

Digital Communication

[Name of the Writer]

[Name of the Institution]

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Introduction

Digital communication is known as the transfer of the data by the physical means (as digital bit stream) through the channels of the communication that point-to-point or point-to-multipoint. Channels that are widely used are optical fibres, wireless channels for communication, copper wires and storage media. This data is transmitted in the form of electromagnetic signals. Then they are modified in different forms like electrical voltage, infrared signal etc.

Discussion

Digital transmission or the digital communication is different from the analog signal in many regards specifically analog signals are transferred accompanied by the continuous variation in the data in the process of analog transmission. On the contrary, Digital communication is termed as the transfer of the discrete messages. The representation of the messages are done through the succession and progression of pulses in an organized manner by line code (baseband transmission). There is another method known as the passband transmission that is transfer of the data by means of set of constantly varying form of waves (Barry, 2004). This process is performed through the digital modulation method. So both the forms of signals, that is baseband and passband signals are known to be the digital communication or the digital transmission due to the process of bit-streams (Lee & Messerschmitt, 1988).

In the digital communication system the source output is firstly converted in to the binary sequence and then these binary sequences are converted in to the appropriate form that is

required for the transmission of the data and the medium that is provided for the means of communication or the physical medium of the communication like cable, optical fiber, or electromagnetic radiation etc. the whole idea of the digital communication is based on the communication theory which is a complex amalgamation of the idea and the mathematical induction. The components of the digital communication might include Source encoder, Channel encoder and modulator, Channel, Demodulator and channel decoder, Source decoder, Source-independent design, Channel-optimized design. All these components combine to form a digital communication system.

The data that is sent is sent from the source or any digital instrument is referred to as the parallel digital data. The digital communication works in a system and a frame work. The data is first transmitted from the information generator to the source encoder that processes the data. Then it flows to the channel encoder and then to the modulator. The modulator transmit this data to the Channel and then to the Demodulator and Channel decoder. In this process the digital information is converted and then finally sent to the Source Decoder. Finally is delivered to the consumer and is utilized (Baym, 2010).

There are many other issues that are being faced in the data transmission and the communication such as the interruption in the transmission rate, noise, and modulation. But they can be easily addressed and overcome by different techniques and the data conversion, transmission and communication. The field of the digital communication has changed the idea of the communication and the information system from one place to another irrespective of its location and the distance.

Conclusion

Thus digital communication has created easier and simpler means of communication making the transmission of the data convenient and simple. Thus the integration of the technology in the digital communication has created a hierarchy.

References

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