

Short Notes on Wireless Engineering

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Editorial

Over the last two decades, wireless communications technology has advanced exponentially. The global success of cellular and Wi-Fi technologies has resulted in an increased demand for wireless engineers, as well as new fields of study in LTE, 5G, and Wi-Fi. As a result of these rapid advancements in the field, individuals involved in the field must build and sharpen their skills for current and future wireless industries. The Wireless Engineering online certificate programme is designed to provide practising engineers, product managers, and other technical personnel with cutting-edge specialized knowledge in wireless systems and standards for career and productivity advancement.

Wireless equipment is everywhere. It is now a natural part of everyday life for everyone from schoolchildren to the elderly and disabled. We use mobile or satellite phones, GPS navigational systems, RFID, wireless patient monitoring, security systems, and wireless keys to connect our laptop to the Internet wirelessly. Breathtaking new applications that were unimaginable just a few years ago are constantly appearing. Wireless technology allows us to be safer and more comfortable in our daily lives.

A Guide to the Wireless Engineering Body of Knowledge, Second Edition, has been fully updated to include the most recent developments and standards in the field, and it provides industry professionals with a one-stop reference to everything they need to design, implement, operate, secure, and troubleshoot wireless networks. The book, written by a group of international experts, provides an unrivalled breadth of coverage and a distinct focus on real-world engineering issues. The authors draw on extensive experience in all areas of technology to investigate topics with demonstrated practical applications, highlighting emerging areas such as Long Term Evolution (LTE) in wireless networks.

The new edition has been thoroughly revised for clarity, and it covers wireless engineering fundamentals as well as numerous references for further study. There are three basic types of wireless networks WAN, LAN, and PAN. Wireless Wide Area Networks (WWAN) WWANs are built using mobile phone signals that are typically provided and maintained by specific mobile phone (cellular) service providers. WWANs can provide a way to stay connected

even when other forms of network access are unavailable. Wireless Local Area Network (WLAN): WLANs are radio-wave-based wireless networks. The backbone network is typically comprised of cables, with one or more wireless access points connecting wireless users to the wired network. A WLAN's range can range from a single room to an entire campus. Wireless Personal Area Network (WPAN) WPANs are Bluetooth-enabled short-range networks. They are commonly used to connect compatible devices in close proximity to a central location, such as a desk. A WPAN typically has a range of about 30 feet.

Fifth-generation, or 5G, wireless systems will provide the next advancement in wireless technology. This new technology promises faster speeds, lower latency, and increased capacity. The potential of 5G is vast, allowing advancements in health care, transportation, public safety, and other fields. It will also have an impact on the long-term viability of the burgeoning internet of things environment, in which devices are becoming increasingly interconnected. Small cells, a new infrastructure, will be used to deploy this technology. CTIA, the wireless industry association in the United States, defines a small cell installation as "small radio equipment and antennas that can be placed on structures such as streetlights, the sides of buildings, or poles" [1-5].

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How to cite this article: Swapna, Sanika. "Short Notes on Wireless Engineering." *J Comput Sci Syst Biol* 15 (2022): 392.

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Received 03-Jan-2022, Manuscript No. jms-22-56297; Editor assigned: 05-Jan-2022, Pre QC No. P-56297; Reviewed: 08-Jan-2022, QC No. Q-56297; Revised: 13-Jan-2022, Manuscript No. R-56297 Published: 18-Jan-2022, DOI: 10.37421/jms.2022.11.392.