

Communication System: A Short Communication

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SHORT COMMUNICATION

A communications system, also known as a communications network, is a collection of independent telecommunications networks, transmission systems, relay stations, tributary stations, and terminal devices that may be interconnected and interoperated to form an integrated whole. A communications system's components serve a single goal, are technically compatible, follow common processes, respond to controls, and work together.

Telecommunications refers to a mode of communication (e.g., for sports broadcasting, mass media, journalism, etc.). The process of transferring intentional meanings from one entity or group to another using mutually understood signals and semiotic norms is referred to as communication.

By Media

An optical communication system is any type of communication that uses light as a medium of transmission. A transmitter encodes a message into an optical signal, a communication channel transports the signal to its destination, and a receiver reproduces the message from the received optical signal comprising the equipment. Fiber-optic communication systems transport light over optical fiber to convey data from one location to another. The light creates a carrier signal, which is modified to transport data.

A radio communication system is made up of various communications subsystems that allow for external communications. A radio communication system consists of a transmitting conductor that generates electrical oscillations or currents and is configured to cause such currents or oscillations to be propagated through the free space medium from one point to another distant therefrom, and a receiving conductor at such distant point that is adapted to be excited by the oscillations or currents propagated from the transmitter.

Power line communication systems work by transmitting a modulated carrier signal *via* power lines. Depending on the signal transmission qualities of the power wire utilized, different forms of power line communications require different frequency bands. Because the power wiring system was designed to transmit Alternating Current (AC), the power wire circuits have a restricted ability to transfer higher frequencies. The propagation issue is a

stumbling block for all types of power line communications.

By Technology

A duplex communication system consists of two linked parties or equipment that can communicate in both directions. When discussing communication between two persons or devices, the term duplex is employed. Duplex systems are used in practically all communication networks, either to offer a "two-way street" of communication between two linked parties or to provide a "reverse channel" for monitoring and remote modification of field equipment. An antenna is a tiny length of a qwert conductor used to broadcast or receive electromagnetic waves. It functions as a converter. It transforms high-frequency electricity into electromagnetic waves at the transmitting end. At the receiving end, it converts electromagnetic waves into electrical impulses that are sent into the receiver's input. Antennas of several varieties are used in communication.

By Application Area

A tactical communications system is one that (a) is employed inside or directly supports tactical troops. (b) is designed to meet the requirements of changing tactical situations and varying environmental conditions; (c) provides secure communications, such as voice, data, and video, among mobile users to facilitate command and control within and in support of tactical forces; and (d) typically requires extremely short installation times, on the order of hours, to meet the requirements of frequent relocation.

An emergency communication system is any system (usually computer-based) that is designed to facilitate the two-way transmission of emergency signals between people and groups of persons. These systems are frequently developed to combine message cross-communication across a range of communication mediums.

A communication system that automatically queues, allocates, and connects callers to handlers is known as an Automated Call Distributor (ACD). This is commonly used in customer service (such as for product or service complaints), telephone ordering (such as at a ticket office), and coordination services (such as in air traffic control).

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A Voice Communication Control System (VCCS) is simply an ACD with additional features that make it more suitable for usage in emergency scenarios (no waiting for dial tone, or lengthy recorded announcements, radio and telephone lines equally easily connected to, individual lines immediately accessible, etc.)

Communication Channel

A communication channel is just the medium via which a signal travels. Electrical signals flow via two types of media: guided and unguided. Any material that may be steered from transmitter to receiver via connected wires is referred to as guided media. The medium in optical fiber communication is an optical (glass-like) fiber. Other guided media possibilities include coaxial cables,

telephone wires, twisted pairs, and so on. Unguided media, on the other hand, refers to any communication medium that generates distance between the transmitter and receiver. The medium for radio or RF transmission is air. For RF communication, the sole medium between the transmitter and receiver is air, however, in other circumstances, such as sonar, the medium is frequently water since sound waves travel well through specific liquid substances. Because there are no connecting wires between the transmitter and receiver, both forms of media are termed unguided. Almost anything may be used as a communication channel, from the emptiness of space to solid chunks of metal; nonetheless, some mediums are chosen over others. This is because different sources pass via subjective media with varying efficiency.