



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.



"Education is not the filling of a
pail, but the lighting of a fire."

2021 - 2022

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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

VISION

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

MISSION

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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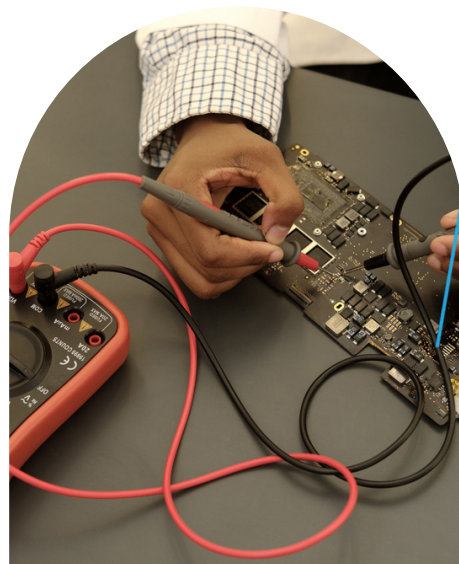
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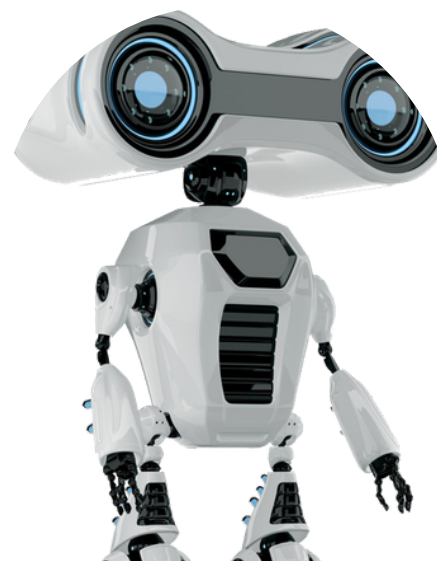
EVENTS

**AICTE – ISTE Sponsored FDP on
“Block Chain Technology in Health
care” at 30-12-2021 to 05-01-2022**



**Awareness Program on “IELTS Exam”
at 7/12/2021**

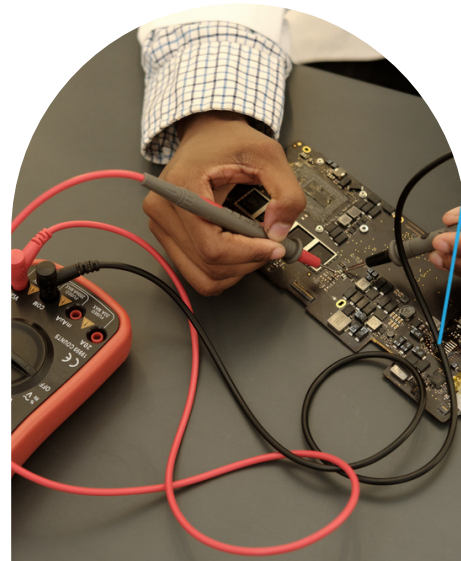
**Entrepreneurship Awareness
Program “My Story – Motivational
session by Successful Entrepreneur”
at 27-11-2021**





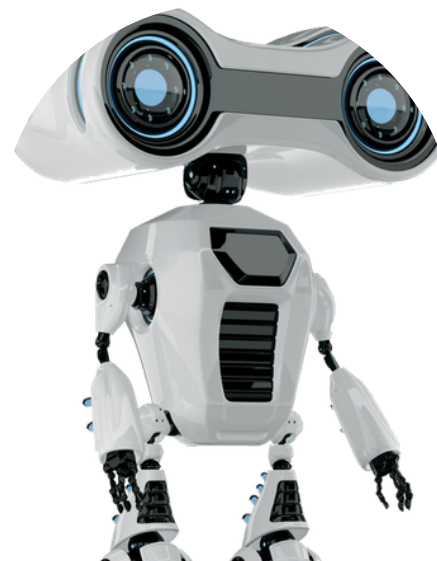
EVENTS

**Awareness Program on “Core VLSI
Training” at 26-10-2021**



**Quiz Contest “Electro Trivia Quiz
Series – I” at 25-10-2021**

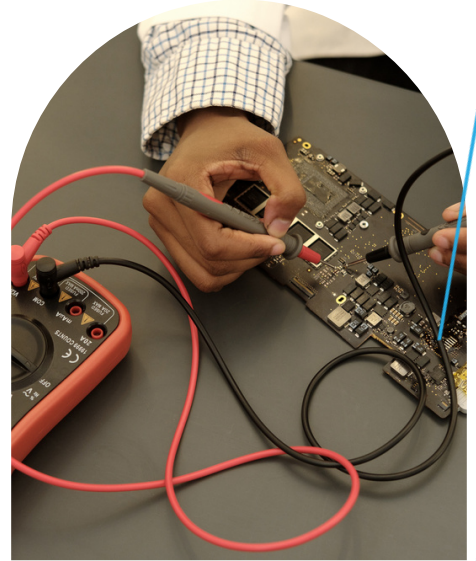
**Recent Trends in wireless Comm.
Technology at 05.08.2021-14.08.2021**





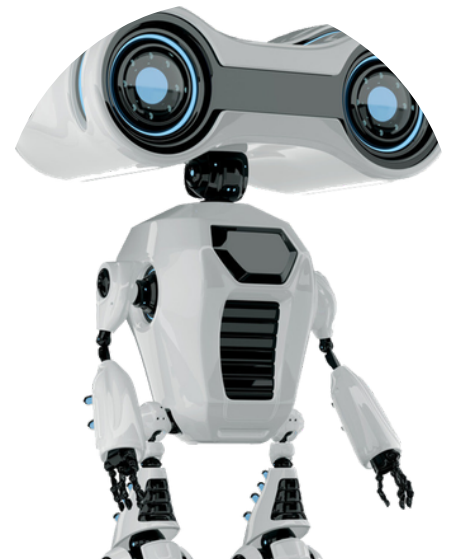
EVENTS

**Coding Contest “ Code C Series – I
” at 11/8/2021**



**Session on angel investment and vc
funding opportunity for early stage
entrepreneurs at 21.07.2021**

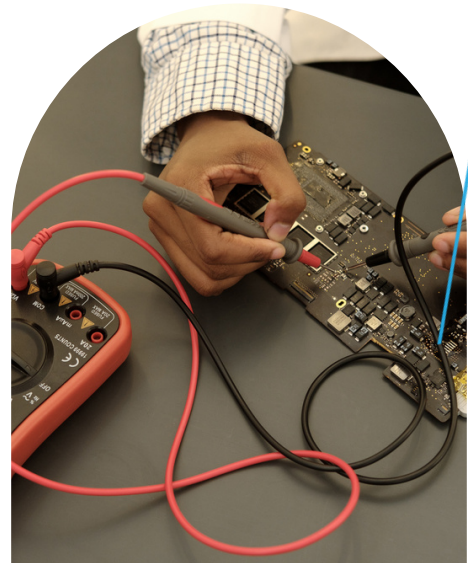
**Innovations in Qualitative Research
at 12/2/2022**





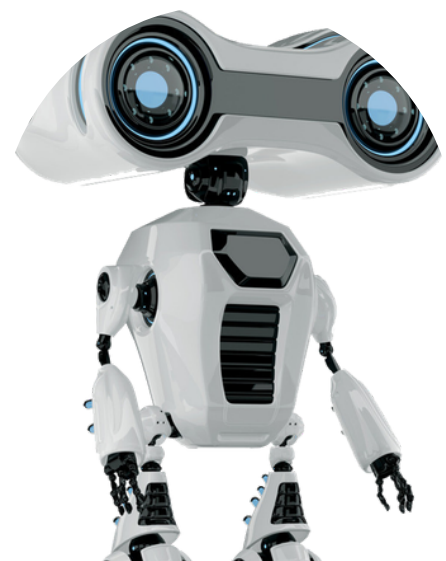
EVENTS

**Achieving problem – solution fit &
Product-Market fit at 25-02-2022**



**Innovations in Entrepreneurship at
20-03-2022**

**Quiz contest “ E-Quizzle’22” at
20-03-2022
CODEWARS 3.0 at 2/4/2022**



METAVERS E

AUTHOURS:ECB1953-Ms.ROSHANA & ECB1945-Ms.PRIYANKA E

Metaverse is a virtual space in which user can interact with a computer-generated environment and other users. The internet will eventually evolve into the metaverse, which will come to represent the next major computing platform. combination of augmented, virtual and mixed reality can be metaverse. What is the Metaverse and Where Did the Concept Come From The Metaverse can be traced back to Neal Stephenson and his dystopian cyberpunk novel snow Crash. Which describes a virtual reality dataspace called the matrix. Like any place in Reality, the Street is subject to development. Developers can build their own all streets feeding off of the main one They can build buildings, parks, signs, as well as things that do not exist in Reality. Mark Zuckerberg, the CEO of the newly named Meta (formerly Facebook), estimates it could take five to 10 years before the key features of the metaverse become mainstream. Aspects of the metaverse currently exist. Ultra-fast broadband speed, virtual reality headsets and persistent always-on online worlds are already up and running, even though they may not be accessible to all. The Metaverse: Where We Are and Where We're Headed- Zuckerberg recently told tech podcaster Lex Fridman: "We're gone desktop to web to mobile from text to photos to video. But this isn't the end of the line," writes.

- Zuckerberg in a recent letter to his employees. "The next platform will be even more immersive-an embodied internet where you're in the experience, not just looking at it. We call this the metaverse, and it will touch every product we build".



FUTURE OF METAVERS E

Today's Metaverse: Virtual reality as the "digital escape". Over the next few years the future metaverse would be something very similar to our real world in many aspects and even replace some real-world activities (like working or hanging out). A lot of people think that virtual reality is an illusion, that it's not real. But I say that it has causal power, it exists outside of our mind, and is not an illusion". Although it lacks many of the components that would make it a genuinely next-generation digital experience, exciting use cases and applications are already being seen in areas such as Augmented Reality (AR), Virtual Reality (VR), 3D social media platforms, blockchain-based marketplaces, and many others.

METAVERSE PURPOSE

The metaverse project is a virtual world designed to bring users together as in real life, as they can meet and interact with each other. It is a virtual universe where users can use avatars that represent their personality and wishes. The metaverse project is a virtual version of real life except that you can do whatever you want. In this world, it is possible to do activities that we usually do in the real world such as skydiving or shopping for example. The design of the metaverse aims to have a virtual universe where everyone can interact as in the real world. Thus, players will be able to make purchases or trade in this world. It adds prestige and value to this universe. The metaverse is even economically independent. Indeed, it is not uncommon for users of the platform to make trades (sales and purchase) using real money to trade in the metaverse. The Metaverse is a spatial computing platform that provides digital experiences as an alternative to or replica of the real world, along with its key civilizational aspects.



METAVERSE SIGNIFICANCE

The metaverse is the result of over 30 years of technological progress. It required ubiquitous high-speed internet access. The larger culture needed to be familiar with concepts popularized by video games, such as moving in virtual environments. And, of course, both standard and graphical processing units are required to evolve to their current impressive state. Finally, display technologies used in virtual and augmented reality needed to become lightweight enough to feel natural when worn.



VR HEADSETS

VR headsets have exploded in popularity over the past few years. This is hardly a surprise, given that VR gaming, the metaverse, and similar technologies have also become so popular. VR headsets are one of the best ways to experience these new cutting-edge attractions. You'll soon find out which virtual reality headsets can best fit your particular needs. A VR consists of sensors to track your field of vision and two screens that provide a stereoscopic display.

METAVERSE IMPORTANCE

AUTHORS: Ms. ANJUKA & Ms. REGINI

The Metaverse is not a single system but a collection of interconnected systems, each with its own rules and capabilities. It is made up of interconnected worlds that are not limited by geographical boundaries, meaning that technically everyone with an internet connection and the right setup can have access to it. The Metaverse is the next evolution of the internet and is changing how we live, work, and play forever. Moreover, the metaverse is important because it allows people to interact with others that they may never have had the chance to, in a setting, they may not be able to visit. For example, if you work remotely from home in California, but your employer's office is located in New York, you can use the metaverse to sit in the same office, in a shared virtual space. The metaverse also allows for a more immersive experience in entertainment, education, and other forms of content all through virtual reality. The virtual environment enables people to communicate with others, share ideas, and create content easily.



CONCLUSION

Metaverse technology is far more advanced than virtual reality, as per the detailed report of differences between the Metaverse vs. virtual reality. Virtual reality is practically one of the basic automation for the advancement of the Metaverse. It grants the consumers to be a part of the metaverse universe. Nevertheless, high-tech VR still has limited power leading to a fixed number of efficient components.



The Metaverse, on the other hand, is a vast and rapidly expanding virtual environment that would be a 3D depiction of the internet and the real virtual world. Users may navigate around virtual 3D environments in the Metaverse in the same way they can browse through different websites. Most essential of all, there is no end to the potential of supporting advanced technologies in the Metaverse.

WIRELESS NETWORK SYSTEM

AUTHOURS:Ms.ANJUKA & Ms.REGINI

ABSTRACT

Computer networks that are not connected by cables are called wireless networks. They generally use radio waves for communication between the network nodes. They allow devices to be connected to the network while roaming around within the network coverage. A wireless network refers to a computer network that makes use of Radio Frequency (RF) connections between nodes in the network. Wireless networks are a popular solution for homes, businesses, and telecommunications networks

INTRODUCTION

There are more subtle technology differences that come in to play between wired and wireless. Most modern wired networks are now “full duplex”, meaning that they can be transmitting/receiving packets in both directions simultaneously. In addition, most wired networks have a dedicated cable that runs to each end user device

In a Wi-Fi network, the medium (the radio frequency being used for the network) is a shared resource, not just for the users of the network, but often for other technologies as well (Wi-Fi operates in what are called ‘shared’ bands, where many different electronic devices are approved to operate). This has several implications: 1) unlike a wired network, wireless can’t both talk and listen at the same time, it is “half duplex” 2) All users are sharing the same space must take turns to talk 3) everyone can ‘hear’ all traffic going on. This has forced Wi-Fi networks to implement various security measures over the years to protect the confidentiality of information passed wirelessly.

APPLICATIONS OF WSN :

Internet of Things (IoT)

Surveillance and Monitoring for security, threat detection

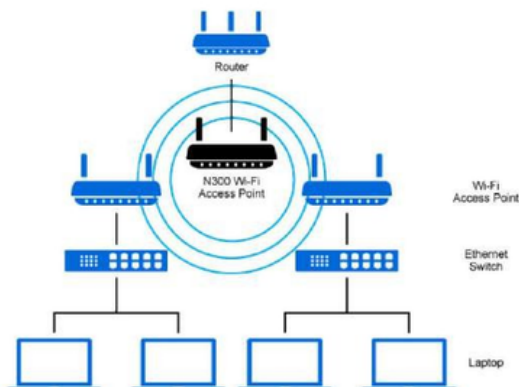
Environmental temperature, humidity, and air pressure

Noise Level of the surrounding

Medical applications like patient monitoring

Agriculture

Landslide Detection



CHALLENGES OF WSN :

WLAN Access Point:

It receives the data which is sent by the Radio nodes wirelessly, generally through the internet.

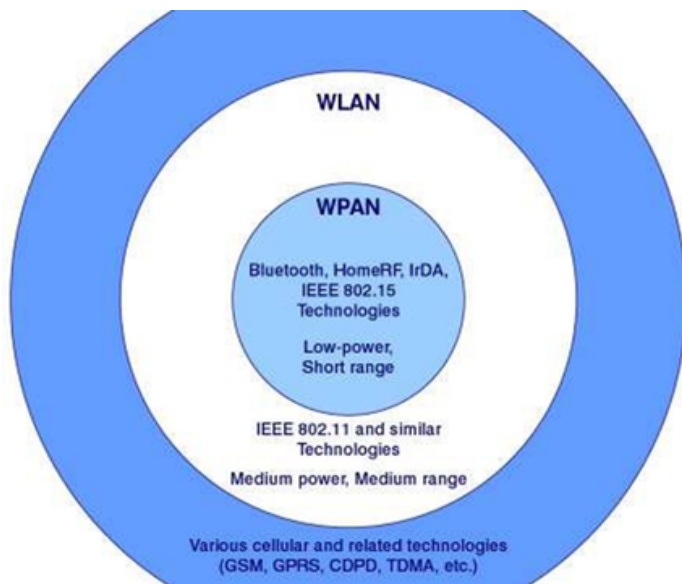
Evaluation Software: The data received by the WLAN Access Point is processed by a software called as Evaluation Software for presenting the report to the users for further processing of the data which can be used for processing, analysis, storage, and mining of the data.

HOW DOES WI-FI NETWORK WORK ?

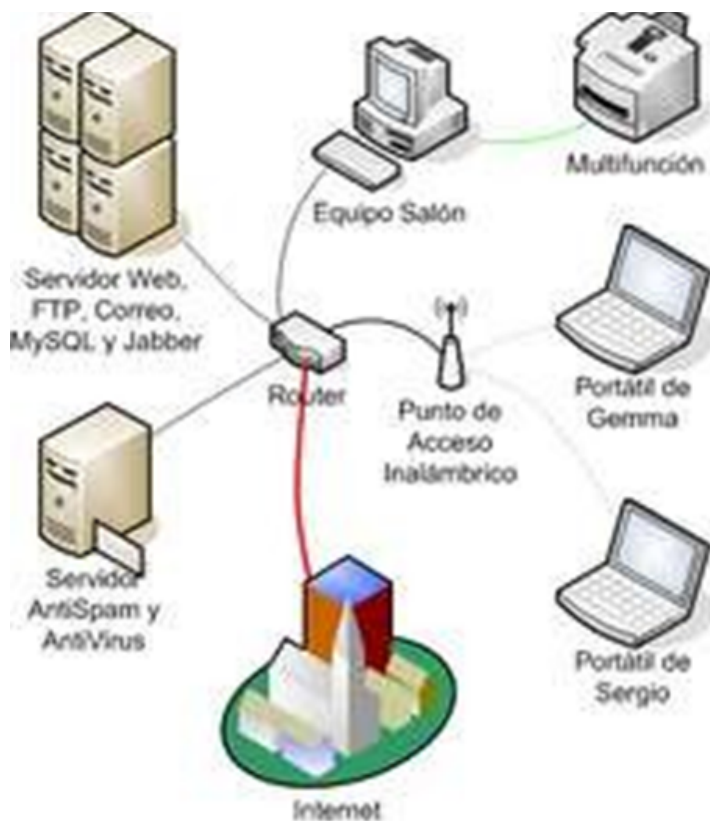
A Wi-Fi based wireless network sends signals using radio waves (cellular phones and radios also transmit over radio waves, but at different frequencies and modulation). In a typical Wi-Fi network, the AP (Access Point) will advertise the specific network that it offers connectivity to. This is called a Service Set Identifier (SSID) and it is what users see when they look at the list of available networks on their phone or laptops. The AP advertises this by way of transmissions called beacons. The beacon can be thought of as an announcement saying “Hello, I have a network here, if it’s the network you’re looking for, you can join”.

A client device receives the beacon transmitted by the AP and converts the RF signal into digital data, then that data is passed along to the device for interpretation. If the user wants to connect to the network, it can send messages to the AP trying to join and (when security is enabled) providing the proper credentials to prove they have the right to join. These processes are known as Association & Authentication. If either of these fail, the device will not successfully join the network and will be unable to further communicate with the AP. Assuming all goes well, we come to the part that is the end user’s ultimate goal: passing data. Data from the client (or from the AP to the client) is converted from digital data into an RF modulated signal and transmitted over the air. When received, this is de-modulated, converted back to digital data, and then forwarded along to its destination (often the internet or a resource on the larger internal network).

Wi-Fi communication is only approved to transmit on specific frequencies, in most parts of the world these are the 2.4 GHz and 5 GHz frequency bands, although many countries are now adding 6GHz frequencies as well. These frequency bands are not the same that cellular networks use, so cell phones and Wi-Fi are not in competition for use of the same frequencies.



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Wi-Fi communication is only approved to transmit on specific frequencies, in most parts of the world these are the 2.4 GHz and 5 GHz frequency bands, although many countries are now adding 6GHz frequencies as well. These frequency bands are not the same that cellular networks use, so cell phones and Wi-Fi are not in competition for use of the same frequencies. However that does not mean that there are not other technologies that can operate in these bands. In the 2.4GHz band in particular there are many products, including Bluetooth, ZigBee, cordless keyboards, and A/V equipment just to name a small subset that does use the same frequencies and can



CONCLUSION

In conclusion, wireless network systems have transformed the way we live and work, and their potential for innovation and growth is limitless. As technology continues to advance, wireless networks will continue to play a critical role in powering the future of connectivity, enabling new applications, and shaping the way we interact with the digital world. It is imperative to invest in research, development, and standards to further enhance the capabilities of wireless networks and unlock their full potential for the benefit of society at large.

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