



K.RAMAKRISHNAN COLLEGE OF ENGINEERING

An Autonomous Institution

Permanently Affiliated to Anna University Chennai, Approved by AICTE New Delhi,
ISO 9001:2015, 14001:2015 certified institution, Accredited by NBA and with A grade by NAAC

Samayapuram, Tiruchirappalli – 621 112, Tamilnadu, India.



"Live as if you were to die
tomorrow. Learn as if you were
to live forever."

2022 - 2023

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Krce.ac.in



Dr. K. Ramakrishnan

CHAIRMAN

Dr. K. Ramakrishnan, the esteemed Chairman of our institution, is a visionary leader whose dedication, discipline, and dynamic outlook serve as a constant source of inspiration for the students of the Electronics and Communication Engineering (ECE) Department. A proud alumnus of Annamalai University with a B.E. in Production Engineering, he has devoted his efforts to transforming this rural region into a center of technological and educational excellence. His commitment to hard work, innovation, and leadership motivates ECE students to strive for excellence in their academic and professional pursuits, inspiring them to become creative thinkers, responsible engineers, and future leaders who contribute meaningfully to society.

Dr.S.Kuppusamy



EXECUTIVE DIRECTOR

Dr. S. Kuppusamy, the Executive Director of our institution, is a passionate academician whose dedication and commitment to excellence have shaped his career in education. He holds a B.Sc. in Electronics from Erode Arts College, an MBA from Kongu Engineering College, and a Ph.D. in Management from Bharathiar University, Coimbatore. His blend of technical knowledge and leadership inspires the Electronics and Communication Engineering (ECE) students to pursue innovation, discipline, and success in their academic and professional paths.



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Dr.D.SRINIVASAN

PRINCIPAL

Dr.D.Srinivasan, The Principal of K.Ramakrishnan College of Engineering, Tiruchirappalli, is a vibrant leader with his ground-breaking approach and proven administrative process produces many young engineering professionals to this society. He received his Ph.D. and Post-Graduation in Manufacturing Technology from the nation's top grade institution NIT, Trichy. Education is not just a process of giving knowledge for a future job but a lifelong process which builds an understanding of moral and ethical values to guide one's life in a right path. KRCE not only focuses on the academic front, but also helps in the development of a student's personality, extra-curricular activities and over all perspective. Everything that makes a good institution - well equipped R&D Cells, Lab facilities for all the departments, Wi-Fi enabled campus, well stacked library with digital facility, career guidance, unique teaching methods, training for competitive examinations, liberty to think and express themselves all are available to mould them to face the challenges confidently

Dr.M.MAHESWARI



HEAD OF THE DEPARTMENT

I am deeply thankful to the Board of management, Director Principal, and the Heads of various departments. Faculty members for their consistent support and active involvement in motivational activities of our department. I extend my heart full thanks to the editorial committee members and students for their tireless effort towards releasing this magazine. Choosing electronics field as profession needs challenging creative and extraordinary mind it gives me pleasure to lead such innovative students, who are the future experts of India



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DEPARTMENT OF ECE VISION

To be distinguished as a prominent program for Electronics and Communication Engineering Studies by preparing students for Industrial Competitiveness and Societal Challenges.



M1: To equip the students with latest technical, analytical and practical knowledge.

M2: To provide vibrant academic environment and Innovative Research culture.

M3: To provide opportunities for students to get Industrial Skills and internships to meet out the challenges of the society.

The PEOs of the programme are,

PEO1: Graduates will be competent enough to design, develop and integrate complex industrial products for modern electronics and communication systems.

PEO2: Graduates will be able to propose research oriented, industry relevant design solutions in state-of-the-art electronics and communication domains.

PEO3: Graduates will be able to engage in start-up and entrepreneurial activities developing innovative prototypes for the challenging needs of the society.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Students will qualify in National level Competitive Examinations for Employment and Higher studies.

PSO2: Students will have expertise in the design and development of Hardware and Software tools to solve complex Electronics and Communication Engineering problems in the domains like analog and digital electronics, embedded and communication systems.



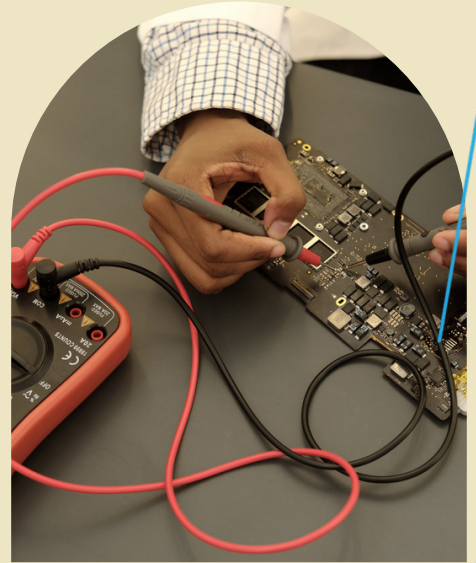
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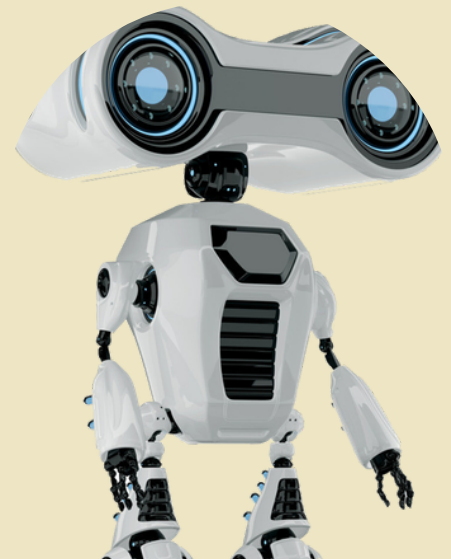
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CHIEF GUEST Mr.A VINOTH
KUMAR
SENIOR SOFTWARE ENGINEER
MERCEDES-BENZ RESEARCH AND
DEVELOPMENT CENTER
BANGALORE**



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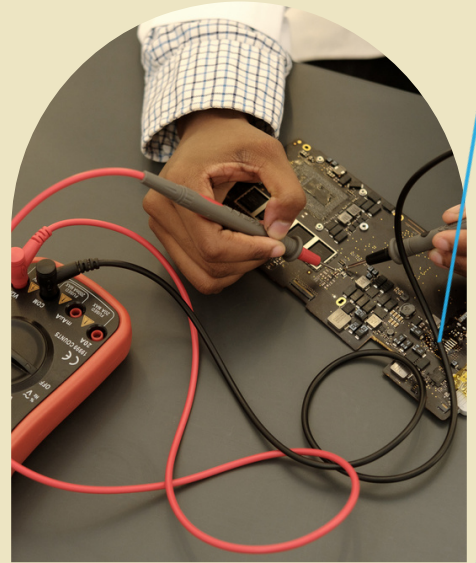
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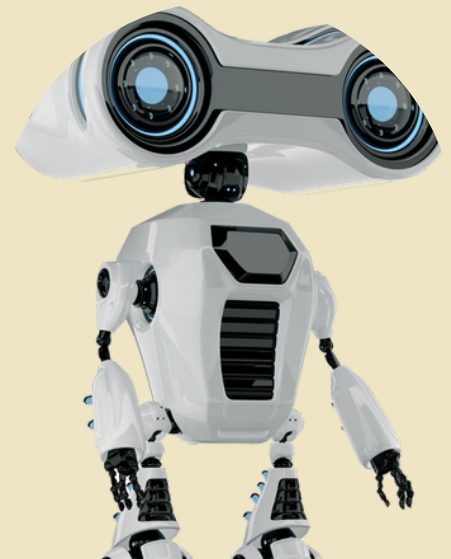
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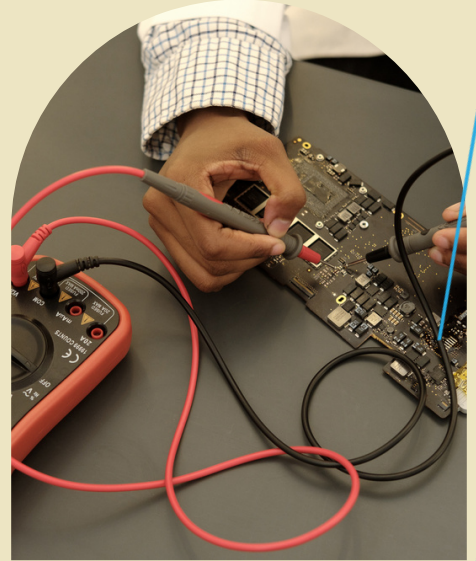
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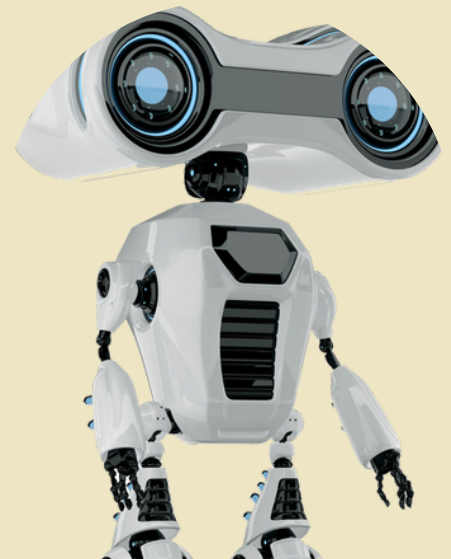
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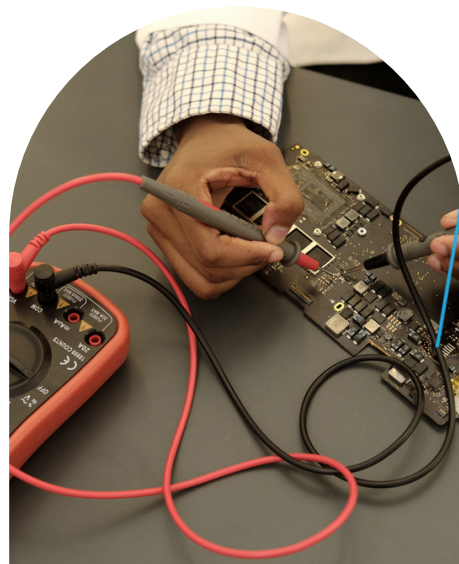
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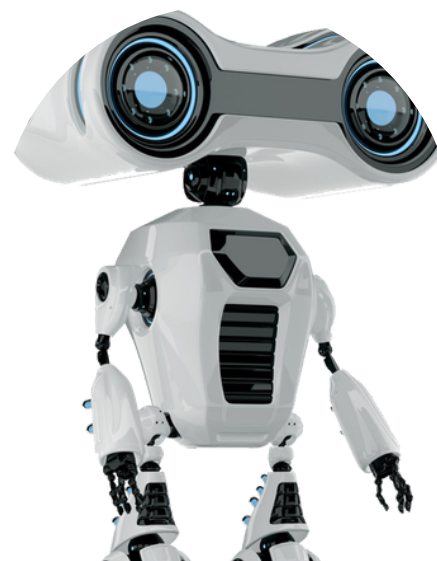
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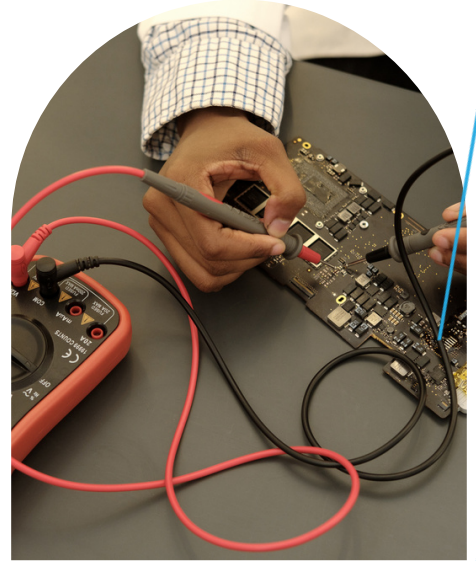
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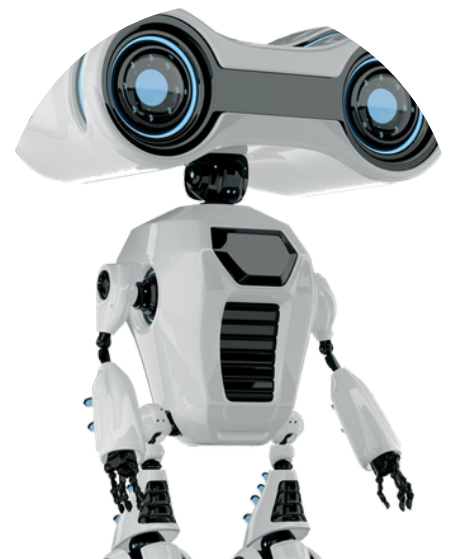
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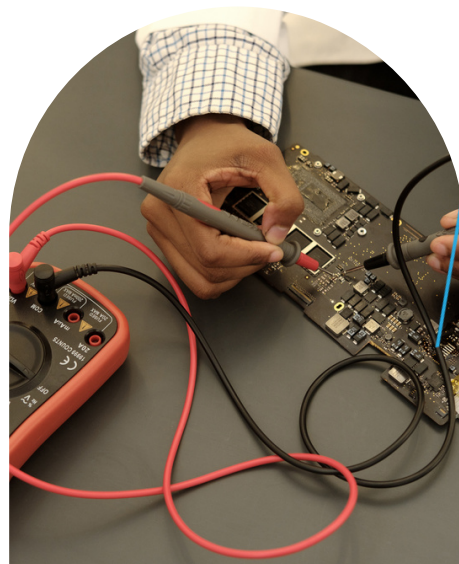
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BLOCKCHAIN AND CRYPTOCURRENCY

ECA2018-R. BHUVANESWARI & ECA1910-ANEES VALENTINA

A B S T R A C T

The blockchain technology is a relatively new approach in the field of information technologies. As one of its first implementations, bitcoin as a cryptocurrency has gained a lot of attention. They represent the very core of modern cryptocurrency development. This paper is meant to give a brief introduction to these topics.

Keywords – Bitcoin; blockchain; cryptocurrency;

I N T R O D U C T I O N

Bitcoin and blockchain technology have begun to shape and define new aspects in the computer science and information technology. The need for a decentralized money has been exploited more as a theoretical concept, but in the past decade, it became viable, all thanks to the famous paper of Satoshi Nakamoto in 2008, introducing Bitcoin and blockchain technology. While there are controversies about Nakamoto's true identity, one is for sure: he brought something revolutionary to the world, and it is up to the users to decide what they want to do with it. Some will take this opportunity and develop their own application for solving various problems in the society, others will invest money in those ideas or simply trade with ups and downs of the cryptocurrencies' values at the market. In this, we thought of bringing a small introduction to the matter of blockchain and cryptocurrencies. We begin with the life of people in the society without bitcoin or cryptocurrency, and then we go into the very core of its function. Bitcoin is then cryptocurrency hold majority of the cryptocurrency market capitalization. Of course, as it happens with new technologies, some limitations and problems emerged, and we described them well.



C R Y P T O C U R R E N C Y E S S E N T I A L S

A cryptocurrency, crypto-currency, or crypto is a digital currency designed to work as a medium of exchange through a computer network that is not reliant on any central authority, such as a government or bank, to uphold or maintain it. It is a decentralized system for verifying that the parties to a transaction have the money they claim to have, eliminating the need for traditional intermediaries, such as banks, when funds are being transferred between two entities. Individual coin ownership records are stored in a digital ledger, which is a computerized database using strong cryptography to secure transaction records, control the creation of additional coins, and verify the transfer of coin ownership.

Some crypto schemes use validators to maintain the cryptocurrency. In a proof-of-stake model, owners put up their tokens as collateral. In return, they get authority over the token in proportion to the amount they stake. Generally, these token stakers get additional ownership in the token over time via network fees, newly minted tokens, or other such reward mechanisms.

Cryptocurrency does not exist in physical form (like paper money) and is typically not issued by a central authority. Cryptocurrencies typically use decentralized control as opposed to a central bank digital currency (CBDC). When a cryptocurrency is minted, or created prior to issuance, or issued by a single issuer, it is generally considered centralized. When implemented with decentralized control, each cryptocurrency works through distributed ledger technology, typically a blockchain, that serves as a public financial transaction database. Traditional asset classes like currencies, commodities, and stocks, as well as macroeconomic factors, have modest exposures to cryptocurrency returns. The first decentralized cryptocurrency was Bitcoin, which was first released as open-source software in 2009. As of March 2022, there were more than 9,000 other cryptocurrencies in the marketplace, of which more than 70 had a market capitalization exceeding \$1 billion.

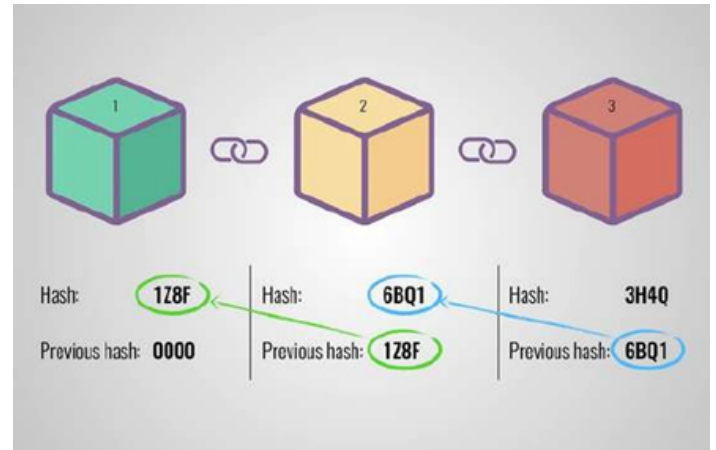
BLOCKCHAIN TECHNOLOGY

Blockchain is the underlying technology of bitcoin. Blockchain is a public distributed ledger in which transactions are recorded in chronological order. Any record or transaction added to the blockchain cannot be modified or altered, meaning transactions are safe from hacking. A block is the smallest unit of a blockchain, and it is a container that holds all the transaction details. A block has four fields, or primary attributes:

1. Previous hash: This attribute stores the value of the hash of the previous block, and that's how the blocks are linked to one another.
2. Data: This is the aggregated set of transactions included in this block—the set of transactions that were mined and validated and included in the block.
3. Nonce: In a “proof of work” consensus algorithm, which bitcoin uses, the nonce is a random value used to vary the output of the hash value. Every block is supposed to generate a hash value, and the nonce is the parameter that is used to generate that hash value.

The proof of work is the process of transaction verification done in blockchain. 4. Hash: This is the value obtained by passing the previous hash value, the data and the nonce through the SHA-256 algorithm; it is the digital signature of the block. SHA-256 is a cryptographic hash algorithm that produces a unique 256-bit alphanumeric hash value for any given input, and that is the unique feature of this cryptographic algorithm: Whatever input you give, it will always produce a 256-bit hash.

- Immutability. Blockchain supports immutability, meaning it is impossible to erase or replace recorded data. Therefore, the blockchain prevents data tampering within the network.
- Transparency. Blockchain is decentralized, meaning any network member can verify data recorded into the blockchain. Therefore, the public can trust the network. Censorship. Blockchain technology is free from censorship since it does not have control of any single party. Therefore, no single authority (including governments) can interrupt the operation of the network



CONCLUSION

Blockchain is a relatively new technology that is still not widespread in all industries but it is slowly gaining more momentum. Once Blockchain becomes more widespread, it could become a powerful tool for the democratization of data that will encourage transparency and ethical business tactics. And the applications of Blockchain in the world are only increasing with the result of faster transactions, more transparency, and security as well as reduced costs. Who knows, Blockchain may change the world in the future! Bitcoin is the most known and valuable cryptocurrency. It is based on blockchain technology that is intended to promote a trust mechanism in a peer-to-peer network based on the consensus of the majority

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