SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NAAC – UGC with 'A' Grade

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE NAME :19EE603 IoT for Electrical Engineers

III YEAR /VI SEMESTER

Unit 2-Sensors

Analog and Digital Sensors

Applications of Analog Sensor

- Temperature Sensing
- Pressure Measurement
- Strain Gauge Sensing
- Level Sensing
- Flow Measurement
- Gas Sensing
- Light Sensing
- Humidity Sensing
- Position Sensing
- Acceleration and Vibration Sensing

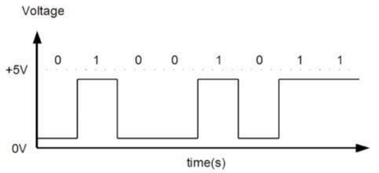
Applications of Digital Sensor

- Motion Detection
- Proximity Sensing
- Contactless Switches
- Object Detection and Counting
- Barcode and RFID Scanning
- Temperature and Humidity Monitoring
- Liquid Level Sensing
- Gas Detection and Alarm Systems
- Tire Pressure Monitoring Systems (TPMS
- Biometric Sensing

What is analog and digital Sensors???

ANALOG SENSORS VS DIGITAL SENSORS

A sensor is a device that takes physical input from its surroundings and turns it into data that can be analyzed by humans or machines. The majority of sensors are electronic (the data is transformed into electronic data), although others are simpler, such as a glass thermometer that displays visual data.



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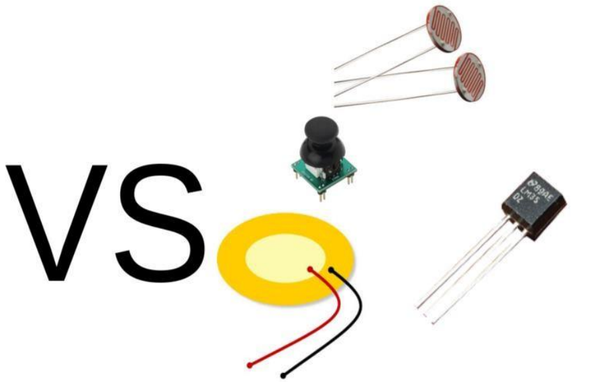

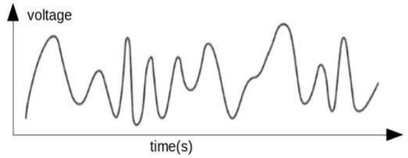

Depending on the type of input, sensors can broadly be divided into two categories:

Analog Sensors

Digital Sensors

ANALOG SENSORS VS DIGITAL SENSORS

Factors	Analog Sensors	Digital Sensors
Data Transmission	Deterioration by noise	Noise immune without deterioration
Signal	Continuous Signal is representing physical measurements	Digital signal representing discrete-time signals generated by digital modulation
Bandwidth	Lower Bandwidth	Higher Bandwidth
Power	Takes large power	Negligible Power
Waves	Represented by Sine Waves	Denoted by Square Waves
Impedance	Impedance is Low	High Impedance of order 100 megaohm
Errors	Observational error occurs	Free from Observational error

Analog Sensors

- There are different types of sensors that produce continuous analog output signal and these sensors are considered as analog sensors.
- This continuous output signal produced by the analog sensors is proportional to the measurand.
- There are various types of analog sensors; practical examples of various types of analog sensors are as follows: accelerometers, pressure sensors, light sensors, sound sensors, temperature sensors, and so on.

Digital Sensors

- Electronic sensors or electrochemical sensors in which data conversion and data transmission takes place digitally are called as digital sensors.
- These digital sensors are replacing analog sensors as they are capable of overcoming the drawbacks of analog sensors.
- The digital sensor consists of majorly three components: senor, cable, and transmitter. In digital sensors, the signal measured is directly converted into digital signal output inside the digital sensor itself. And this digital signal is transmitted through cable digitally.
- There are different types of digital sensors that overcome disadvantages of analog sensors.

Assessment

Examples of analog and digital sensors??

References

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