Using Sensor Fusion for Robots With Hardware Schemes**

   Cite this Research Publication: Chinnaiah M.C.; Vani G.D.; **Karumuri S.R**.; Srikanthan T.; Lam S.-K.; Narambhatla J.; Krishna D.H.; Dubey S.
   Publisher: IEEE Sensors Journal **Impact factor:** 4.325
   doi: 10.1109/JSEN.2023.3345037 **Vol: 24 Issue: 6**
   ISSN: 1558-1748 **pp: 8821-8834**

10. **Design and Analysis of Symmetrical Dual Gate Tunnel Field Effect Transistor with Gate Dielectric Materials in 10nm Technology**

    Cite this Research Publication: Buttol S.; Balaji B.; Rao K.S.
    Publisher: International Journal of Engineering Transactions C: Aspects
    Impact factor: 1.141
    doi: 10.5829/IJE.2024.37.04A.01 **Vol: 37 Issue: 4**
    ISSN: 24237167 **pp: 588-595**

11. **Investigation and Analysis of Dual Metal Gate Overlap on Drain Side Tunneling Field Effect Transistor with Spacer in 10nm Node**

Cite this Research Publication: Howldar S.; Balaji B.; Rao K.S.
Publisher: International Journal of Engineering, Transactions B: Applications
Impact factor: 1.353
doi: 10.5829/ije.2024.37.05b.07
Vol: 37 Issue: 5
ISSN: 1728144X
pp: 887-895

12. **Design and performance analysis of charge plasma TFET for biosensor applications: a simulation study**

Cite this Research Publication: Manaswi D., **Karumuri S.R.**
Publisher: Microsystem Technologies
Impact factor: 1.6
doi: 10.1007/s00542-024-05678-z
Vol:30 **Issue**: 6
ISSN: 9467076
pp: 739-749

13. **CPW Tunable Band-Pass Filter Based on RF MEMS Capacitive Shunt and Series Switches**

Cite this Research Publication: Ganesh G.V., **Karumuri S.R.**
Publisher: Wireless Personal Communications
Impact factor: 1.9
doi: 10.1007/s11277-024-10973-z
Vol: 134 **Issue**: 3
ISSN: 9296212
pp: 1599-1615

14. **Simple and fast modelling of radio frequency passives in view of beyond-5G and 6G applications: case study of an RF-MEMS multi-state network described by an equivalent lumped element network**

Cite this Research Publication: Iannacci J., Tagliapietra G., Marinković Z., Guha K., **Karumuri S.R**., Chiele I.D., Donelli M.
Publisher: Microsystem Technologies
Impact factor: 1.6
doi: 10.1007/s00542-024-05712-0
ISSN: 9467076

15. **Design and Analysis of dual-k spacer CombFET for Digital and Synaptic Applications**

Cite this Research Publication: Aruna Kumari N., **Karumuri S.R**., Ajayan J., Vijayvargiya V., Upadhyay A.K., Uma M., Sai Kumar A.
Publisher: IEEE Access
Impact factor: 3.4
doi: 10.1109/ACCESS.2024.3414611
ISSN: 21693536

16. **Design and analysis of novel MEMS cantilever biosensor with special focus on SCR for tuberculosis detection**

Cite this Research Publication: Brahma L., Guha K., Karumuri S.R.
Publisher: Microsystem Technologies
Impact factor: 1.6

doi: 10.1007/s00542-024-05689-w **ISSN:** 9467076

Publications 2023

17. Design and Analysis of MEMS Pressure Sensor based on various principles of Microcantilever beam

Cite this Research Publication: Sai Lakshmi G , **Srinivasa Rao K** , Girija Sravani K - Design and Analysis of MEMS Pressure Sensor based on various principles of Microcantilever beam.
Publisher: IEEE Transactions on Nano bioscience
doi: 10.1109/TNB.2023.3334749 **Impact factor:** 3.7
ISSN: 1536-1241 **pp:**(99)

18. Design and Analysis of HEMT by 5 nm Technology

Cite this Research Publication: Kondavitee G.S., **Rao K.S.**, Suman M., Pravallika B., Annapurna K.S., Vaishnavi G., Ramya K.R., Aditya M.- Design and Analysis of HEMT by 5 nm Technology.
Publisher: Silicon **Impact factor:** 2.8
doi: 10.1007/s12633-022-01795-4 **Vol:**15 **Issue:** 5
ISSN: 1876990X **pp:** 2199-2209

19. Design and Analysis of Bio-Inspired Micro-Needle for Drug Delivery Applications

Cite this Research Publication: Sravani K.G., Desala R.K., Chand P., Sathvik K., **Rao K.S.**, Lay-Ekuakille A.
Publisher: IEEE Transactions on Nanobioscience **Impact factor:** 3.7
doi: 10.1109/TNB.2022.3185633 **Vol:22 Issue:** 2
ISSN: 15361241 **pp:** 237-244

20. Design and Performance Analysis of a Microbridge and Microcantilever-Based MEMS Pressure Sensor for Glucose Monitoring

Cite this Research Publication: Lakshmi G.S., **Karumuri S.R.**, Kondavitee G.S., Lay-Ekuakille A.
Publisher: IEEE Sensors Journal **Impact factor:** 4.32
doi: 10.1109/JSEN.2023.3234594 **Vol:**23 **Issue:** 5
ISSN: 1530437X **pp:** 4589-4596

21. Design, Fabrication and Measurement of Radio Frequency Micro-Electro-Mechanical Systems

Cite this Research Publication: Kondavitee G.S., Song Y.S., **Karumuri S.R.**, Guha K., Kaushik B.K., Lay-Ekuakille A.
Publisher: IEEE Open Journal of Nanotechnology **Impact factor:** 4.32
doi: 10.1109/OJNANO.2023.3318236 **Vol:4**

pp: 195-207

22. Modelling, Fabrication and Testing of RF Micro-Electro-Mechanical-Systems Switch

Cite this Research Publication: **Karumuri S.R.**, Kumar P.A., Kondavitee G.S., Lay-Ekuakille A.

Publisher: IEEE Open Journal of Nanotechnology **Impact factor:** 4.32

doi: 10.1109/OJNANO.2023.3318236 **Vol:** 4

pp: 81-94

23. Design and Analysis of Hetero Dielectric Dual Material Gate Underlap Spacer Tunnel Field Effect Transistor

Cite this Research Publication: Howldar S., Balaji B., **Rao K.S.**

Publisher: International Journal of Engineering, Transactions A: Basics **Impact factor:** 1.64

doi: 10.5829/ije.2023.36.12c.01 **Vol:** 36 **Issue:** 12

ISSN: 17281431 **pp:** 2137-2144

24. Recent challenges in the IT and semiconductor industry: From Von Neumann architecture to the future

Cite this Research Publication: Song Y.S., Rahi S.B., Bagga N., Rathore S., Jaisawal R.K., Vimala P., Paras N., **Rao K.S.**

Publisher: Negative Capacitance Field Effect Transistors: Physics, Design, Modeling and Applications

doi: 10.1201/9781003373391-1 **pp:** 1-10

25. A co-operative type of multi-robot parking system with versatile mode and implementation using FPGA

Cite this Research Publication: Vani G.D., **Karumuri S.R.**, Chinnaiah M.C., Siew-Kei L., Dubey S.

Publisher: Microsystem Technologies **Impact factor:** 1.6

doi: 10.1007/s00542-023-05525-7 **Vol: 29 Issue:** 10

ISSN: 9467076 **pp:** 1515-1528

26. Jacobian Based Nonlinear Algorithms for Prediction of Optimized RF MEMS Switch Dimensions

Cite this Research Publication: Thalluri L.N., Kumar M.A., Ali M.S.M., Paul N.B.M., **Rao K.S.**, Guha K., Kiran S.S.

Publisher: Transactions on Electrical and Electronic Materials **Impact factor:** 2.81

doi: 10.1007/s42341-023-00463-7 **Vol: 24 Issue:** 5

ISSN: 12297607 **pp:** 447-458

27. Design and performance analysis of ohmic contact based SPMT RF MEMS switch

Cite this Research Publication: Rajasekhar K., GirijaSravani K., **Srinivasa Rao K**.

Publisher: Microsystem Technologies **Impact factor:** 1.6

doi: 10.1007/s00542-023-05503-z **Vol: 29 Issue:** 9

ISSN: 9467076 **pp:** 1307-1318

28. Design and Analysis of DGDMJL TFET for Biosensing Applications

Cite this Research Publication: Manaswi D., **Rao K.S.**
Publisher: Silicon **Impact factor:** 2.8
doi: 10.1007/s12633-023-02402-w **Vol: 15 Issue:** 14
ISSN: 1876990X **pp:** 5947-5961

29. Design, Fabrication, and Testing of a Microelectronic Controller for Sensing and Actuating in Robotic Neurorehabilitation

Cite this Research Publication: Tachiquingutierrez R.T., Lay-Ekuakille A., Chiffi C., Singh S.P., **Rao K.S.**
Publisher: IEEE Sensors Journal **Impact factor:** 4.325
doi: 10.1109/JSEN.2023.3291956 **Vol: 23 Issue:** 16
ISSN: 1530437X **pp:** 18700-18707

30. Halo-Doped Hetero Dielectric Nanowire MOSFET Scaled to the Sub-10 nm Node

Cite this Research Publication: Kumar P.K., Balaji B., **Rao K.S.**
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.81
doi: 10.1007/s42341-023-00448-6 **Vol: 24 Issue:** 4
ISSN: 12297607 **pp:** 303-313

31. Human Gaiting Analysis for Machine Interaction

Cite this Research Publication: Vennela K., Balaji B., **Rao K.S**., Chinnaiah M.C.
Publisher: Journal of The Institution of Engineers (India): Series B
Impact factor: 1.33
doi: 10.1007/s40031-023-00894-z **Vol: 104 Issue:** 4
ISSN: 22502106 **pp:** 987-1010

32. Design and performance analysis of front and back Pi 6 nm gate with high K dielectric passivated high electron mobility transistor

Cite this Research Publication: Gowthami Y., Balaji B., **Rao K.S.**
Publisher: International Journal of Electrical and Computer Engineering
Impact factor: 0.8
doi: 10.11591/ijece.v13i4.pp3788-3795 **Vol: 13 Issue:** 4
ISSN: 20888708 **pp:** 3788-3795

33. Performance analysis and optimization of asymmetric front and back pi gates with dual material in gallium nitride high electron mobility transistor for nano electronics application

Cite this Research Publication: Gowthami Y., Balaji B., **Srinivasa Rao K**.
Publisher: International Journal of Engineering, Transactions B: Applications
Impact factor: 1.353
doi: 10.5829/ije.2023.36.07a.08 **Vol: 36 Issue:** 7
ISSN: 1728144X **pp:** 1269-1277

34. Hardware-Efficient Scheme for Trailer Robot Parking by Truck Robot in an Indoor Environment with Rendezvous

Cite this Research Publication: Divya Vani G., **Karumuri S.R.**, Chinnaiah M.C., Lam S.-K., Narambhatlu J., Dubey S.
Publisher: Sensors **Impact factor:** 3.9
doi: 10.3390/s23115097 **Vol: 23 Issue:** 11
ISSN: 14248220

35. **Design and Qualitative Analysis of Hetero Dielectric Tunnel Field Effect Transistor Device**
Cite this Research Publication: Howldar S., Balaji B., **Rao K.S.**
Publisher: International Journal of Engineering, Transactions B: Applications
Impact factor: 1.353
doi: 10.5829/ije.2023.36.06c.11 **Vol: 36 Issue:** 6
ISSN: 1728144X **pp:** 1129-1135

36. **Design and analysis of asymmetrical low-k source side spacer halo doped nanowire metal oxide semiconductor field effect transistor**
Cite this Research Publication: Kumar P.K., Balaji B., **Rao K.S.**
Publisher: International Journal of Electrical and Computer Engineering
Impact factor: 0.8
doi: 10.11591/ijece.v13i3.pp3519-3529 **Vol: 13 Issue:** 3
ISSN: 20888708 **pp:** 3519-3529

37. **Design and Analysis of a Symmetrical Low-κ Source-Side Spacer Multi-gate Nanowire Device**
Cite this Research Publication: Gowthami Y., Balaji B., **Rao K.S.**
Publisher: Journal of Electronic Materials **Impact factor:** 2.2
doi: 10.1007/s11664-023-10217-z **Vol: 52 Issue:** 4
ISSN: 3615235 **pp:** 2561-2568

38. **Design and Analysis of Charge Plasma Junction Less TFET Biosensing Applications**
Cite this Research Publication: Manasawi D., **Srinivasa Rao K.**
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.81
doi: 10.1007/s42341-022-00419-3 **Vol: 24 Issue:** 1
ISSN: 12297607 **pp: 65-72**

39. **Implementation of Content-Based Image Retrieval Using Artificial Neural Networks**
Cite this Research Publication: Yenigalla S.C., **Rao K.S.**, Ngangbam P.S.
Publisher: Engineering Proceedings **Impact factor:** 0.4
doi: 10.3390/HMAM2-14161 **Vol: 34 Issue:** 1
ISSN: 26734591

40. **Qualitative Analysis & Advancement of Asymmetric Recessed Gates with Dual Floating Material GaN HEMT for Quantum Electronics**
Cite this Research Publication: Gowthami Y., Balaji B., **Srinivasa Rao K.**
Publisher: Journal of Integrated Circuits and Systems
Impact factor: 0.482
doi: 10.29292/jics.v18i1.657 **Vol: 18 Issue:** 1
ISSN: 18071953

41. **Design and Parametric Analysis of Charge Plasma Junctionless TFET for Biosensor Applications**
Cite this Research Publication: Manaswi D., **Karumuri S.R.**, Wadhwa G.
Publisher: IEEE Open Journal of Nanotechnology **Impact factor:** 2.81
doi: 10.1109/OJNANO.2022.3224462 **Vol: 4**
ISSN: 26441292 **pp: 71-76**

42. **Kidney Disease and Its Replacement Techniques Utilizing MEMS-Microfluidics Technology: A Systematic Review**
Cite this Research Publication: Zade A., Sateesh J., Guha K., **Srinivasa Rao K.,** Narayan K.
Publisher: IEEE Open Journal of Nanotechnology **Impact factor:** 1.7
doi: 10.1007/978-981-19-2308-1_49 **Vol: 904**
ISSN: 18761100 **pp: 505-520**

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43. **Qualitative Analysis of DG-TFET Structures with Gate material Engineering**

Cite this Research Publication: Sravani S.S., Balaji B., **Srinivasa Rao K.**
Publisher: Journal of Integrated Circuits and Systems **Impact factor: 0.482**
doi: 10.29292/jics.v17i3.635 **Vol:17 Issue:** 3
ISSN: 18071953

44. **Design and analysis of SP4T RF MEMS switch for satellite applications**

Cite this Research Publication: Gandhi S.G., Govardhani I., Narayana M.V., **Rao K.S.**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-022-05347-z **Vol:28 Issue:** 12
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45. **Design and Performance Analysis of Micropump for Drug Delivery Using Normal and Stacked Ring Type Piezoelectric Actuator**

Cite this Research Publication: Girija Sravani K., Desala R., Chandh P., **Srinivasa Rao K.**
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.37
doi: 10.1007/s42341-022-00407-7 **Vol:23 Issue:** 6
ISSN: 12297607 **pp: 674- 684**

46. **A Novel approach for Wearable Antenna Design for Biomedical Applications**

Cite this Research Publication: Rudrama K.R., Christina G.C., Teja R., Kumar P.N., Anush M., **Rao K.S.**
Publisher: Transactions on Electrical and Electronic Materials

Impact factor: 2.**37**
doi: 10.1007/s42341-022-00409-5 **Vol:23 Issue:** 6
ISSN: 12297607 **pp: 693- 702**

47. Transformation of the Coplanar Waveguide Bandpass Filter to Band Stop Filter by Serpentine Shape Shunt/Open Stubs

Cite this Research Publication: Vali S.S., **Rao K.S.**
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.**37**
doi: 10.1007/s42341-022-00403-x **Vol:23 Issue:** 6
ISSN: 12297607 **pp: 642- 649**

48. Improved Drain Current Characteristics of HfO2/SiO2 Dual Material Dual Gate Extension on Drain Side-TFET

Cite this Research Publication: Balaji B., **Srinivasa Rao K.**, Girija Sravani K., B K., Bindu Madhav N.V., Chandrahas K., Jaswanth B**.**
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-022-01955-6 **Vol:14 Issue:** 18
ISSN: 1876990X **pp:** 12567-12572

49. Control of bandwidth, resonant frequency, and modelling of bandpass filter using open stub resonator for K-band application

Cite this Research Publication: Vali S.S., **Rao K.S.**
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-022-05293-w **Vol:28 Issue:** 12
ISSN: 9467076 **pp:** 2679- 2687

50. Design and analysis of RF MEMS shunt switch for V-band applications

Cite this Research Publication: **Rao K.S**., Madhuri T., Krishna L., Sairam T.M., Vali S.S., Chand C.G., Sravani K.G.
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-022-05297-6 **Vol:28 Issue:** 12
ISSN: 9467076 **pp:** 2697- 2697

51. Design and simulation of continuous tuning band stop filter by2-D periodic defected ground structure

Cite this Research Publication: **Rao K.S**., Madhuri T., Krishna L., Sairam T.M., Vali S.S., Chand C.G., Sravani K.G.
Publisher: Microelectronics Journal **Impact factor: 1.9**
doi: 10.1016/j.mejo.2022.105605 **Vol:129**
ISSN: 262692

52. Capacitance modelling of perforated RF MEMS shunt switch

Cite this Research Publication: Chand C.G., Maity R., **Srinivasa Rao K**., Maity N.P., Sravani K.G.
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-022-05364-y **Vol:28 Issue:** 11
ISSN: 9467076 **pp:** 2561-2570

53. Design and Performance Evaluation of 6nm HEMT with Silicon Sapphire Substrate

Cite this Research Publication: Gowthami Y., Balaji B., **Rao K.S.**
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-022-01900-7 **Vol:14 Issue:** 27
ISSN: 1876990X **pp:** 11797- 11804

54. Impact of High-K Gate Dielectric Materials on Uniformly Doped Dual Gate FinFET for Analog and Digital Applications

Cite this Research Publication: Aditya M., **Rao K.S.**
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-022-01775-8 **Vol:14 Issue:** 16
ISSN: 1876990X **pp:** 10623- 10635

55. Performance analysis of sub 10 nm regime source halo symmetric and asymmetric nanowire MOSFET with underlap engineering

Cite this Research Publication: Kumar P.K., Balaji B., **Rao K.S.**
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-022-01747-y **Vol:14 Issue:** 16
ISSN: 1876990X **pp:** 10423- 10436

56. A Qualitative Review on Tunnel Field Effect Transistor- Operation, Advances, and Applications

Cite this Research Publication: Sravani S.S., Balaji B., **Rao K.S**., Babu A.N., Aditya M., Sravani K.G.
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-022-01660-4 **Vol:14 Issue:** 15
ISSN: 1876990X **pp:** 9263- 9273

57. Target Application Based Design Approach for RF MEMS Switches using Artificial Neural Networks

Cite this Research Publication: Thalluri L.N., Bommu S., Rao S.M., **Rao K.S**., Guha K., Kiran S.S.
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.**37**
doi: 10.1007/s42341-021-00378-1 **Vol:23 Issue:** 5
ISSN: 12297607 **pp:** 509- 521

58. Design and Modeling of Bioreactor Utilizing Electrophoresis and Di-Electrophoresis Techniques for Regenerating Reabsorption Function of Human Kidney PCT in Microfluidics Environment

Cite this Research Publication: Sateesh J., Guha K., Dutta A., Sengupta P., **Rao K.S.**
Publisher: IEEE Transactions on Nanobioscience **Impact factor:** 3.9
doi: 10.1109/TNB.2021.3131351 **Vol:21 Issue:** 4
ISSN: 15361241 **pp:** 529- 541

59. Electromechanical modelling and stress analysis of RF MEMS capacitive shunt switch

Cite this Research Publication: Chand C.G., Maity R., **Srinivasa Rao K**., Maity N.P., Sravani K.G.
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-022-05367-9 **Vol:28 Issue:** 9
ISSN: 9467076 **pp:** 2159-2167

60. Device Design, Simulation and Qualitative Analysis of GaAsP/ 6H-SiC/ GaN Metal Semiconductor Field Effect Transistor

Cite this Research Publication: Balaji B., **Rao K.S**., Aditya M., Sravani K.G.
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-022-01665-z **Vol:14 Issue:** 14
ISSN: 1876990X **pp:** 8449-8454

61. Comparison of Drain Current Characteristics of Advanced MOSFET Structures - a Review

Cite this Research Publication: Aditya M., **Rao K.S**., Balaji B., Sravani K.G.
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-021-01638-8 **Vol:14**
ISSN: 1876990X **pp:** 8269-8276

62. Design, Simulation and Analysis of a Slotted RF MEMS Switch

Cite this Research Publication: Chokkara S.P., Gaur A., Sravani K.G., Balaji B., **Rao K.S.**
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.37
doi: 10.1007/s42341-021-00363-8 **Vol:23 Issue:** 4
ISSN: 12297607 **pp:** 419-429

63. Design and Analysis of a Serpentine Type RF MEMS Shunt Switch with Low Pull-in-Voltage

Cite this Research Publication: Sravani K.G., Gopichand C., **Rao K.S.**
Publisher: Transactions on Electrical and Electronic Materials

Impact factor: 2.37
doi: 10.1007/s42341-021-00358-5 **Vol:23 Issue:** 4
ISSN: 12297607 **pp:** 388-395

64. Design, Analysis and Simulation of RF MEMS Capacitive Shunt Switch with Perforations for Ka-Band Applications

Cite this Research Publication: **Srinivasa Rao K.,** Girija Sravani K., Akhil Chowdary Y., Naveena P., Vedha Vyasa K., Raina H., Deepa Sunanda B.
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.37
doi: 10.1007/s42341-021-00353-w **Vol:23 Issue:** 4
ISSN: 12297607 **pp:** 382-387

65. Design, Simulation and Analysis of Junction Version Multi-Fin FINFET

Cite this Research Publication: **Srinivasa Rao K.,** Girija Sravani K., Akhil Chowdary Y., Naveena P., Vedha Vyasa K., Raina H., Deepa Sunanda B.
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-021-01296-w **Vol:14 Issue:** 10
ISSN: 1876990X **pp:** 5165 – 5171

66. Simulation and Drain Current Performance analysis of High-K Gate Dielectric FinFET

Cite this Research Publication: Aditya M., **Rao K.S**., Sravani K.G., Guha K.
Publisher: Silicon **Impact factor: 2.8**
doi: 10.1007/s12633-021-01176-3 **Vol:14 Issue:** 8
ISSN: 1876990X **pp:** 4075-4078

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Cite this Research Publication: Aditya M., **Rao K.S.**
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.37
doi: 10.1007/s42341-021-00338-9 **Vol:14 Issue:** 3
ISSN: 12297607 **pp:** 219- 227

68. Design and performance analysis of a low-pull-in-voltage RF MEMS shunt switch for millimeter-wave therapy, IoT, and 5G applications

Cite this Research Publication: Ashok Kumar P., **Karumuri S.R**., Kondavitee G.S., Guha K.
Publisher: Journal of Computational Electronics **Impact factor: 2.2**
doi: 10.1007/s10825-022-01863-3 **Vol:21 Issue:** 2
ISSN: 15698025 **pp:** 522-529

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Cite this Research Publication: Divya Vani G., **Karumuri S.R**., Chinnaiah M.C.
Publisher: Journal of Computational Electronics **Impact factor: 2.2**
doi: 10.1007/s40031-021-00659-6 **Vol:103 Issue:** 2
ISSN: 22502106 **pp:** 449- 460

70. Design, simulation and analysis of RF MEMS capacitive shunt switches with high isolation and low pull-in-voltage

Cite this Research Publication: Sravani K.G., Prathyusha D., Gopichand C., Maturi S.M., Elsinawi A., Guha K., **Rao K.S**.
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-020-05021-2 **Vol:28 Issue:** 4
ISSN: 9467076 **pp:** 913-928

71. Design, simulation and analysis of uniform and non-uniform serpentine step structure RF MEMS switch

Cite this Research Publication: Sravani K.G., Guha K., Aditya M., Balaji B., **Rao K.S**.
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-021-05216-1 **Vol:28 Issue:** 3
ISSN: 9467076 **pp:** 855-865

72. Design of reconfigurable antenna by capacitive type RF MEMS switch for 5G applications

Cite this Research Publication: Sravani K.G., Prathyusha D., Prasad G.R.K., Chand C.G., Kumar P.A., Guha K., **Rao K.S.**
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-020-04958-8 **Vol:28 Issue:** 3
ISSN: 9467076 **pp:** 845-853

73. An analytical capacitance modeling of step structured perforated RF MEMS switch

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Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-019-04578-x **Vol:28 Issue:** 3
ISSN: 9467076 **pp:** 771-778

74. Design and performance analysis of self-similar reconfigurable antenna by cantilever type RF MEMS switch

Cite this Research Publication: **Rao K.S**., Naveena P., Swamy T.V.A., Kumar P.A., Guha K., Sravani K.G.
Publisher: Microsystem Technologies **Impact factor: 1.6**
doi: 10.1007/s00542-019-04370-x **Vol:28 Issue:** 3
ISSN: 9467076 **pp:** 733-744

75. Design of RF-MEMS Switch Integration with Circular Microstrip Patch Antenna

Cite this Research Publication: **Rao K.S**., Chand C.G., Maity R., Maity N.P., Sravani K.G.
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.8
doi: 10.1007/s42341-021-00326-z **Vol:23 Issue:** 1
ISSN: 12297607 **pp:** 96-104

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Cite this Research Publication: El-Sinawi A., Sheikh-Ahmad J., **Karumuri S**., Guha K.
Publisher: Advances in Materials and Processing Technologies
Impact factor: 4.73
doi: 10.1080/2374068X.2022.2130876 **Vol:9 Issue:** 4
ISSN: 2374068X **pp:** 1701- 1722

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Cite this Research Publication: Balaji B., **Rao K.S**., Sravani K.G., Aditya M.
Publisher: Silicon **Impact factor: 2.8**
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ISSN: 1876990X

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78. Design of Micropump with two stacked ring type piezoelectric actuators for drug delivery

Cite this Research Publication: Sravani K.G., Ramakrishna D., Chandh P., Sathvik K., **Rao K.S.**
Publisher: Journal of Micro-Bio Robotics **Impact factor:** 1.6
doi: 10.1007/s12213-022-00146-1 **Vol:** 17 **issue:** 2
pp: 69-78

79. Design, Simulation and Analysis of Perforated RF MEMS Capacitive Shunt Switch

Cite this Research Publication: **Karumuri S.R**., Chand C.G., Guha K., Maity N.P., Maity R., Maity S., Prathyusha D., Kondavitee G.S.
Publisher: Micro and Nanosystems **Impact factor:** 1.6
doi: 10.2174/1876402911666190820094947 **Vol:** 13 **issue:** 4
pp: 448-457

80. Low Pull-in-Voltage RF-MEMS Shunt Switch for 5G Millimeter Wave Applications

Cite this Research Publication: Kumar P.A., **Rao K.S**., Balaji B., Aditya M., Maity N.P., Maity R., Maity S., Sinawi A.E., Guha K., Sravani K.G.

Publisher: Transactions on Electrical and Electronic Materials

Impact factor: 1.6

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pp: 821-832

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Cite this Research Publication: Sravani K.G., **Rao K.S.**, Guha K.

Publisher: Microelectronics Journal

Impact factor: 1.6

doi: 10.1016/j.mejo.2021.105264

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Cite this Research Publication: Shanthi G., **Rao K.S.**, Sravani K.G.

Publisher: Microsystem Technologies

Impact factor: 1.6

doi: 10.1007/s00542-020-05157-1

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pp: 3743-3750

83. Effect of perforations on fabricated iterative meandered RF MEMS switch for millimeter wave applications

Cite this Research Publication: Kumar P.A., **Rao K.S.**, Sravani K.G.

Publisher: Microsystem Technologies

Impact factor: 1.6

doi: 10.1007/s00542-020-05107-x

Vol: 27 **issue:** 10

pp: 3611-3616

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Publisher: International Journal of Nano Dimension

Impact factor: 1.5

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pp: 305-309

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Publisher: IET Nanobiotechnology

Impact factor: 2.05

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pp: 484-491

86. An intensive approach to optimize capacitive type RF MEMS shunt switch

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Publisher: Microelectronics Journal

Impact factor: 1.4

doi: 10.1016/j.mejo.2021.105050

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Cite this Research Publication: **Srinivasa Rao K**., Vali S.S., Ashok Kumar P., Girija Sravani K.
Publisher: Transactions on Electrical and Electronic Materials
doi: 10.1007/s42341-020-00226-8
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Vol: 22 **issue:** 2
pp: 204-210

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Cite this Research Publication: **Srinivasa Rao K.,** Ganesh G.V., Sai Lakshmi G., Gopichand C., Sravani K.G.
Publisher: Microsystem Technologies
doi: 10.1007/s00542-020-05032-z
Impact factor: 1.6
Vol: 27 **issue: 2**
pp: 659-664

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Cite this Research Publication: Sravani K.G., Guha K., **Rao K.S**.
Publisher: Microsystem Technologies
doi: 10.1007/s00542-020-04943-1
Impact factor: 1.6
Vol: 27 **issue: 2**
pp: 619-627

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Cite this Research Publication: **Rao K.S**., Sailaja B.V.S., Vineetha K.V., Kumar P.A., Guha K., Sravani K.G.
Publisher: Microsystem Technologies
doi: 10.1007/s00542-018-4039-3
Impact factor: 1.6
Vol: 27 **issue: 2**
pp: 503-513

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Cite this Research Publication: Sravani K.G., Narayana T.L., Guha K., **Rao K.S.**
Publisher: Microsystem Technologies
doi: 10.1007/s00542-018-4038-4
Impact factor: 1.6
Vol: 27 **issue: 2**
pp: 493-502

92. Design and simulation of fixed–fixed flexure type RF MEMS switch for reconfigurable antenna

Cite this Research Publication: **Rao K.S.,** Kumar P.A., Guha K., Sailaja B.V.S., Vineetha K.V., Baishnab K.L., Sravani K.G.
Publisher: Microsystem Technologies
doi: 10.1007/s00542-018-3983-2
Impact factor: 1.6
Vol: 27 **issue: 2**
pp: 455-462

93. Design, simulation and performance analysis bio-sensors for the detection of cholera and diarrhea using MEMS technology

Cite this Research Publication: **Rao K.S.,** Vineetha K.V., Sailaja B.V.S., Guha K., Maity N.P., Maity R., Sravani K.G.

Publisher: Microsystem Technologies
doi: 10.1007/s00542-018-3981-4

Impact factor: 1.6
Vol: 27 **issue: 2**
pp: 419-441

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Publisher: Microelectronics Journal

Impact factor:0.32

doi: 10.1016/j.mejo.2021.105262
ISSN: 262692

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95. New and efficient design of multimode piezoelectric vibration energy harvester for MEMS application

Cite this Research Publication: Pertin O., Shrivas P., Guha K., **Rao K.S.,** Iannacci J.
Publisher: Microsystem Technologies
doi: 10.1007/s00542-020-05108-w
ISSN: 9467076

Impact factor: 1.6
Vol:27 Issue: 9
pp: 3523-3531

96. Temporal response of biochemical and biological sensors with bimodal surface adsorption from a finite sample

Cite this Research Publication: Jokić I., Jakšić O., Frantlović M., Jakšić Z., Guha K., **Rao K.S.**
Publisher: Microsystem Technologies
doi: 10.1007/s00542-020-05051-w
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Impact factor: 1.6
Vol:27 Issue: 8
pp: 2981-2987

97. Design and analysis of perforated MEMS resonator

Cite this Research Publication: Guha K., Dutta H., Sateesh J., Baishya S., **Srinivasa Rao K.**
Publisher: Microsystem Technologies
doi: 10.1007/s00542-018-4207-5
ISSN: 9467076

Impact factor: 1.6
Vol:27 Issue: 2
pp: 613-617

98. Design of high gain, high bandwidth neural amplifier IC considering noise-power trade-off

Cite this Research Publication: Laskar N.M., Guha K., Nath S., Chanda S., Baishnab K.L., Paul P.K., **Rao K.S.**
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pp: 585-599

Publications 2020

99. Design and performance analysis of hybrid SPDT RF MEMS switch

Cite this Research Publication: **Srinivasa Rao K.**, Vasantha K., Girija Sravani K.
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-020-04869-8 **Vol:26 Issue:** 12
ISSN: 9467076 **pp: 3813-3820**

100. Design and analysis of a RF MEMS shunt switch using U-shaped meanders for low actuation voltage

Cite this Research Publication: Shanthi G., **Srinivasa Rao K.**, Girija Sravani K.
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-020-04864-z **Vol:26 Issue:** 12
ISSN: 9467076 **pp: 3783-3791**

101. A modified proposed capacitance model for step structure capacitive RF MEMS switch by incorporating fringing field effects

Cite this Research Publication: Girija Sravani K., Guha K., **Rao K.S.**
Publisher: International Journal of Electronics **Impact factor:** 1.6
doi: 10.1080/00207217.2020.1756438 **Vol:107 Issue:** 11
ISSN: 207217 **pp: 1822-1843**

102. Design and performance Analysis of PDMS Based Micropump

Cite this Research Publication: **Rao K.S.**, Chandrasekharam K., Sai Sri S.B., Suma S., Hamza M., Sravani K.G.
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 1.6
doi: 10.1007/s42341-020-00200-4 **Vol:21 Issue:** 5
ISSN: 12297607 **pp: 497-502**

103. Analysis of uniform structured RF MEMS switch with different uniform and non-uniform meandering techniques

Cite this Research Publication: **Srinivasa Rao K.**, Sailaja B.V.S., Kumar A., Vineetha K., Guha K., Baishanab K.L., Girija Sravani K.
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-018-3866-6 **Vol:26 Issue:** 10
ISSN: 9467076 **pp: 3193-3202**

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Cite this Research Publication: **Rao K.S.**, Sateesh J., Guha K., Baishnab K.L., Ashok P., **Sravani K.G.**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-018-3807-4 **Vol:26 Issue:** 10
ISSN: 9467076

pp: 3153-3159

105. Design and sensitivity analysis of capacitive MEMS pressure sensor for blood pressure measurement

Cite this Research Publication: **Rao K.S**., Samyuktha W., Vardhan D.V., Naidu B.G., Kumar P.A., Sravani K.G., Guha K.
Publisher: Microsystem Technologies

Impact factor: 1.6
doi: 10.1007/s00542-020-04777-x **Vol:26 Issue:** 8
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pp: 2371-2379

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Cite this Research Publication: Sravani K.G., Mallika D.K.N., Meghana G., Divya U.N.B., Chand C.G., Vasantha K., **Rao K.S**.
Publisher: Microsystem Technologies

Impact factor: 1.6
doi: 10.1007/s00542-020-04797-7 **Vol:26 Issue:** 8
ISSN: 9467076 **pp: 2569-2674**

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Cite this Research Publication: **Rao K.S.,** Vasantha K., Kumar P.A., Guha K., Sravani K.G.
Publisher: Microsystem Technologies

Impact factor: 1.6
doi: 10.1007/s00542-020-04778-w **Vol:26 Issue:** 8
ISSN: 9467076 **pp: 2381-2387**

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Cite this Research Publication: **Rao K.S**., Vasantha K., Sravani K.G.
Publisher: Microsystem Technologies
doi:10.1007/s00542-020-04795-9
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Impact factor: 1.6
Vol:26 Issue: 8
pp: 2553-2560

109. Design of step down structure RF-MEMS shunt capacitive switch for low-pull - in voltage

Cite this Research Publication: Girija Sravani K., Guha K., Lysenko I.E., **Srinivasa Rao K.**, El Sinawi A.
Publisher: Journal of Scientific and Industrial Research

Impact factor: 0.7

doi: 10.1007/s00542-020-04869-8 **Vol:79 Issue:** 7
ISSN: 224456 **pp: 595-**597

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Cite this Research Publication: Kumar P.A., **Rao K.S.**, Sravani K.G.
Publisher: Microsystem Technologies

Impact factor: 1.6
doi: 10.1007/s00542-019-04606-w **Vol:26 Issue:** 7
ISSN: 9467076 **pp: 2267-2277**

111. Effects of Hafnium Oxide on Surface Potential and Drain Current Models for Subthreshold Short Channel Metal–Oxide–Semiconductor-Field-Effect-Transistor

Cite this Research Publication: Maity N.P., Maity R., Dutta S., Deb S., Sravani K.G., **Rao K.S.**, Baishya S.
Publisher: Transactions on Electrical and Electronic Materials

Impact factor: 1.6
doi: 10.1007/s00542-019-04606-w **Vol:21 Issue:** 3
ISSN: 12297607 **pp: 339-347**

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Cite this Research Publication: Rao K.S., Kumar Y.S.S., Rohini K.S.S., Ravi P., Sravani K.G., Kumar P.A.
Publisher: Microsystem Technologies

Impact factor: 1.6
doi: 10.1007/s00542-020-04751-7 **Vol:26 Issue:** 6
ISSN:9467076 **pp: 2005-2012**

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Cite this Research Publication: Thalluri L.N., Guha K., **Srinivasa Rao K.**, Prasad G.V.H., Sravani K.G., Sastry K.S.R., Kanakala A.R., Babu P.B.
Publisher: Microsystem Technologies

Impact factor: 1.6
doi: 10.1007/s00542-020-04755-3 **Vol:26 Issue:** 6
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114. Design and optimization of MEMS based piezoelectric actuator for drug delivery systems

Cite this Research Publication: Srinivasa Rao K., Hamza M., Ashok Kumar P., Girija Sravani K.
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-019-04712-9 **Vol:26 Issue:** 5
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115. Analysis of a novel RF MEMS switch using different meander techniques

Cite this Research Publication: Sravani K.G., Guha K., **Rao K.S**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-019-04703-w **Vol:26 Issue:** 5
ISSN: 9467076 **pp: 1625-1635**

116. Improve the Performance of a Novel Capacitive Shunt RF MEMS Switch by Beam and Dielectric Materials

Cite this Research Publication: Gandhi S.G., Govardhani I., Kotamraju S.K., Kavya K.C.S., Prathyusha D., **Rao K.S.,** Sravani K.G.

Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 1.6
doi: 10.1007/s42341-019-00155-1 **Vol:21 Issue:** 1
ISSN: 12297607 **pp: 83-90**

117. Design and performance analysis of double cantilever type capacitive shunt RF MEMS switch

Cite this Research Publication: Girija Sravani K., **Srinivasa Rao K**., Prathyusha D., Sai Kiran B.V., Siva Kumar B., Prem Kumar R., Santhi Tarun K.
Publisher: Microsystem Technologies
Impact factor: 1.6
doi: 10.1007/s00542-019-04505-0 **Vol:26 Issue:** 2
ISSN: 9467076 **pp: 345-352**

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Cite this Research Publication: Guha K., Laskar N.M., Gogoi H.J., Baishnab K.L., **Rao K.S.**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-018-3803-8 **Vol:26 Issue:** 10
ISSN: 9467076 **pp: 3143-3152**

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Cite this Research Publication: Guha K., Laskar N.M., Gogoi H.J., Chanda S., Baishnab K.L., **Rao K.S**., Maity N.P.
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-018-3911-5 **Vol:26 Issue:** 10
ISSN: 9467076 **pp: 3213-3227**

120. Recreating the size-dependent reabsorption function of proximal convoluted tubule towards artificial kidney applications: Structural analysis and computational study

Cite this Research Publication: Sateesh J., Guha K., Dutta A., Sengupta P., Agarwal A., **Srinivasa Rao K.**
Publisher: Artificial Organs **Impact factor:** 3.09
doi: 10.1111/aor.13683 **Vol: 44 Issue:** 8
ISSN: 0160564X **pp: 369-381**

121. Design of a Non-uniform Serpentine Asymmetric Cantilever RF-MEMS Shunt Capacitive Switch for RADAR Applications

Cite this Research Publication: Gopichand C., Maity R., Maity N.P., **Srinivasa Rao K**., Guha K., Maity S., Eisnawi A.
Publisher: Transactions on Electrical and Electronic Materials
Impact factor: 2.81
doi: 10.1007/s42341-020-00193-0 **Vol: 21 Issue:** 4
ISSN: 12297607 **pp: 406-412**

122. Design and simulation of MEMS based capacitive pressure sensor for harsh environment

Cite this Research Publication: **Srinivasa Rao K**., Mohitha reddy B., Bala Teja V., Krishnateja G.V.S., Ashok Kumar P., Ramesh K.S.
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-019-04735-2 **Vol:26 Issue:** 6
ISSN: 9467076 **pp: 1875-1880**

123. Mimicking kidney re-absorption using microfluidics by considering hydrostatic pressure inside kidney tubules: structural and analytical study

Cite this Research Publication: Guha K., Sateesh J., Dutta A., Sengupta P., S**rinivasa Rao K**., Agarwal A..
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-019-04720-9 **Vol:26 Issue:** 6
ISSN: 9467076 **pp: 1769-1776**

124. Regenerating re-absorption function of proximal convoluted tubule using microfluidics for kidney-on-chip applications

Cite this Research Publication: Sateesh J., Guha K., Dutta A., Sengupta P., **Srinivasa Rao K.**
Publisher: SN Applied Sciences **Impact factor:** 1.6
doi: 10.1007/s42452-019-1840-2 **Vol:2 Issue:** 1
ISSN: 25233971

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125. Design, simulation and analysis of RF-MEMS shunt capacitive switch for 5G application

Cite this Research Publication: **Rao K.S**., Mounika P.S., Pavan P., Guru V., Dinesh N., Kumar P.A., Vineetha K., Sravani K.G.

Publisher: Microsystem Technologies
doi: 10.1007/s00542-019-04389-0
ISSN: 9467076
Impact factor: 1.6
Vol:25 Issue: 11
pp: 4197-4208

126. Materials Impact on the Performance Analysis and Optimization of RF MEMS Switch for 5G Reconfigurable Antenna

Cite this Research Publication: **Rao K.S.,** Naveena P., Sravani K.G.
Publisher: Transactions on Electrical and Electronic Materials
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ISSN: 12297607
Impact factor: 1.6
Vol:20 Issue: 4
pp: 315-327

127. Design and Optimization of Piezoresistive Materials Based Microbridge for Electro-osmosis Pressure Sensor

Cite this Research Publication: Girija Sravani K., Sai Lakshmi G., **Srinivasa Rao K**.
Publisher: Transactions on Electrical and Electronic Materials
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pp: 315-327

128. Design and Analysis of Serpentine Flexure Based RF MEMS Switch for High Isolation with Low Pull-in voltage

Cite this Research Publication: Girija Sravani K., Guha K., **Srinivasa Rao K**.
Publisher: Transactions on Electrical and Electronic Materials
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Impact factor: 1.6
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pp: 154-164

129. Design, Modeling and Analysis of Perforated RF MEMS Capacitive Shunt Switch

Cite this Research Publication: **Rao K.S.,** Chand C.G., Sravani K.G., Prathyusha D., Naveena P., Lakshmi G.S., Kumar P.A., Narayana T.L.
Publisher: IEEE Access
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Impact factor: 3.4
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130. Beam and dielectric materials impact on improvement of the performance of a novel capacitive shunt RF MEMS switch

Cite this Research Publication: Girija Sravani K., Sudheer Babu G., Ramesh M., Prudhvi Raj V., Prathyusha D., **Srinivasa Rao K.**
Publisher: International Journal of Numerical Modelling: Electronic Networks, Devices and Fields
doi: 10.1002/jnm.2598
ISSN: 8943370
Impact factor: 1.29
Vol:32 Issue: 5

131. Design and Performance Analysis of Low Pull-In Voltage of Dimple Type Capacitive RF MEMS Shunt Switch for Ka-Band

Cite this Research Publication: Girija Sravani K., Prathyusha D., **Srinivasa Rao K**., Ashok Kumar P., Sai Lakshmi G., Gopi Chand C., Naveena P., Narayana Thalluri L., Guha K.

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Impact factor: 3.4
Vol:7
pp: 44471-44488

132. New Analytical Capacitance Modeling of the Perforated Switch Considering the Fringing Effect

Cite this Research Publication: Srinivasa Rao K., Sailaja B.V.S., Girija Sravani K., Vineetha K.V., Ashok Kumar P., Prathyusha D., Sai Lakshmi G., Gopi Chand C.H., Guha K.

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Cite this Research Publication: Lysenko I.E., Ezhova O.A., Tkachenko A.V., Naumenko D.V., Guha K., **Rao K.S.**

Publisher: Journal of Physics: Conference Series
doi: 10.1088/1742-6596/1410/1/012226
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Cite this Research Publication: Kondaveeti G.S., Guha K., **Karumuri S.R.,** Elsinawi A.

Publisher: IET Circuits, Devices and Systems
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Impact factor: 1.62
Vol:13 Issue: 7
pp: 1093-1101

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Cite this Research Publication: Maity R., Maity N.P., **Srinivasa Rao K**., Sravani G., Guha K., Baishya S.

Publisher: Transactions on Electrical and Electronic Materials
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Impact factor: 1.62
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Cite this Research Publication: Sateesh J., Guha K., Dutta A., Sengupta P., **Srinivasa Rao K.**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-018-4261-z **Vol:25 Issue: 7**
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Cite this Research Publication: Ganesh G.V., **Srinivasa Rao K.**
Publisher: International Journal of Recent Technology and Engineering
Impact factor: 1.0
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Publisher: Microsystem Technologies
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doi: 10.1007/s00542-018-3907-1
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Publisher: Microsystem Technologies
Impact factor: 1.6
doi: 10.1007/s00542-018-3880-8
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Cite this Research Publication: Vineetha K.V., Sravani K.G., Sailaja B.V.S., Kumar P.A., Guha K., Kotamraju S.K., Prabhakar V.S.V., **Rao K.S.**
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147. **Design of MEMS sensor for the detection of cholera and diarrehea by capacitance modulation**
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Publisher: Microsystem Technologies
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doi: 10.1007/s00542-017-3702-4 **Vol:24**
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148. Design and Flow Analysis of MEMS based Piezo-electric Micro Pump

Cite this Research Publication: Sateesh J., Girija Sravani K., Akshay Kumar R., Guha **K., Srinivasa Rao K.**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-017-3563-x **Vol:24**
ISSN: 9467076 **pp:** 1609-1614

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Cite this Research Publication: Girija Sravani K., **Srinivasa Rao K.**
Publisher: Microsystem Technologies **Impact factor:** 1.6
doi: 10.1007/s00542-017-3507-5 **Vol:24**
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Cite this Research Publication: Ravirala A.K., Bethapudi L.K., Kommareddy J., Thommandru B.S., Jasti S., Gorantla P.R., Puli A., Karumuri G.S., **Karumuri S.R.**
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Cite this Research Publication: **Srinivasa Rao K**., Sravya S., Varma G.S.K., Girija Sravani K.
Publisher: Journal of Advanced Research in Dynamical and Control Systems
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doi: 10.1007/s00542-018-3930-2 **Vol:24 Issue:** 7
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Publisher: International Journal of Engineering and Technology(UAE)
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Impact factor: 0.4
Vol:10 Issue: 6
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LIST OF CONFERENCES

Srinivasa Rao, Karumuri

K L Deemed to be University, Vaddeswaram, India 57202260857 https://orcid.org/0000-0003-1239-5196

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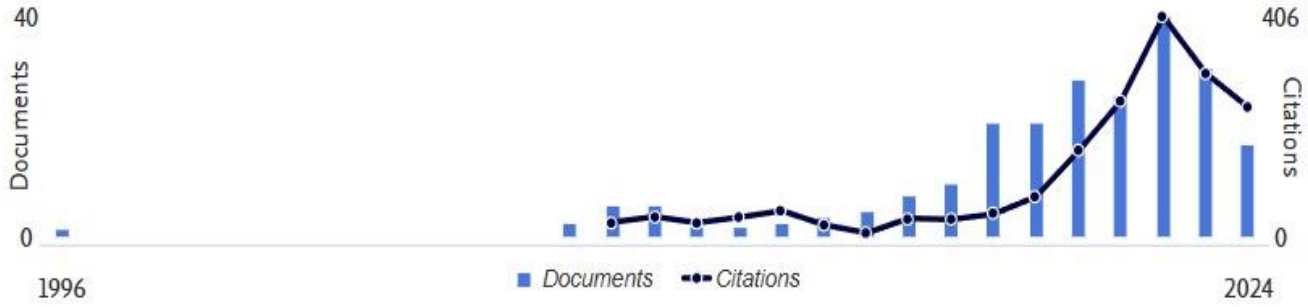

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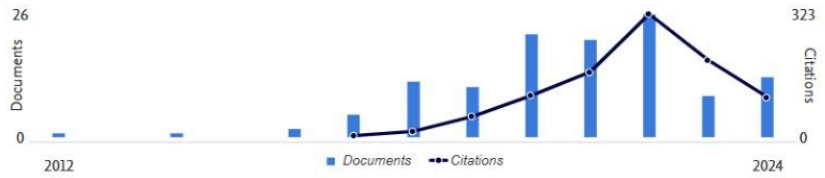

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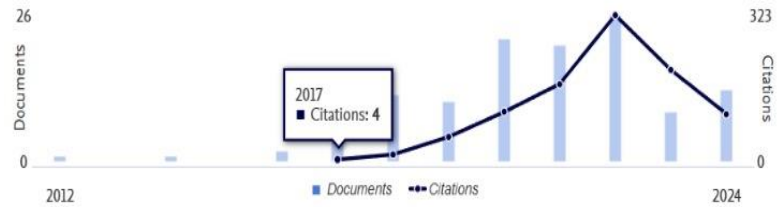

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Field Effect Transistor; Nanowires; Metal-Oxide-Semiconductor Field-Effect Transistor
3 documents

Conferences 2023

1. **Design and Analysis of Dielectrically Modulated Tunnel FET Embedded Nanocavity for Breast Cancer Cells**

   Cite this Research Publication: Harika P., Kondavitee G.S., **Rao K.S.**
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   Impact factor: 4.32

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5. **Design and Analysis of Distributed MEMS Transmission Line (DMTL) based Tunable Band Pass Filter**

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LIST OF BOOK CHAPTERS

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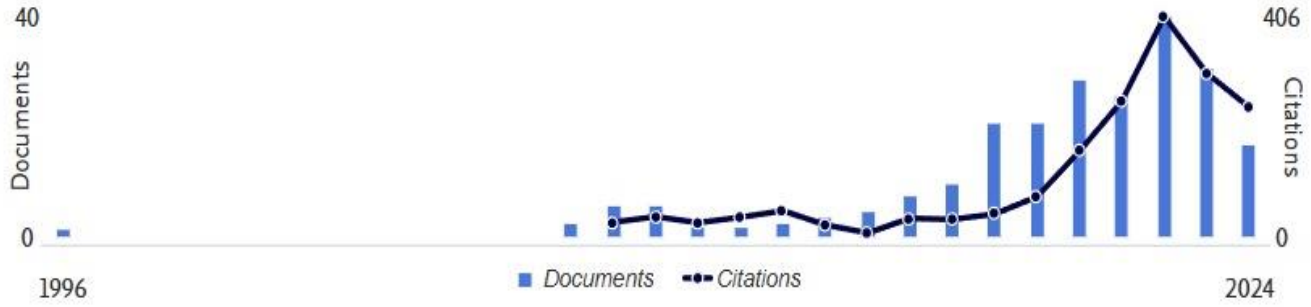

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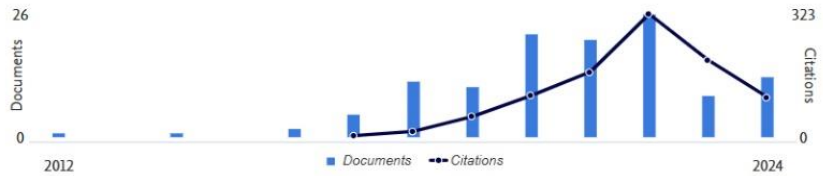

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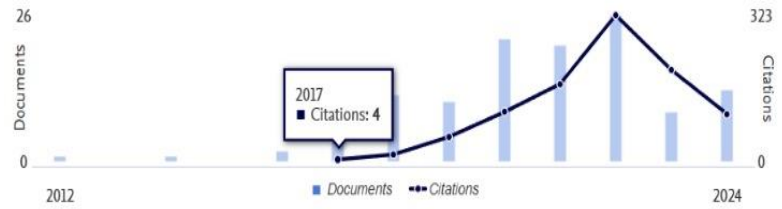

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Machine learning techniques for VLSI chip design

Cite this Research Publication: Kumar A.; Tripathi S.L.; **Rao K.S.**
Publisher: Wiley Publisher
Book: Machine Learning Techniques for VLSI Chip Design

1. Design and analysis of anti-poaching alert system for red sandalwood safety

Cite this Research Publication: Rudrama K.R.; Ramala M.; Galaparti P.S.; Darla M.C.; Loya S.S.P.; **Rao K.S**.
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2. Nano-devices for integrated circuit design

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pp: 233-243

10. **Design and Simulation of Bi-metallic RF MEMS Switch for Fast Switching Time**

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pp: 213-223

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ISSN: 18761100 **pp: 587-595**

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doi: 10.1007/978-981-13-1906-8_46 **Vol:521**
ISSN: 18761100 **pp: 443-452**

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Title : DESIGN AND ANALYSIS OF RF MEMS SWITCH CONFIGURED CSRR EMBEDDED BANDSTOP FILTER FOR KU BAND APPLICATIONS

Investigators : 1) G Shanthi, 2) K. Srinivasa Rao 3) Koushik Guha 4) K. Girija Sravani 5) S S Mohan Reddy 6) K Aruna Kumari.

Country of Filling : **India**

Indian Patent Application No : **202141003676 A**

Filing Date : **27/01/2021**

Published Date : **05/02/2021**

Title : DESIGN OF DIFFERENT PRINCIPLES BASED MICRO CANTILEVER FOR MEMS PRESSURE SENSOR

Investigators : 1) G Sai Lakshmi, 2) K. Srinivasa Rao , 3) K. Girija Sravani

Country of Filling : **India**

Document No : **202341062473**

Filing Date : **16-09-2023**

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Title : DESIGN OF A LABEL-FREE BIOSENSOR EMPLOYING AN H-SHAPED CHANNEL DM DPDG-TFET CONFIGURATION

Investigators : 1) Rapolu Anil Kumar, 2) K. Srinivasa Rao , 3) K. Girija Sravani

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Filing Date : **23-11-2023**

Published Date : **22-12-2023**

Title : DESIGN, ANALYSIS, AND INTEGRATION OF A PIEZOELECTRIC MICROBRIDGE IN PRESSURE SENSOR FOR CONTINUOUS GLUCOSE MONITORING SYSTEM

Investigators : 1) G Sai Lakshmi, 2) K. Srinivasa Rao, 3) K. Girija Sravani

Country of Filling : **India**

Document No : **202341079751**

Filing Date : **23-11-2023**

Published Date : **22-12-2023**

Miscellaneous (OLD – DATA)

National Workshop on Recent Trends in MEMs Devices for IOT Applications

Sponsored by **Department of Science and Technology (DST) – Science and Engineering Research Board (SERB), New Delhi**

Dates:

28th-29th, December 2019

National Workshop on Recent Trends in MEMS, NEMS & VLSI

Sponsored by **Department of Science and Technology (DST), New Delhi**

Dates: **9th-10th, March 2016**

HONOURING GUESTS & PARTICIPANTS

MEMS RESEARCH CENTER

Established with an aim to ignite young minds in the field of Micro Electro-Mechanical Systems, an innovative technology being spread rapidly in the present digital world.

Modelling
Design
Simulation
Fabrication
Characterisation

Objectives

- Miniaturization of electronic devices.
- Interfacing of both Electronics and Mechanics.
- Collaboration with private foundaries for fabrication and packaging purpose.
- Development in the MEMS sensors through various CAD tools.
- Research work has been performed on various sectors of MEMS such as RF MEMS, Bio-MEMS and smart sensors.

KLEF

KONERU LAKSHMAIAH EDUCATION FOUNDATION
(Deemed to be university estd, u/s, 3 of the UGC Act, 1956)
(NAAC Accredited "A" Grade University)

Koneru Lakshmaiah Deemed to be University, Green Fields, Vaddeswaram, Guntur District A.P., India. PIN:522502

About Center

GOOD IDEAS LEADS TO GREAT INNOVATIONS

The integration of electronic and mechanical components on the same silicon chip gave birth to a new technology, appropriately named microelectromechanical systems (MEMS) or microsystem technology (MST). MEMS has found applications in wide ranging areas such as chemical sensors, biosensors, aerospace, RF circuits, consumer electronics, etc. and it has been identified as one of the most promising technologies for the 21st Century. MEMS-based devices can range in size from a few micrometers to millimeters and have the ability to sense, control and actuate on the micro/nano scale. The MEMS industry is expected to be the driving force for next generation systems and subsystems.

MEMS Research center is established in 2015 to perform both basic and applied research in MEMS and Micro/Nanosystems. We constantly leverage our scale to new and more challenging heights.

RESEARCH WORKS

Our lab encompasses following research interests and activities

RF MEMS
- MEMS ACTUATORS
- MEMS INERTIAL SENSORS
- RF MEMS SWITCHES
- RECONFIGURABLE ANTENNAS
- MEMS FILTERS

BIO – MEMS
AIR BAG SENSORS
MICRONEEDLE
MICROCHANNEL
ENERGY HARVESTERS

FACILITIES

Intellisuite
- Vitual Fabrication of Device
- Design and Simulations

COMSOL
To perform Electromechanical modelling, Design and Simulation of Devices using Multiphysics interfacing

HFSS
To perform Electromagnetic modelling, Design and simulation to obtain RF performance Characteristics

LCR Meter
The impedances of the fabricated devices can be measured.

12 Desktops
High configuration systems for Fast computing

Contact Details:
Dr. K. Srinivasa Rao,
Professor & Head of Microelectronics research Group,
Department of Electronics and Communication Engineering.

WE'VE WORKED WITH A DIVERSE CUSTOMER BASE. HOW CAN WE HELP YOU?
At dolore magna aliquam volutpat ut nostrud exerci tation ullam ... populus. Quae ludus os qui eu, gemino aliquip conventio.

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RESEARCH GROUP HEAD

GOOD IDEAS LEADS TO GREAT INNOVATIONS

K. Srinivasa Rao was born in Andhra Pradesh, India. He received his Master's & PhD degree from Central University. He is presently working as a professor & head of Microelectronics Research Group, Department of Electronics & Communication Engineering in KL University, Guntur, Andhra Pradesh, India. His current research areas are MEMS actuators, Bio-MEMS, RF MEMS. He received Young Scientist Award from Department of Science & technology, Government of India in 2011. He also received UGC Major Research Project in 2012. Presently he is working on MEMS project worth of 40 Lakhs funded by SERB, Government of India. He has published more than 80+ International research publications and presented more than 35 conference technical papers around the world. He is member of IETE, ISTE, and IEEE.

RESEARCH INTERESTS

MEMS ACTUATORS
RF MEMS.
- SWITCHES
- RECONFIGURABLE ANTENNAS
- FILTERS

BIO MEMS
- AIR BAG SENSORS
- MICRONEEDLE
- MICROCHANNEL
- ACCELEROMETER SENSORS

AWARDS AND RECOGNITIONS

- He has received **Young Scientist Award** from Department of Science & Technology, Government of india in 2011, for his valuable contribution in the field of MEMS.
- He has been awarded the **BEST TEACHING AWARD** for the academic year, 2017 by the academic department of K. L. University.
- He has received a **MEMS project** funded by **SERB** for design and simulation of MEMS BIO-SENSOR for the detection of cholera and diarrhea.

Public Interest Statement

Micro Electro Mechanical Systems (MEMS) is an eminent technology and facilitates the miniaturization, low power consumption and high isolation devices in present day communication system. Here by I would like encourage people to understand the impact of MEMS technology in present and future generations and also to use the provided facilities in the research center.efficiently.

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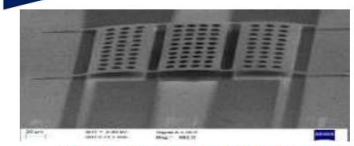
Models Developed

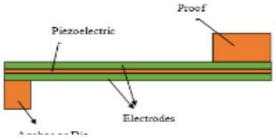
GOOD IDEAS LEADS TO GREAT INNOVATIONS.

Center Establishment : 2015

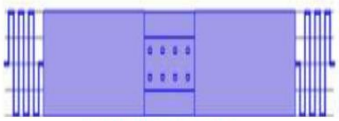
Proposed MEMS Models and their Applications in Center Since 2015.



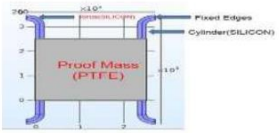
Fixed – Fixed type MEMS switch
- Fabricated Through INUP workshop
- Low Pull – in Voltage
- K – Band Applications.



Piezoelectric Energy Harvester
- Effectively transmit ambient energy to the active materials
- 33.3% of extra power is generated than the conventional devices.



RF MEMS Switch
- Low pull – in voltage of 2.45V
- High isolation of 68 dB at 28 GHZ
- Low power Ka applications



Accelerometer Sensor
- To Detect Parkinsons Disease
- Proofmass is designed with PTFE material
- Sensitivity: ±5g

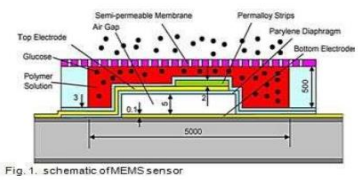
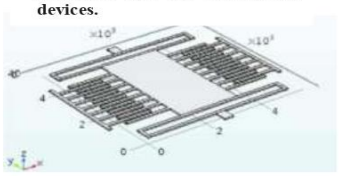
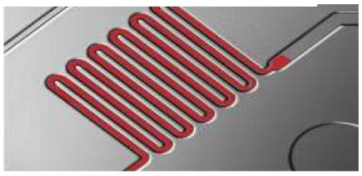


Fig. 1. schematic of MEMS sensor

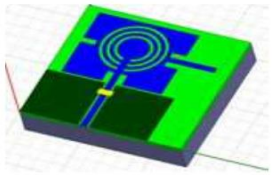
Glucose monitoring System
- To monitor glucose levels in Diabetis patients.
- Compact
- Low cost and Light weight



Accelerometer
- Designed to detect Heart beat frequency
- High capacitance due comb drive design
- Sensitivity : ±1g.



Micro channel based Capacitive sensor
- Detects the bacterias such as E.Coli and V. Cholerae.
- Fast detection
- High capacitive sensitivity



Reconfigurable Antennas using MEMS Switches
- Reconfigures the frequency of the antenna using impedance change technique

- **5+ Fabricated Devices**
- **25+ more models have been designed and validated through simulations**

Contact us:
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Head of Micro electronics research Group,
Department of Electronics and Communication Engineering,
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Research Members

GOOD IDEAS LEADS TO GREAT INNOVATIONS.

Associated Departments

- ECE
- EEE
- ECM
- MECH

Dr. N.Siddaiah was born in Andhra Pradesh, India. He received Master's from Satya bhama university & PhD degree from Andhra University. He is presently working as a Associate professor, Department of Electronics & Communication Engineering in KL University, Guntur, Andhra Pradesh, India. He has published 22 research papers and attended 5 international and national conferences. His major research area is RF MEMS.

Dr. G.R.K.Prasad was born in Andhra Pradesh, India. He received Master's from Satya bhama university & PhD degree from KL University. He is presently working as a Asst. professor, Department of Electronics & Communication Engineering in KL University, Guntur, Andhra Pradesh, India. He has published 25 research papers in the area of MEMS and attended 4 international and national conferences. His major research area is Bio – MEMS.

Mrs. K.Girija Sravani was born in Andhra Pradesh, India. She received Master's from JNTUK university & pursuing PhD degree in NIT Silchar. She is presently working as a Asst. professor, Department of Electronics & Communication Engineering in KL University, Guntur, Andhra Pradesh, India. She has published 25+ research papers in the area of MEMS. Her major research areas are RF MEMS switches, MEMS Reconfigurable antennas and Bio – Sensors.

Mr. G.V.Ganesh was born in Andhra Pradesh, India. He received Master's from ANDHRA university & pursuing PhD degree in KL University. He is presently working as a Asst. professor ,Department of Electronics & Communication Engineering in KL University, Guntur, Andhra Pradesh, India. He has published 15+ research papers and attended 3 international and national conferences. His major research area is RF MEMS Filters.

A total of 26+ members are collaboratively working in the MERG Research Center during the past 2 years from ECE, EEE, ECM and Mechancial branches. They have published about 100+ research papers in various journal and effectively participating in Workshops and conferences

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Professor & Head of Micro electronics research Group,
Department of Electronics and Communication Engineering,

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Research Scholors

GOOD IDEAS LEADS TO GREAT INNOVATIONS.

CATAGEORIES

- JRF.
- FULL TIME
- PART TIME
- M.TECH

PROJECT SPONSORED BY

Science and Engineering Research Board (SERB)

- Junior Research Fellow has been appointed in the project "Design, Fabrication and Characterization of MEMS Bio – Sensor for the detection of Cholera and Diahhrea" File no: ECR/2016/000757 sponsored by Department of Science and Technology – Science and Engineering Research Board.
- The center provides an oppurtunity for 3 full time scholars with college funded monthly fellowships given over a period of 3 years. This will also enable meritorious researchers, keen to further their research in various fields.
- The center also provides 4 part time scholars who are working in the KLEF and other colleges and gives immense support to develop every individual in MEMS Research areas

JRF

- P. Ashok Kumar

Full Time Scholors

- Ms. K. V. Vineetha
- Mrs. B. V. S. Sailaja
- Mr. D. Pardhasaradhi

Part Time Scholors

- Mr. T. Lakshmi Narayana
- Mr. G. V. Ganesh
- Mrs. D. Manaswi
- Mrs. G. Shanthi

M.Tech Scholors

- Mr. T. Vamsi Aravind Swamy
- Mr. Ch. Gopi Chand
- Ms. D. Prathyusha
- Ms. G. Sai Lakshmi
- Mrs. P.,Naveena

- 10+ Scholors have been awarded with Masters degree during 3 years from the Edtablishment of the center and are placed in prestigious companies and colleges

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Sponsored Projects

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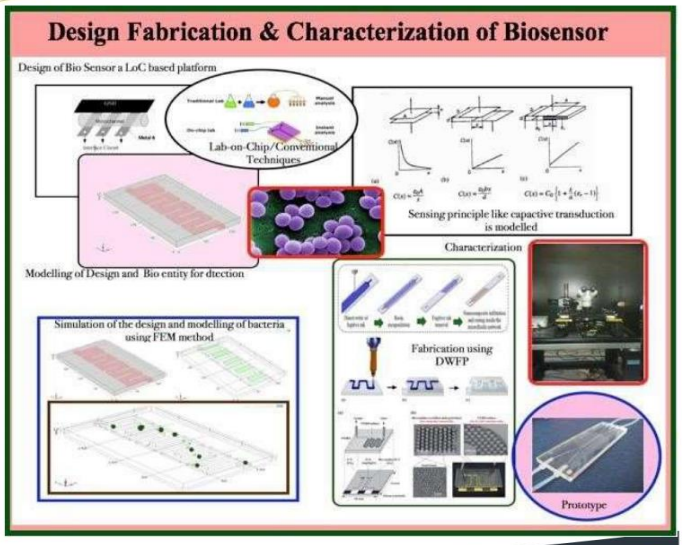
ONGOING PROJECT

"DESIGN, FABRICATION AND CJARACTERIZATION OF MEMS BIO – SENSOR FOR THE DETECTION OF CHOLERA AND DIARRHEA".

PROJECTS UNDER REVIEW

- "DESIGN, FABRICATION, ANALYSIS AND ELECTRICAL STUDIES OF MEMS ACCELEROMETERS".
- "DESIGN, FABRICATION, ANALYSIS OF NOVEL RF MEMS SHUNT CAPACITIVE SWITCH FOR K – BAND APPLICATIONS".



ONGOING PROJECT

PROJECT FILE NO: ECR/2016/000757

SPONSORED BY: DEPARTMENT OF SCIENCE AND TECHNOLOGY – SCIENCE AND ENGINEERING RESEARCH BOARD.

COST OF THE PROJECT: RS. 31,50,000.00/-

PROJECTS UNDER REVIEW

1. DESIGN, FABRICATION, ANALYSIS AND ELECTRICAL STUDIES OF MEMS ACCELEROMETERS

PROJECT FILE NO: ERIP/ER/13-14/36/M/01

SPONSORED BY: DEFENCE RESEARCH AND DEVELOPMENT ORGANIZATION

COST OF THE PROJECT: RS. 20,11,000.00/-

2. DESIGN, FABRICATION, ANALYSIS OF NOVEL RF MEMS SHUNT CAPACITIVE SWITCH FOR K – BAND APPLICATIONS

PROJECT FILE NO: SR/WOS-A/ET-86/2017

SPONSORED BY: DEFENCE RESEARCH AND DEVELOPMENT ORGANIZATION

COST OF THE PROJECT: RS. 20,11,000.00/-

Contact Details:
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EVENTS

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WORKSHOPS

- NWRTMNV - 2016
- NWARBMDEA - 2017
- NWAMSA - 2018

- National Workshop on Recent Trends in MEMS, NEMS & VLSI Sponsored by **Department of Science and Technology (DST), New Delhi held on 9th -10th , March, 2016.**
- National Workshop on "Advances in RF MEMS and Bio- MEMS Devices for Engineering Applications" **Sponsored by DST - DBT govt of India held on march 30th -31st, 2017 Organized by Microelectronics Research group.**
- National Workshop on "Advances in MEMS Devices for Space Applications" **Sponsored by DST, ISRO govt. of India Dates: February 24th, 2018 Organized by Microelectronics Research group.**

Resource persons : (2016 – 2018)

Dr.Syeed Azeemuddin, IIIT Hyderabad
Dr.Asoke Kumar Pandey, IIT, Hyderabad
Dr.Prem Pal, IIIT Hyderabad
Dr. K.J.Vinoy, IISc, Bangalore
Dr. SudhanShekhar, IIS, Bangalore
Dr. Koushik Guha, NIT Silchar

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PUBLICATIONS.

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JOURNALS

- IEEE transctions on nanotechnology
- IEEE journal of mems
- Ieee access
- IEEE JOURNAL OF MEMS AND MOEMS
- Journal of Computational Electronics
- IET Journal of Research
- Microsystem Technologies
- Progress in Electromagnetics Research
- Solid State Devices
- Cogent engineering
- Alexandria engineeringjournal

Few SCI Indexed Publications

Design, Fabrication and Characterization of perforated Serpentine Membrane with AlN as a Dielectric Material Shunt Capacitive RF MEMS Switch", T.Lakshmi Narayana & K.Srinivasa Rao, IEEE Journal of Microelectromechanical Systems (under review). Impact Factor: 2.427

"Fabrication and Characterization of Capacitive RF MEMS Perforated Switch" has been successfully submitted online and is presently being given full consideration for publication in IEEE Access.", T.Lakshmi Narayana & K.Srinivasa Rao, Journal: IEEE Access, (Under Review) Impact Factor: 3.5

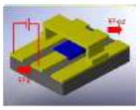
"Performance Analysis of MEMS sensor for the Detection of Cholera and Diarrhea", K.V.Vineetha et.al & K.Srinivasa Rao, K.Girija Sravani, Microsystems technologies, (Springer), DOI: 10.1007/s00542-018-3810-9 Impact Factor: 1.34

"Design, Simulation and Performance analysis of MEMS based Bio-sensors for the detection of Cholera and Diarrhea" K.V.Vineetha et.al & K.Srinivasa Rao , P.Ashok Kumar, K.Girija Sravani, Microsystems technologies, (Springer), DOI: 10.1007/s00542-018-3880-8, Impact Factor: 1.34

"Analysis of uniform structured RF MEMS Switch with different Uniform and Non-uniform Meandering Techniques", K.Srinivasa Rao & B.V.S.Sailaja et.al, P.Ashok Kumar, K.Girija Sravani, Microsystems technologies, (Springer), DOI: 10.1007/s00542-018-3866-6, Impact Factor: 1.34

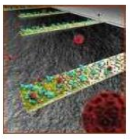
"A new compact analytical model of nanoelectromechanical systems-based capacitive micromachined ultrasonic transducers for pulse echo imaging" K.Srinivasa Rao et al, Journal of computational Electronics, DOI. 10.1007/s10825-018-1178-9, **Impact Factor: 1.43**

"Design, simulation and performance analysis bio-sensors for the detection of cholera and diarrhea using MEMS technology, K.V.Vineetha et.al K.Srinivasa Rao; K.GirijaSravani, Microsystems technologies, (Springer): DOI 10.1007/s00542-018-3981-4, **Impact Factor: 1.34**



RF MEMS

This field generally deals with the Radio Frequency applications. These generally refers to the RF-MEMS switches, antennas etc.



BIO MEMS

Biomedical micro electro mechanical systems deals with the design and verification of various instruments or devices used in the detection and diagnosis of various diseases and medical related dis-orders.

SMART SENSORS

Smart sensors or MEMS sensors are the devices used in the digital electronics for sensing and monitoring purposes. Few examples are MEMS accelerometers, actuators, etc.

PUBLICATIONS

- 50+ PUBLICATIONS IN SCI INDEXED JOURNALS
- 30+ PAPERS ARE PUBLISHED IN VARIOUS SCOPUS INDEXED JOURNALS IN 2 YEAR
- 5+ CONFERENCES AND 3+ INUP WORKSHOPS
- 5+ FABRICATED DEVICES
- 4 SCI PUBLICATIONS IN FUNDED PROJECT

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Collaborations

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Prof. Koushik Guha
ECE, NIT Silchar

Prof. Prem Pal
ECE,IIT Hyderabad

Prof. K.L.Baishnab
HOD,ECE, NIT Silchar

Prof. Sanket Goel, HOD, EEE,
BITS Pillai (Hyderabad)

Prof. K.J.Vinoy
ECE, IISC,Banglore

Prof. Poenar Daniel Puiu
School of Electrical & Electronic Engineering, NTU Singapore

Dr. N. P. Maity, Faculty, ECE,
Mizoram University

Prof. Ameen El Sinawi, Petroleum Institute,
Abu Dhabi, UAE

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Career Opputunities

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MEMS technology is a widespread technology that we cannot live without it. MEMS devices are dominating the market and enabling new innovative technology products which creates large scope for employment and careers in semiconductor companies as well as in research.

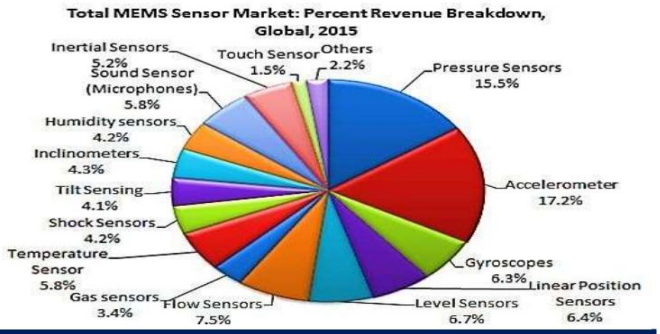
BOSCH Invented for life

Kionix® Sensing the Future

InvenSense Innovation in MEMS

KNOWLES

GoerTek have sound, will travel



Global Microelectromechanical Systems (MEMS) market was valued at $13 billion in 2015, and is expected to reach $26.8 billion by 2022, growing at a CAGR of 11.1% from 2016 to 2022.

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Gallery

GOOD IDEAS LEADS TO GREAT INNOVATIONS.

Snapshots of valuable moments where knowledge is shared and students are encouraged

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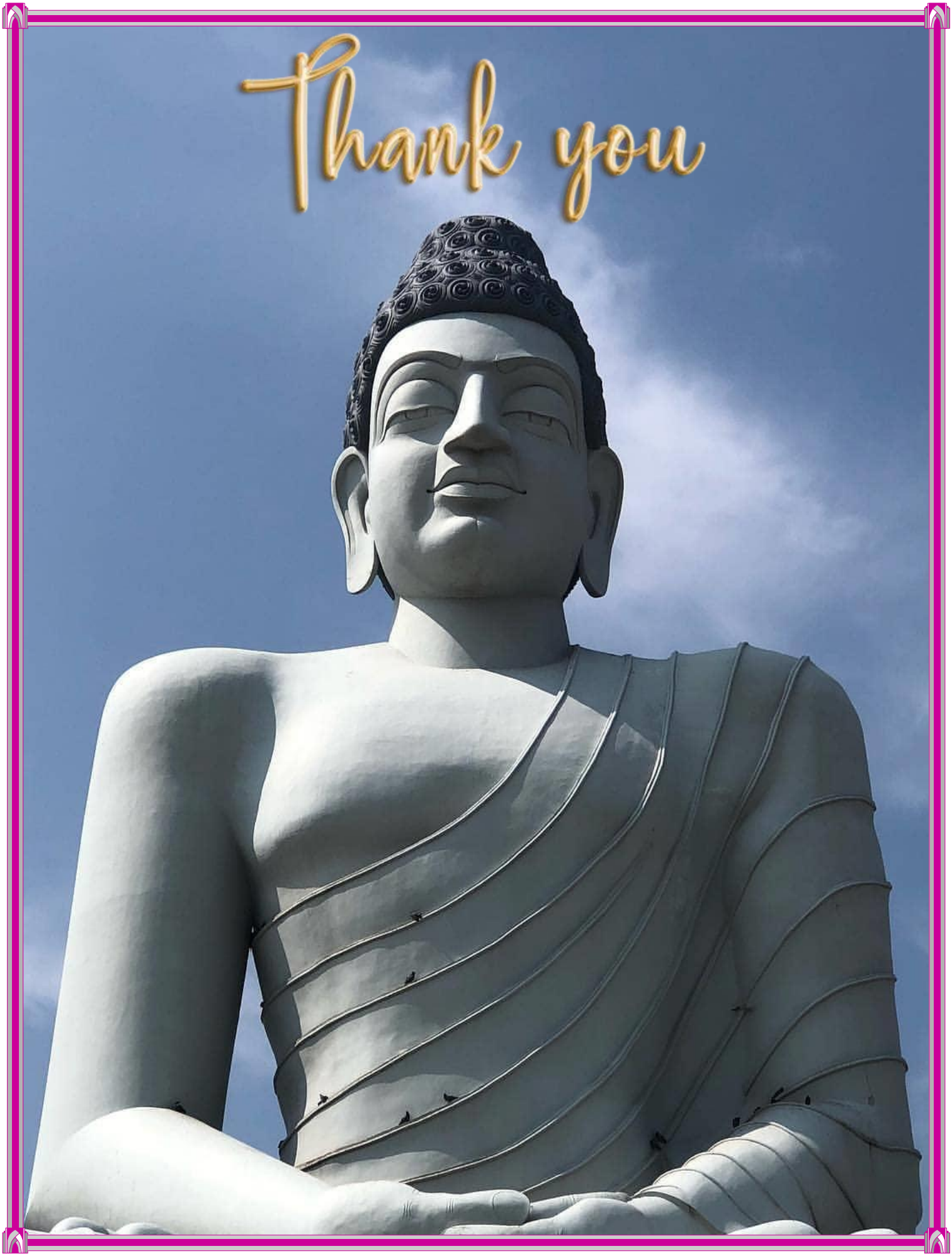
Thank you