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Signals

Akshay dutt (16195); Anosh Justin (16199); Gautam saini (16211)
Department of ECE Dronacharya College of Engineering hentawas, Farrukh Nagar-123506
Gurgaon, Haryana
Email- gautamsaini1996@gmail.com

ABSTRACT

More seriously, signals are functions of time (continuous-time signals) or sequences in time (discrete-time signals) that presumably represent quantities of interest. Systems are operators that accept a given signal (the input signal) and produce a new signal (the output signal). Of course, this is an abstraction of the processing of a signal. From a more general viewpoint, systems are simply functions that have domain and range that are sets of functions of time (or sequences in time). It is traditional to use a fancier term such as operator or mapping in place of function, to describe such a situation. However we will not be so formal with our viewpoints or terminologies. Simply remember that signals are abstractions of time-varying quantities of interest, and systems are abstractions of processes that modify these quantities to produce new time-varying quantities of interest.

INTRODUCTION

Signals are any functions containing some information or any disturbance is known as signal. In the field of signal processing, binary data streams are not recognized as signals, only the analog and digital signals are representative as analog quantities.

In the field of communication system, a transmitter transmits a message into a signal, which is transmitted to a receiver by the communication channel.

In the field of telephone networking, signaling for example referred to as phone number and other digital control information.

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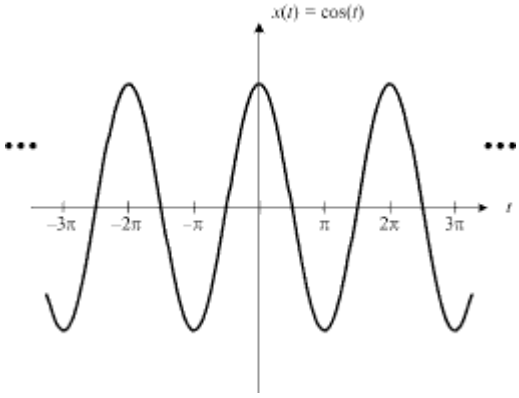
TYPES OF SIGNALS

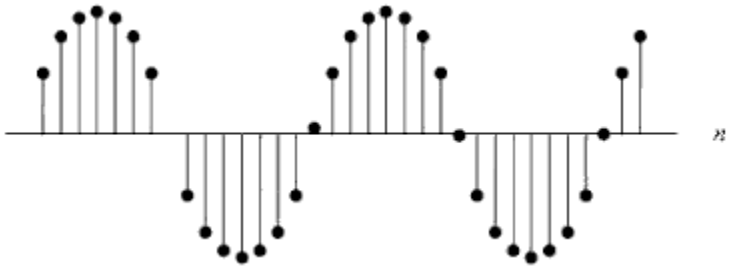
1. DISCRETE AND CONTINOUS TIME SIGNALS

a.) CONTINUOS TIME SIGNALS



A signal x(t) is a continuous -time signal if t is a continuous variable .This means that signal is defined continuously in time domain.

b.) DISCRETE TIME SIGNAL



A signal x(t) is discrete time signal if time t is discrete time signal. Fig shows the graph of discrete time signal. since it is defined at discrete times, it is often identified as a sequence of numbers and is denoted by x(n).

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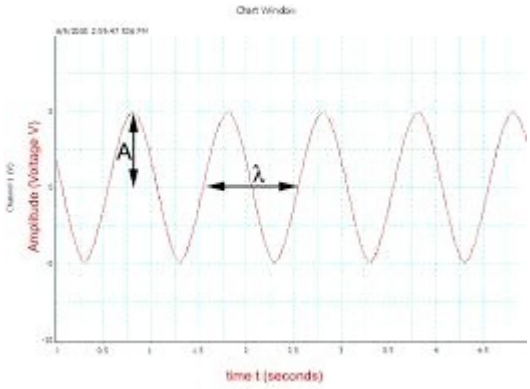
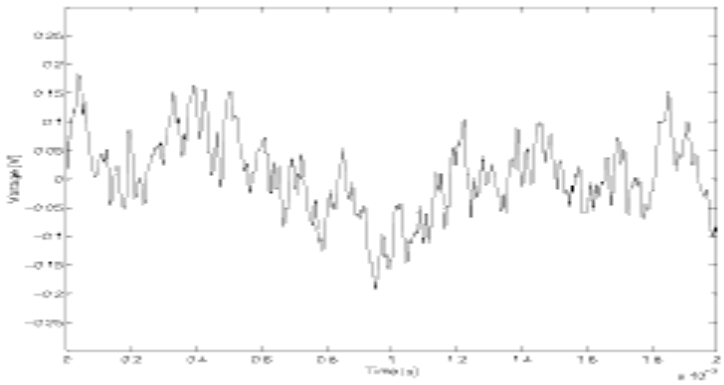
2. DETERMINISTIC AND RANDOM SIGNALS

a.) DETERMINISTIC SIGNALS



Deterministic signals are those signals which can be completely specific in time. This pattern of this type of signals is regular and can be characterized mathematically. In this ,the nature and amplitude of such a signal can be predicted.

b.) RANDOM SIGNALS



Random signals are those whose occurence is random in nature.the pattern of such a signalsis quite regular.Random signals are also known as non-deterministic signals.

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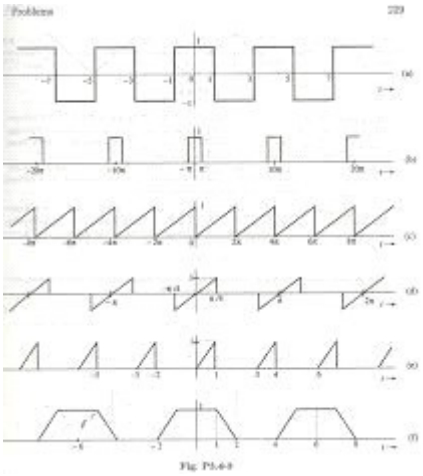
3. PERIODIC AND NON-PERIODIC SIGNALS

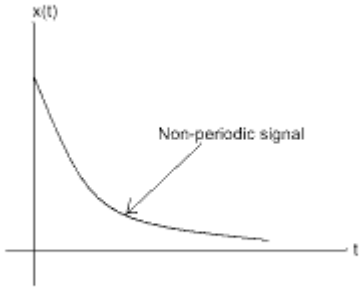
a.) PERIODIC SIGNALS



Periodic signals is that type of signals which has a definite pattern and repeat over and over with repletion period of T.In other words, a signals is called periodic if it exhibits periodicity as follows:-

$x(t +T)=x(t)$

b.) Aperiodic signals



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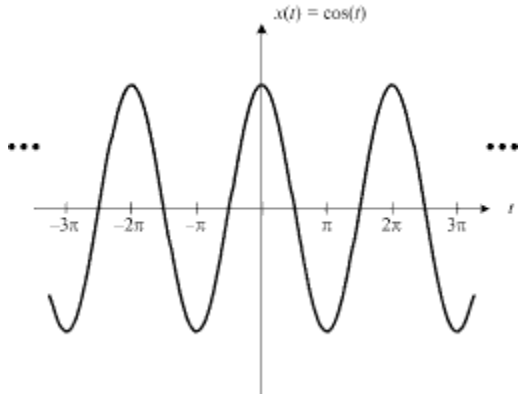
A signal is said to be aperiodic signals if it does not repeat. sometimes, aperiodic signals are said to have a period of infinity .fig shows the aperiodic signals. This decaying exponential pulse given by equation
x(t+ T)=0

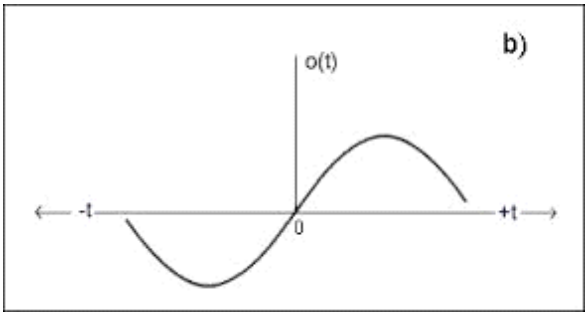
4. EVEN AND ODD SIGNALS

a.) EVEN SIGNALS



Even signals are those signals which exhibits symmetry in time domain and are identical are about the nature. Mathematically,an even signals must satisfy the following condition
x(t)=x(-t)

b.)ODD SIGNALS



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Odd signals are those signals which are asymmetrical in nature and are not identical at the origin.Mathematically,an odd signal must satisfy the following condition

x(t)=-x(t)

APPLICATIONS OF SIGNALS

Signal processing=Application of algorithms to modify signals in a way to make them more useful.

1. Goals:

    a.) Efficient and reliable transmission, storage and display of information b.) Information extraction and enhancement

2. Examples:

    a.) Speech and audio processing

    b.) Multimedia processing (image and video) c.) Underwater acoustic

    d.) Biological signal analysis

REFRENCES

1. Roland Premier (1991). Introductory Signal Processing. World Scientific. p.ÿ1.ÿISBNÿ9971509199.

2. Ÿ Some authors do not emphasize the role of information in the definition of a signal. For example, see ÿ Priyabrata Sinha (2009).ÿ Speech processing in embedded systems. Springer. p.ÿ9.ÿISBNÿ0387755802.ÿTo put it very generally, a signal is any time-varying physical quantity.

3. "Aims and scope" .ÿ IEEE Transactions on Signal Processing (IEEE).

4. T. H. Wilmshurst (1990).ÿ Signal Recovery from Noise in Electronic Instrumentation (2nd ed.). CRC Press. pp.ÿ11ÿff.ÿISBNÿ0750300582.

5, For an example from robotics, seeÿK Nishio and T Yasuda (2011). "Analog-digital circuit for motion detection based on vertebrate retina and its application to mobile robot". In Bao-Liang Lu, Liqing