Signal and communication

In now days world because we need signals and communication to do our job easily and that creates advantage points and disadvantages to us and there probles that aren't solved yet.like(side effects,miss signlas…)

Communication signal is radio waves transmitted through space without any artificial guide, Method or means or a combination thereof, of conveying. Information of any kind from one person or place to another except direct conversation. B. Means of communication: A medium by which a message is conveyed from one. Person or place to another, There are two main types of signals used in electronics: analog and digital signals, Analog signals were used in many systems to produce signals to carry information. These signals are continuous in both values and time. The use of analog signals has declined with the arrival of digital signals. In short, to understand analog signals – all signals that are natural or come naturally are analog signals. Unlike analog signals, digital signals are not continuous, but signals are discrete in value and time. These signals are represented by binary numbers and consist of different voltage values,The major difference between both signals id that the analog signals have continuous electrical signal, while digital signals have non-continuous electrical signals, The history of telecommunication began with the use of smoke signals and drums in Africa, Asia and the Americas, in the 1790s, the first fixed semaphore systems emerged in Europe, However it was not until the 1830s that electrical telecommunication systems started to appear. This article details the history of telecommunication and the individuals who helped make telecommunication systems what they are today. The history of telecommunication is an important part of the larger history of communicationIn the summary, when it comes to imagining signals. Think of internet signals like invisible waves traveling through the air or along cables, it is kind of like how radio waves carry music to your ears, but instead these internet signals carry information to your devices, they travel at incredible speeds, allowing us to access websites, send message, and stream videos and for communication signals, pictures them as little packets of information that are sent and received between devices. These signals can be in the form of electrical signals, light signals, or even sound signals, depending on the type of communication technology being used. They allow us to talk on the phone, send text messages, or vedio chat with our loved ones

An Overview of Communication Signal Issues

Problems with communication signals are those that cause interference or breakdowns in the signals that are transmitted across different communication systems, which can result in poor or stopped communication. Numerous settings, such as satellite communications, wireless networks, radio frequency (RF) systems, and telecommunications, might give rise to these problems. In today's linked world, having a dependable communication infrastructure requires an understanding of the causes, effects, and solutions to these issues.

Issues with communication signals can be caused by:

1. *Collision:* Physical barriers, radio frequency interference (RFI), electromagnetic interference (EMI), and other external variables can all impede the transmission of signals, leading to distortion or attenuation.

2. *Propagation Loss:* In wireless and satellite communication systems, in particular, signal loss with distance is caused by elements including attenuation, scattering, and absorption.

3. *Noise:* Degradation of the signal-to-noise ratio (SNR) due to equipment-generated noise, ambient noise, or thermal noise can impair signal quality and compromise the dependability and clarity of communication.

4. *Multipath Fading:* Multiple signal paths are created by reflections, refractions, and diffractions of signals from surrounding objects. This phenomenon, particularly in wireless communication channels, results in phase changes and signal cancellation.

Issues with Communication Signals' Effects:

1. *Decreased Rates of Data:* Communication channel speed and efficiency can be impacted by signal impairments, which might restrict the possible data rates.

2. *Increased Latency:* Signal interference increases latency by delaying the transmission and reception of data, which affects real-time communication applications.

3. *Lost Packets or Dropped Calls:* Incomplete or distorted communication sessions can arise from unstable signal circumstances, which can cause dropped calls in cellular networks or packet loss in data networks.

4. *Degraded Audio/Video Quality:* Signal distortions cause pixelation, noise, or echoes, which lower the quality of audio and video in multimedia communication services.

In conclusion, in order to maintain a solid and dependable communication infrastructure across a variety of systems, it is critical to comprehend and resolve communication signal difficulties. The effects of interference, propagation loss, noise, and multipath fading can seriously impair communication quality and dependability in satellite communications, wireless networks, radio frequency systems, and telecommunications. These problems highlight the significance of proactive mitigation techniques and technical improvements. They range from failed calls and impaired audio/video quality to decreased data speeds and increased latency. We may work to ensure seamless connectivity and an improved user experience in our linked world by addressing these issues with strategies including signal amplification, frequency management, diversity approaches, and error correction coding.

Solutions for the problems:

In regions with powerless correspondence flags, a few arrangements can be executed to further develop network and improve correspondence capacities: Signal Sponsors/Repeaters: Signal supporters or repeaters enhance frail signs to further develop inclusion and gathering. These gadgets catch existing signs from neighboring pinnacles and retransmit them, actually broadening the compass of the organization. Signal supporters are especially valuable in structures, rustic regions, or areas with obstacles that ruin signal entrance. Femtocells and Microcells: Femtocells and microcells are little cell base stations sent to upgrade signal strength in restricted regions. They interface with the web through broadband and make a scaled down cell organization, further developing inclusion

inside homes, workplaces, or explicit geographic regions. Femtocells are compelling in giving dependable voice and information administrations in regions with feeble or no sign gathering. Wi-Fi Calling and VoIP: Wi-Fi calling permits clients to settle on voice decisions and send messages over Wi-Fi networks as opposed to depending entirely on cell signals. Likewise, Voice over Web Convention (VoIP) administrations use web network to settle on decisions and send messages. These advances offer options in contrast to conventional cell organizations, empowering correspondence in regions with poor cell inclusion however accessible Wi-Fi or web access. Satellite Correspondence: Satellite correspondence frameworks give availability in remote or detached regions where earthly foundation is missing or deficient. Satellite telephones, modems, and terminals use satellites circling Earth to send voice, information, and internet providers. These arrangements are significant for crisis correspondence, oceanic activities, and distant campaigns where conventional organizations are inaccessible. Network Organizations: Network networks comprise of interconnected hubs that speak with one another to hand-off information. Every hub fills in as a repeater, broadening the organization's inclusion and working on signal strength. Network networks are especially compelling in regions with restricted foundation, as they can be conveyed rapidly and progressively adjust to changes in network conditions. Organization of Extra Framework: Now and again, further developing correspondence signs might require the establishment of extra cell pinnacles or framework redesigns. Portable organization administrators can put resources into growing inclusion regions, sending new pinnacles, or redesigning existing framework to improve signal strength and dependability. By executing these arrangements, regions with feeble correspondence signs can fundamentally further develop network and guarantee solid correspondence administrations for inhabitants, organizations, and crisis responders.

Reflection:

Hedi: as software engineer I love finding problems and solving them in my way and what s design thinking is about it will help me to focus more on the problems around us and how to solve them.

Pasha: design thinking helping more to look around in different way and helping me to find solution.

shakar: In my view, the goals I aim to accomplish through this course/program involve striving for academic excellence, gaining practical experience, and mastering industrial techniques. I consider design thinking crucial as it encourages creativity, collaboration, and problem-solving, all of which resonate with my career aspirations. To maximize my capabilities in the field, I plan to acquire hands-on experience, establish a strong professional network, and engage in continuous learning and self-improvement endeavors to enhance my leadership and communication skills.

shkar: In my opinion: My objectives for this course/program are, in my opinion, to achieve academic excellence, obtain real-world experience, and master industrial techniques. Design thinking is essential because it promotes creativity, teamwork, and problem-solving, all of which are in line with my professional goals. In order to fully realise my potential in the field, I intend to obtain practical experience, forge a solid professional network, and pursue ongoing education and self-improvement projects to hone leadership and communication abilities.

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Presentation link: https://youtu.be/BgIMwjbnCGI