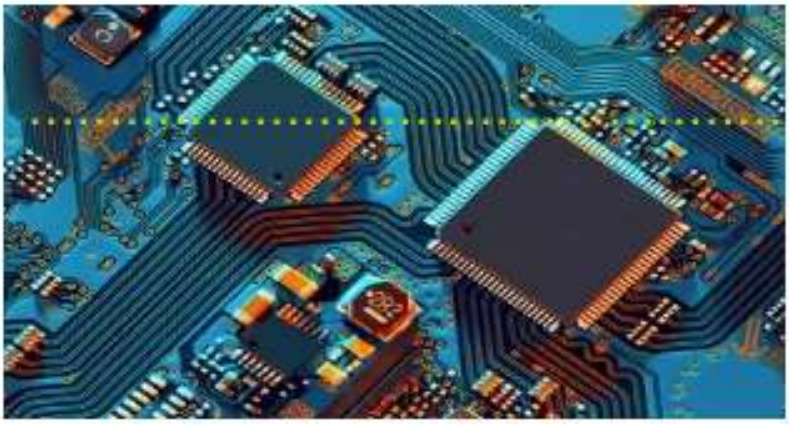
Electronica 22 of Electronics & Telecommunication Department

Date;26/01/22

Vision

- To serve basic needs of rural society by imparting technical education training to electronics and communication engineering students.



Mission

- M1- To provide excellent teaching and lifelong learning environment.
- M2- to contribute in the ethical , social and economic development Of society by imparting updated technical education.
- M3- to develop institute industry interaction to produce competent professionals and promising entrepreneurs in the field of electronics and telecommunication

HOD Desk

THE ELECTRONICS AND TELECOMMUNICATION DEPARTMENT NEWSLETTER IS A PLATFORM FOR SHARING EDUCATIONAL INFORMATION, ACTIVITIES AND RELATED EVENTS. I HOPE THAT THE NEWSLETTER WILL PROVIDE USEFUL AND RELEVANT INFORMATION. IT IS THE INTENT OF THE DEPARTMENT TO MAKE IT SEMI-ANNUAL PUBLICATION TO KEEP IN TOUCH WITH THE DEPARTMENTAL ACTIVITIES AND ACHIEVEMENTS.

Shri S.R.PAnke

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Departmental Laboratories Department is having well equiped laboratories to have hands on practices of students.

Student Performance

PERFORMANCE IN MSBTE 2021-22 EXAM TOPPERS

1.Rasure Pooja = 92.12%

2.Patil Mansi = 91.12%

3.Razvi Nameera =89.88

Student ACtivities

1.Technical Visit

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Student Activities
2.Swacchata Abhiyan

3. Garaba Night

4.Tree Plantation

5.Health Drive

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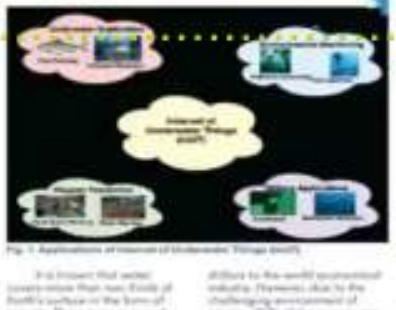
Technical Articles

1.Underwater Communication

By: Jadhav Ashutosh

Towards the Internet of Underwater Things:

Underwater communication



2.Digital Currancy Future of money

By: Bhosale Shubham

Digital Currency:
The Future Of Your Money

Digital currency has the potential to change how society thinks about money completely. The rise of Bitcoin (BTC), Ethereum (ETH) and thousands of other cryptocurrencies that exist only in electronic form has led global central banks to research how national digital currencies might work.

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Technical Articles

3.Designing ASICs for future Healthcare

By: Anushka Maslekar

Designing ASICs for the Future of Healthcare

Global spending on healthcare is expected to reach $11.5 trillion by 2030 and McKinsey estimates the value of digital technology in healthcare systems to reach $3 trillion by then. The future of healthcare will be further driven by medtech as opportunities in digital health evolve along the patient pathway. Improvements in implantable medical devices in particular will drive significant market traction over the next few years.

To understand the trends and innovations impacting the medical implants and ASICs (Application Specific Integrated Circuits) space, we interacted with Jan Crols, CTO Semiconductor of Anaxem, a Cytrel company and an expert in integrated wireless communication; and Mayank Mishra, Engineering Consultant and Practice Director of the Everest Group. Here are the salient factors having a bearing on the industry's growth trajectory.

Growing investment in Engineering R&D in the medtech vertical

The medical devices sector is growing rapidly at approximately 6% per annum, with spends boasting a trillion dollars annually in Engineering R&D (ER&D), according to Everest Group estimates. Implants, active and passive, constitute 19% of the ER&D spends, roughly accounting for $7 billion annually. The primary drivers of growth include greater affordability and the growing popularity of implants, coupled with demographic and lifestyle changes. The key investment areas for implants are two-fold:

- Enhancement of longevity and efficacy of existing implant offerings
- Development of new use cases and applications, as well as the establishment of digital healthcare ecosystems as part of the larger connected healthcare ecosystem.

4.Practical 5g applications in Industrial Automations

By: Vaibhav Kawade

Practical 5G Applications in Industrial Automation

Wireless communications have become increasingly critical to communications for industrial automation. Now, fifth-generation (5G) cellular communication is widely heralded as the key wireless technology to advance the fourth industrial revolution — Industry 4.0 or the Industrial Internet of Things (IIoT). Some sources even suggest that 5G will be key to making consumer and other non-industrial IoT installations ubiquitous in large part because 5G facilitates the connection of staggering numbers of devices, wherever those devices happen to be located.

But will 5G replace the array of wireless standards currently in operation? Will 5G come to outperform Wi-Fi, Bluetooth, and IEEE 802.15.4 in applications where these other technologies currently lead? Or is 5G simply an improved technology for the few outmoded applications where older cellular technologies are used? What are 5G's performance advantages, and to what extent are these already leverageable?

To understand the answers to these questions, first consider how 5G differs from other cellular and non-cellular communications. 5G — currently being rolled out for mobile-phone and industrial networks — builds on previous generations of digital cellular technology. There was never a 1G, as 2G's

Figure 1: The 3rd Generation Partnership Project (3GPP) unites telecommunications standards organizations to make cellular telecommunications technologies as cross and backwards compatible as possible. (Logo source: 3GPP)

wireless telephone technology having little in common with today's networks. With 2G came the first digital technology and encrypted phone and short message service (SMS) communications. Global System for Mobile Communications (GSM) standards define 2G circuit-switched networks allowing full-duplex voice calls. Over the years, 2G networks were further enhanced by the first General Packet Radio Enhanced Data Rates for GSM Evolution (EDGE). GPRS and EDGE enabled transmission of general-purpose data packets for internet connectivity with increasing data rates, which is why networks with these capabilities are sometimes called 2.5G and 2.75G technologies respectively.

3G further improved data transfer rates — even to the point of enabling video calls. Associated standards include CDMA2000 and various forms of High-Speed Packet Access (HSPA).

Next come 4G and even greater data transfer rates through the Long Term Evolution (LTE) and WiMax standards, which utilize multiple-input and multiple-output (MIMO) transmissions. 5G evolved from 4G, with the first commercially available 5G network products released in late 2018. For historical perspective