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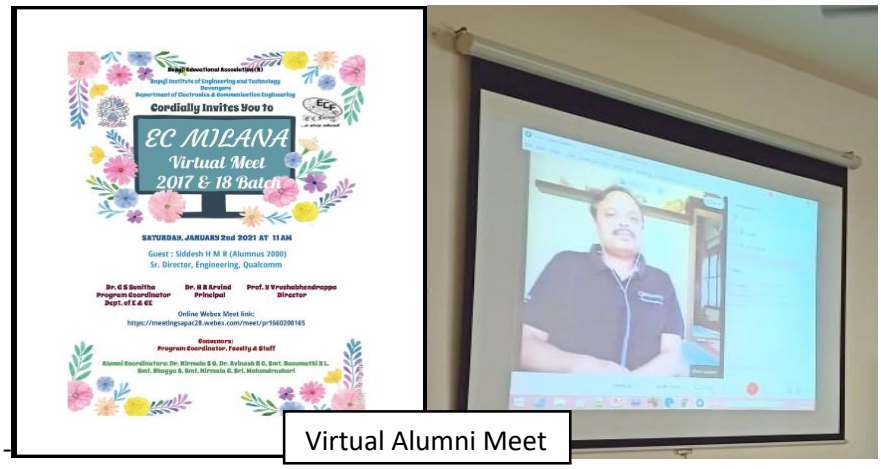
EC VOICE

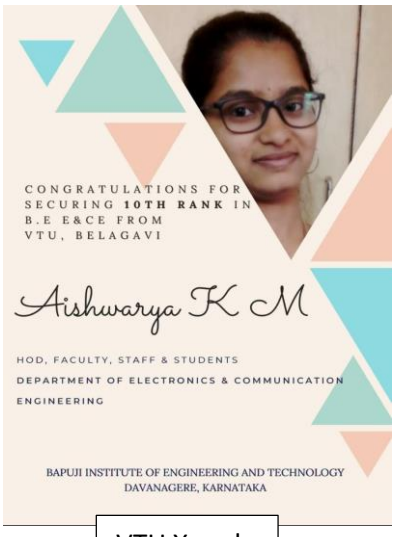
A Quarterly Newsletter of Electronics & Communication Engg.

Vol.4 Issue-3 Jan – March 2021

Vision: To be in the forefront in providing quality technical education and research in Electronics & Communication Engineering to produce skilled professionals to cater to the challenges of the society.



Virtual Alumni Meet



VTU X rank

Inside the Issue

Quote Corner

You can't go back and change the beginning, but you can start where you are and change the ending.

-Anonymous

Chairman/Editor
Dept. of Electronics & Communication Engineering
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Mission:

M1. To facilitate the students with profound technical knowledge through effective teaching learning process for a successful career.

M2. To impart quality education to strengthen students to meet the industry standards and face confidently the challenges in the program.

M3. To develop the essence of innovation and research among students and faculty by providing infrastructure and a conducive environment.

M4. To inculcate the student community with ethical values, communication skills, leadership qualities, entrepreneurial skills and lifelong learning to meet the societal needs.

National Education Policy 2020- For Higher Education

Strategies of Government to benefit the higher educational institutions & universities.

1.Enhance GER to 50% By The Year 2035

The Gross Enrollment Ratio as of the year 2018 was **26.3 %** NEP 2020 is planning to enhance the **GER to 50% by the year 2035.**

2.Holistic & Multidisciplinary Education

To help students learn as per their will, the new policy has introduced a holistic & multidisciplinary undergraduate education approach. It allows students with a flexibility to combine multi-disciplinary subjects along with integration of vocational courses.UG programs can be of either 3 or 4 years. The new element is that students will be given 'multiple exit options' & appropriate 'certification' will be given to them within their graduation tenure.

3.Dismantling of The 'UGC' And 'AICTE'

A new ruling body called **'Higher Education Commission of India' (HECI)** will come into existence in order to ensure best practices in the educational sector excluding the medical & legal field. HECI will have the right to penalize institutions who don't adhere to quality education.

4.Financial Support to Assist Students

Government will make efforts to ensure that students belonging to **ST, SC, OBC, and SEDGs** get scholarships as per their merit. The officials would encourage higher education institutions to offer **scholarships** to support talented students. The role & activities of **National Scholarship Portal** will be broadened to keep tab on the performance of students who've received scholarships.

5.Encouragement to Use Indian Languages

To ensure the preservation & promotion of Indian languages.

From HOD's Desk

In NEP-2020- for Higher education – it is mandatory for digitalization of Teaching Learning process and necessary to introduce students to Online courses. Students need to adapt to blended mode from the conventional teaching mode.

I congratulate Aishwarya K M for securing X rank .

I thank Dr. Kumarswamy, Prof. & Head , SIT, Tumkur for providing his valuable guidance for NBA-SAR . EC-Milana – Virtual Alumni meet was conducted for 2017 and 2018 batch students to share knowledge, build strong relationship between students & alumni and get updates of their current status. Sri. Siddesh H M R, Sr. Director , Qualcomm shared his experience and guided the juniors for their employment or professional growth.

6.Technology in Education

The government will create an autonomous entity called as- the **National Educational Technology Forum (NETF),** to ensure appropriate integration of technology in education.

7.Rationalized Education Architecture

The core structure of universities will be formed in a new manner.

8.Distance Learning/Open Learning

Government will take several measures to ensure highest quality education by opening the doors of open learning facilities such as Online courses introduction, Digital repositories, Funds for research work, Credit based education

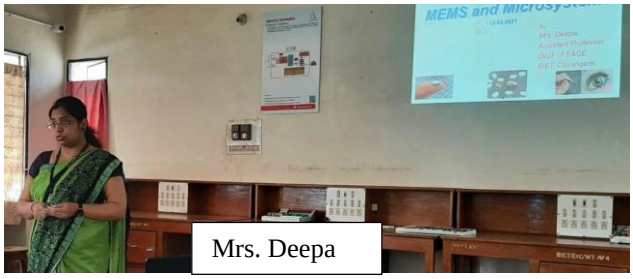
9.Digitalization of Teaching-Learning Process

10.Imparting Professional Education

DEPARTMENTAL ACTIVITIES

Gnana Vrudhi- Lecture Series

Faculty	Topic	Date
Dr. Avinash K G	Compact Single and Dual Band Microstrip Bandpass Filters with Transmission zeros using Dual Mode and DGS Resonators	16-01-2021
Mr. Yogesh k O	Artificial Intelligence	30-01-2021
Mrs. Deepa	MEMS and Microsystems	13-02-2021
Mr. Kanthraj S P	Introduction to Multicast Routing Protocols for MANETs	27-02-2021
Mrs. Vanishree H V	Augmented Reality-Reality Reinvented	15-03-2021



Mrs. Deepa

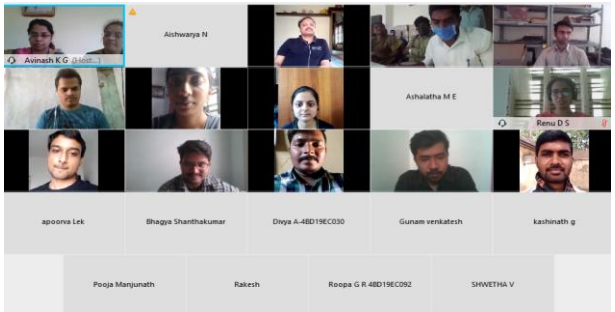

Mr. Kanthraj S P


Mrs. Vanishree H V

EC Milana – Virtual Meet

- Virtual Meet of Batch 2017 and 2018 was held on 2nd Jan 2021. Forty four alumni and department faculty actively participated in the Virtual Meet.
- Dr. K.G. Avinash, Associate Professor welcomed all the participants and introduced the guest Sri. Siddesh H M R to the audience of the meet.
- Sri. Siddesh H M R , alumni of 1996-2000 batch shared his two decades of industrial experience.
- Prof. Y. Vrushabhendrappa, Director and Dr. H. B. Aravind, Principal addressed the meet and advised the alumni to discuss new technology trends of the industry with the faculty and students.
- Dr. Pradeep N, Associate Professor and Dean Alumni, Computer Science & Engineering Department and Dr. K. C. Devendrappa, Professor and Secretary Alumni Association, Mechanical Engineering Department addressed the participants and advised Alumni to have interaction with the Department and help the juniors in placements.
- Prof. Nirmala G, Assistant Professor gave presentation on Departmental Activities and Dr. G S Sunitha, Program Coordinator gave the presidential remarks.
- Prof. K M Prakash, Assistant Professor thanked all Alumni and faculty members for their active participation and proposed vote of thanks.


Virtual Alumni Meet



NBA

Department had an NBA review meeting with Dr. Kumarswamy, Prof & Head, ETE Dept., SIT, Tumkur on 25th Feb 2021.

Outreach Activities

- Dr. G S Sunitha was invited as Resource Person for Training High School Teachers under ATAL Tinkering Laboratories, organized by District Institute for Education and Training on 22nd Jan 2021.
- Prof. Ganesh K was invited as Resource Person for Training High School Teachers under ATAL Tinkering Laboratories organized by District Institute for Education and Training on 21st and 22nd Jan 2021.
- Prof. Ganesh K delivered an International webinar on **Empowering Rural Communities - Opportunities and Challenges** organized by Internet Society Rural Development Special Interest Group(SIG) on 23rd Jan 2021.
- Prof. Ganesh K delivered a talk on **Internet- Can it become a boon for rural Indians?** organized by Grantha Sarasvati, Kavya Mantapa, Vidyanagar, Davanagere on 24th Jan 2021.

Others

- Newly appointed faculty members Vanishree H V , Yogesh K O and Kanthraj S P attended an induction program on 5th Jan 2021 in S G Balekundri Seminar Hall (IS&E) .
- Faculty attended an invited talk **Role of Placement Coordinators for enhancing Campus Placements** by Dr. D Ranganath, Dean Placements, R V College of Engineering, Bangalore on 9th Jan 2021 in Electrical Engineering Department.
- Presentation by Mr. Shreyas , CEO, Rove Labs was arranged on 06th Feb 2021 for the faculty.
- Webinar on **Introduction to Industry 4.0** by Mr. Imam Shariff **,** Managing Director ,Herin Electronics, Mysuru was organized on 5th March 2021.

STUDENT ACHIEVEMENTS AND ACTIVITIES

- **Aishwarya K M secured X rank** for the academic year 2019-20 with a CGPA of 9.24.
- Fourteen final year project proposals were submitted to KSCST , Bangalore under 44th Series of Student Project Programme.

Placement Activities

- Students placed in Campus Recruitment:

Sl. No.	Name of the company	No. of students Placed
1	TCS	08
2	iNube	01
3	SLK Technologies	06
4	Infosys	03
5	Technologics Global Pvt. Ltd.	01
6	KPMG	3
Total		22

NPTEL

Twenty three students registered for NPTEL courses of Jan-Apr 2021.

Co-Curricular Activities

- Technical idea presentation event **Give a Hand to Society** – a presentation competition for solving social problem was conducted on 7th Jan 2021 in A S Kirankumar hall using Cisco Webex. The event was coordinated by Dr. G. S. Sunitha, Program coordinator, forum coordinators, Prof. Bhagya Shanthakumar and Prof. Ali I.K. & student coordinators Shreevathsa N S, Aditya R Bangur, Swathi K S, Sandesh J T, Shravya N and Varun .

The paper **E Waste Management** presented by **Mr. Harsha T V and Mr. Harish T** was selected as best paper. A cash prize of ₹1000 along with merit certificate was awarded for the best paper.

- Training Course on Python Programming was Conducted by ICT Academy for III and V Sem Students on 28th Jan 2021 which was coordinated by Prof. Kantharaj S P.
- Nandeesh YR of VI Sem received Certificate of achievement on 30th March 2021 for successful completion of **The Fundamentals of Digital Marketing** certification exam and also has successfully completed the course on **Python Facts for C++/Java Developers** of duration 8 weeks.

FACULTY ACHIEVEMENTS AND ACTIVITIES

Publications

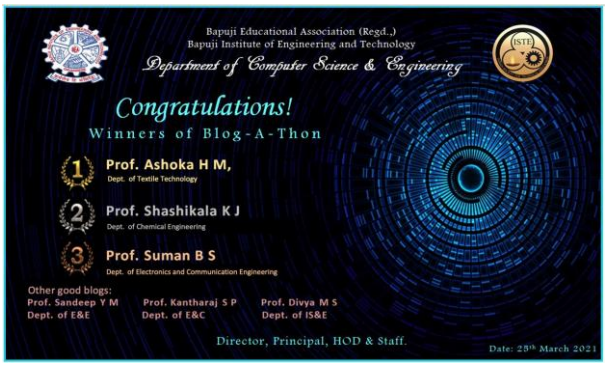
- Prof. Ganesh K published a paper **A machine learning based approach for frame work of objective video quality assessment system**" Published in International Journal of Advanced Trends in Computer Science and Engineering (IJATCSE)Volume 10 No.1 (2021) p335-339, ISSN :2278 - 3091,scopus cite score 1.2, SJR 2019-0.129

Research Activities

- Prof. Ranjith Patil N qualified the Ph.D. entrance (VTU-**ETR).**
- Prof. Rakesh H M, Research scholar under Dr. G S Sunitha completed Open Seminar -1 on 12th Jan 2021.
- Dr. K G Avinash as Principal investigator and Dr. Jayadevappa B M as Co-Principal investigator, submitted a project proposal entitled Design **and Developments of bio – Controlled prosthetic Foot** under VGST Karnataka fund for infrastructure strengthening in science and technology (K-FIST L1) .
- AICTE MODROBS proposal for **Modernization of Microprocessor and Computer Lab with Artificial Intelligence(AI) and Machine Learning (ML) integrated Internet of Things (IoT) Lab** was submitted by Dr. G S Sunitha, Program Coordinator and Prof. Ganesh K on 27th Jan 2021.

Others

- Prof. Suman B S received 3rd place and a blog by Prof. Kanthraj S P was judged as one of the good blogs in **Blog-A-Thon** conducted by Department of Computer Science and Engineering on 25th March 2021.



- Prof. Deepa was given a farewell since she was relieved and was leaving for Sweden.

Workshops/FDP Attended

- Dr. Avinash K G participated in two days **Awareness Workshop – NIRF India Ranking -2021 for Higher Educational Institutions** held online on 18th and 19th Jan 2021 by Institute for Academic Excellance in collaboration with Collegiate Education and Technical Education Department, Govt. of Telangana.

- Prof. Kiran Kumar G H attended an FDP on **Wearable Devices** from 18th to 22nd Jan 2021 organized by UVCE, BANGALORE

- Prof. K M Prakash, Prof. Bhagya S attended an AICTE-STTP Phase-III on **AI-MIMO: Millimeter (mm) Wave and Massive MIMO Applications for 5G Wireless Networks using AI** from 25th Jan to 1st Feb 2021 conducted by Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad, Telangana.

- Prof. G H Leela, Dr. Nirmala S O, attended NBA Awareness Webinar on **Outcome Based Education and Accreditation on** 16th February 2021 conducted by National Board of Accreditation, New Delhi and Visvesvaraya Technological University, Belgavi.

- Dr. G S Sunitha attended AICTE-ISTE approved Orientation/Refresher Programme on **Accreditation: An Accelerator for Quality Improvement in Engineering Education** from 18th to 24th Feb 2021 , organized by SDM college of Engineering , Dharwad.

- Prof. Deepa , Prof. Poornima G Nattended AICTE Training And Learning (ATAL) Academy Online FDP on Telemedicine, organized by Model Engineering College, Kochi, Kerala from 15th to 19th Feb 2021.

- Prof. Yogesh K O attended Designing AI for the IOT systems , organized by NITTR, Chennai .

- Dr. Nirmala S O, Prof. Suma K G, Prof. Savithri G R, Prof. Bhagya S, Prof. Yogesh K O, Prof. Vanishree H V and Prof. Kanthraj S P attended a three Days FDP on **Artificial Intelligence using MATLAB** from 23rd to 25th February 2021 conducted by CoreEL Technologies, Bangalore.

- Prof. Suman B S participated in a Webinar on Modelling Uncertainty for Image Analysis organized by IEEE Information Theory Society (ITS) Bangalore section on 25th Feb 2021.

- Prof. Banumathi K L attended an Online FDP on **Reliability Engineering and System Safety** from 15th to 27th Feb 2021, organized by Vishnu Instutute of Technology,Vishnupur Bhimavaram - 534202 Andhra Pradesh.

- Prof. Bhagya S attended FDP on **Entrepreneurship and Innovation** from 22nd Feb to 6th March, organized by Dayananda Sagar Academy of Technology, Bangalore

- Prof. Banumathi K L attended FDP on **Emerging Trends and Challenges in VLSI Mixed-Signal Processing for Fourth Industrial Revolution** from 1st to 13th March 2021, organized by Department of E&CE, Kongunadu College of Engineering and Technology, Trichy.

- Dr. G S Sunitha attended an International Workshop on **Wireless Modules** on 20th March 2021 organized by IEEE Atria Student Branch in association with IEEE Bangalore.

- Prof. Ranjith Patil N, Prof. Lingaraj, Prof. Suman B S, Prof. Yogesh K O and Prof. Kanthraj S P attended One Day Hands on webinar Blog -A –Thon organized by Department of Computer Science and Engineering on 25th March 2021.

ARTICLES

Dark Web

For the first time in india, dark web criminal an Indian narcotics vendor has been arrested in Lucknow.

Is this an exordiun to another silk road having Indian origin ?

Is this a vicious cycle of technology?

All these are the questions arising among the citizens.

The sleuths of Narcotics Control Bureau (NCB) must delve deeper into this case to answer all our queries.

•Firstly, Dark Web, also known as Dark Net is that part of the Internet that cannot be accessed through traditional search engines like Google nor is it accessible by normal browsers like Chrome or Safari.

•It is used for exchange of pornographic content, selling or brokering transactions involving drugs, cyber-arms, weapons, counterfeit currency, stolen credit card details, forged documents, unlicensed pharmaceuticals, steroids and other illicit goods using the secret alleys of the the onion router (ToR) to stay away from the surveillance of law enforcement agencies.

• It generally uses non-standard communication protocols which makes it inaccessible by internet service providers (ISPs) or government authorities.
• The content on Dark Net is encrypted and requires specific browser such as TOR (The Onion Ring) browser to access those pages.

•The onion ring - It was created in 2002 by non-other than the US government, as a way to help their own operatives remain untraceable. It's no exaggeration to say that the Dark Web of today could not exist without this technology.

- It is termed so as the traffic from the browser creates several layers like those of an Onion before reaching the destination site. In other words, unlike normal surfing, the computer does not connect directly to the server where the website is located. Instead, a whole series of servers are involved in the connection in order to create the greatest possible anonymity.
- Silk road-Silk Road was an online black market and the first modern darknet market, best known as a platform for selling illegal drugs. As part of the dark web, it was operated as a Tor hidden service, such that online users were able to browse it anonymously and securely without potential traffic monitoring. The website was launched in February 2011; development had begun six months prior.
- The first Indian case:

  The NCB arrested one Dipu Singh, 21, who was operating this network as an active vendor of psychotropic drugs on Darknet markets.

  Dipu is a major player on the darknet. His listings were found in one of the biggest and reliable darknet markets like Empire Market and Majestic Garden.

  Dipu was arrested by the central anti-narcotics agency under the Narcotic Drugs and Psychotropic Substances (NDPS) Act after raids were conducted at his residence in Lucknow's Alam Bagh area.

  Dipu initially began with shipping medicines related to erectile dysfunction and fitness supplements to overseas locations using the dark internet facility, but later shifted to transacting in psychotropic drugs under this garb seeing the profit margin in this illegal trade.

  While 12,000 tablets of various psychotropic drugs were seized from his residence, the NCB alleges Dipu is a "mastermind" of hundreds of drug parcels clandestinely

couriered to countries like the USA, UK, Romania, Spain and some european nations using the dark web.

A total of 55,000 psychotropic tablets that includes tramadol, zolpidem, alprazolam have been seized as part of this two-month-long operation that was conducted with cooperation from international agencies.

The payment gateways of cryptocurrency like Bitcoins and Litecoin were used by the operators to conceal the transactions from regulatory agencies.

The orders were procured from darknet and routed through various wicker identities, WhatsApp and some business-to-business platforms.

Although silk road started in US in 2011 and was ended by FBI on 2013 ,yet the first arrest was in 2020 in India, Using Tor is legal in India. Actually the basic purpose of the Tor is anonymity and anonymity is not illegal in any

single country. But browsing illegal content such as Drugs, Child pornography or we can say that browsing of deep web content can put you in trouble. Because, deep web contains huge of illegal content.

Usually the FBI follow some techniques to hold upon the crimes, such as the -

Going undercover on the dark web can be a highly effective tactic.

One way to circumvent Tor is to attack the endpoint; that is, the computers of users themselves.

The UK has set up a dedicated unit for tackling dark web crime, which is taking advantage of the country's mass surveillance capabilities.

An arrest of a vendor or the seizure of a marketplace can generate a mountain of new leads for investigators to follow.

Post boxes or offices also provide a perfect surveillance opportunity for law enforcement. Authorities intercepted multiple packages of heroin from notorious Silk Road drug dealer Steven "Nod" Sadler in September 2012.

Also if you change the screen size while using TOR FBI can detect dark web users, is a conspiracy.

We need to set new rules for its usage in a limited manner to regulate the crimes.

We can't say that India is lagging in technology as we are seeing these hidden internet crimes it shows how the technology is being used viciously but to counter this we need to improve more in our knowledge of decoding these crimes and scrutinize towards this dark web.

-**Nandish V S**

LITERARY CONTRIBUTIONS

ಹೇ ಮನುಜ ನೀ ಏಕೆ ಹೀಗೆ ..!!**???**
ನೀ ಏಕೆ ಹೀಗೆ ..**??**
ಬೇಕು ಬೇಕೆಂಬ ಬಡಿದಾಟವೇಕೆ...**???**
ಬಡಿದಾಟದ ಬದುಕೇಕೆ..**???**
ನಾನು ನನ್ನವರೆಂಬ ಸ್ವಾಥವೇಕೆ ..**??**
ಕೊಳ್ಳುಬಾಕುತನವೇಕೆ **???**
ಹಿಡಿತವಿಲ್ಲದ ಆಲೋಚನೆಯೇಕೆ **???**
ಶುದ್ಧವಿಲ್ಲದ ಮನಸೇಕೆ **???**
ಹೇಳು ನೀ ಏಕೆ ಹೀಗೆ **???**
ಯಾರು ಬಂದರು ನೀ ಬರುವಾಗ !!!!**???**
ಯಾರು ಬರುವರು ನೀ ಹೊರಡುವಾಗ !!!**???**
ಈ ಮೂರು ದಿನದ ಜಾತ್ರೆಯಲಿ ,
ಆಸೆಯ ಗಂಟುಗಳೇಕೆ ..!!**1??**
ಹೇಳು ನೀ ಏಕೆ ಹೀಗೆ **???**
ನೀ ಏಕೆ ಹೀಗೆ **???**

ಶ್ರೀಮತಿ ಸುಚರಿತ S D
Asst. Professor

ಅಂತರಾಳದ ದನಿ (ಕರೋನ ಸಮಯದಲಿ)

ಎಲ್ಲರ ಕೆಲಸಗಳ ನಿಲ್ಲಿಸಿ,ಮಹಾಮಾರಿ ಸಂತೋಷದಲ್ಲಿರುವಾಗಾ,
ನನ್ನ ಭಕ್ತಿ ಸೇವೆಗಳ ದುಪ್ಪಟ್ಟು ಮಾಡಿ ನಾ ಭಕ್ತಿಯಾ ಬೇಡಿದಾಗ,
ಚಿತೆಯ ಚಿಂತೆಯಲ್ಲಿರುವ ಜನಗಳಾ ನೋಡುತಿರುವಾಗಾ,
ನಿನ್ನ ಕರುಣೆಯಾ ಕೃಪೆಯ ಕ್ಷಣ ಕ್ಷಣವೂ ನಾ ಅರಸುತಿರುವಾಗ,
ನೀ ಕೊಟ್ಟೆ ಎನಗೆ ಹರಿ ನಾಮ ಸ್ಮರಣೆ ಮಾಡುವಾ ಭಾಗ್ಯವೀಗಾ,
ಪದಗಳೇ ಇಲ್ಲೆನಗೆ ಹರಿನಾಮ ಸ್ಮರಣೆಯೊಂದೆ ಈಗಾ,
ಹರಿನಾಮ ಸ್ಮರಣೆಯೊಂದೆ ಆಗಾ,ಹರಿನಾಮ ಸ್ಮರಣೆಯೊಂದೆ
ಕಲಿಯುಗದಾಗಾ,
ಆ ಕಾಲದಾಗ,ಈ ಕಾಲದಾಗ,
ಎಲ್ಲಾ ಕಾಲದಾಗ,ಎಲ್ಲಾ ಕಾಲದಾಗ||

ಈ ಮೂಢ ಜನ ನಂಬುವರು,ಬರಿಗಣ್ಣಿಗೆ ಕಾಣದಾ ಮಹಾಮಾರಿಯನ್ನಾ,
ಅಲ್ಲಗಳೆಯುವರು ಎಲ್ಲದರ ಸೃಷ್ಟಿಕರ್ತ ನೀನೇ ಎಂಬುದನ್ನಾ,
ನನಗಾಗುತಿಲ್ಲ ಸಹಿಸೋಕೆ ಈ ಮೂಢರ ದುಶ್ಕೃತ್ಯವನ್ನಾ,
ಆ ಕೋಪ ಸುಡುಹುತಿಹುದು ಎನ್ನ ಅಹಂಕಾರವನ್ನಾ,
ಸುಡುತಿಹುದರಾ ಫಲವೇ ಇದು,ಅರ್ಥೈಸಿಕೊಳುತಿರುವೆ ನನ್ನ ನಿನ್ನ
ಭಾಂಧವ್ಯವನ್ನಾ,
ಓ ಹರಿಯೇ ನನ್ನ ನಿನ್ನ ಭಾಂಧವ್ಯವನ್ನಾ
ನಿನ್ನ ಪ್ರಜ್ಞೆಯಲ್ಲಿರುವ ಮಹಧಾಸೆ ಒಂದೆ ನನಗಿನ್ನಾ,
ಓ ಕೃಷ್ಣ ನಿನ್ನ ಪ್ರಜ್ಞೆಯಲ್ಲಿರುವ ಮಹಧಾಸೆ ಒಂದೆ ನನಗಿನ್ನಾ.

-ಸೃಜನ್ ಆರ್.ಎಂ

Sanjana Kenchi

Pooja H V

PAINTINGS

Shreeraksha R K

Alumni Corner

Siddesh Halavarthi Math Revana

Sr Dir, Engineering at QUALCOMM
Bangalore Urban, Karnataka, India

About

An experienced VLSI professional with a track record of managing Design and Verification of leading edge Memory Controllers, interconnects and CPU Systems.

Proficient in setting and delivering on quality goals and aggressive schedules by deploying state-of-the-art design and verification methodologies and techniques.

Has authored articles on Assertion Based Verification, Coverage Convergence and Formal Verification Techniques and presented in international conferences too.

Specialties

Technical Leadership with emphasis on Quality & Schedule
Design and Verification of CPU & DDR Systems spanning across func, low-power and performance aspects
ACE/CHI/AXI/AHB/APBI BUS and LPDDRx/PCDDRx DDR Protocols
Constrained Random, Formal Verification and Convergence Techniques
Early adoption and successful deployment of Portable Stimulus Standard (PSS)
UPF based low-power design and validation of complex systems

Experience

Qualcomm

Sr. Dir, Engineering
QUALCOMM
Jul 2002 – Present 19 years 2 months
Bengaluru Area, India

CPU systems Architecture, Design, Verification and Post-Si debug leadership. CPU systems Design and Architecture which involves latest/greatest/high-end CPU cores, clusters, coherent interconnects and bunch of IPs to make the system work. Has "2" granted US patents.
Experienced in CPU low-power modes, coherency, debug modes, SW use-cases and Post-Si aspects. Coined and driven impactful CPU initiatives to improve efficiency and quality of deliverables across multiple product lines.
Previously worked extensively on core level design verification of leading edge DDR Memory Controllers (LPDDR1/2/3/4 and PCDDR2/3), high-speed PHYs, cross-bars and network interconnects (NoC), integrated verification of interconnect + Memory controllers + PHY, NAND-Flash, MIPI-LCD, NOR-Flash. Has a little exposure to Modem Core design and verification as well.
Has taken initiatives to successfully deploy Assertion Based Verification, Formal Verification and Coverage Convergence Techniques.

VCTI

Design Engineer
Velankani Information Systems
Dec 2000 - Jun 20021 year 7 months
Bangalore, India

Design and verification of Viterbi Encoder and Decoder for 3G wireless

Education

- **Birla Institute of Technology and Science (BITS), Pilani**
  Master of Science (MS) Microelectronics

- **Bapuji institute of engineering and technology (1996-2000)**
  Bachelor of Engineering Electronics and Communication