



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

19EET304/ IOT for Electrical Sciences

III YEAR VI SEM

UNIT 2 – SENSORS

TOPIC 3 – FUEL SENSORS, VIBRATION SENSORS, CAPACITIVE SENSORS



WHAT IS FUEL SENSOR

- Fuel sensor is a device designed to make accurate measurements of fuel level in vehicle tanks.
- Fuel level sensors, along with IoT tracking & monitoring solutions, help extract information such as:
 1. fuel level in the tank of a vehicle
 2. fuel consumption per time period
 3. average fuel consumption. e.g. miles per gallon (mpg)
 4. fuel refills or drains



TYPES OF FUEL SENSORS

- Factory-installed sensors
- Float fuel sensor
- Additionally Installed sensors
- Capacitive fuel sensor
- Ultrasonic sensor

Float fuel sensor



TYPES OF FUEL SENSORS



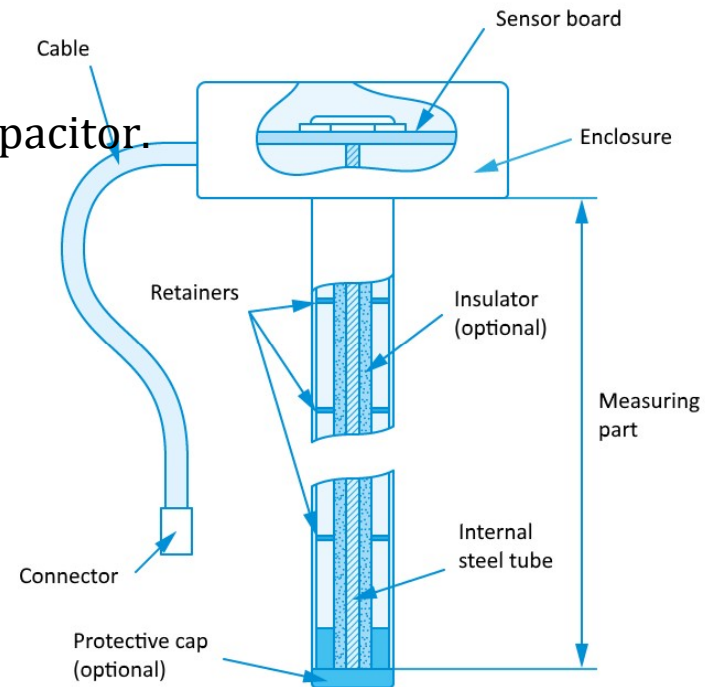
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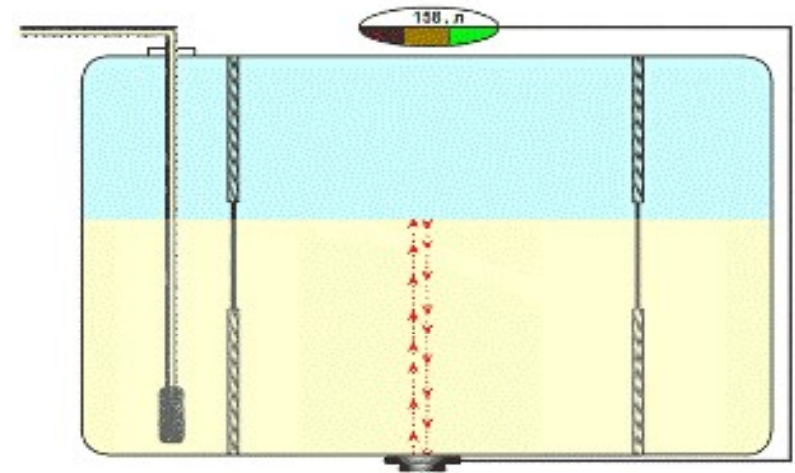
CAPACITIVE FUEL SENSOR

Capacitive Fuel Sensor is an actual electric capacitor.



ULTRASONIC FUEL SENSOR

Ultrasonic sensor has a wire connection with a GPS tracker and works as an ultrasonic transmitter.





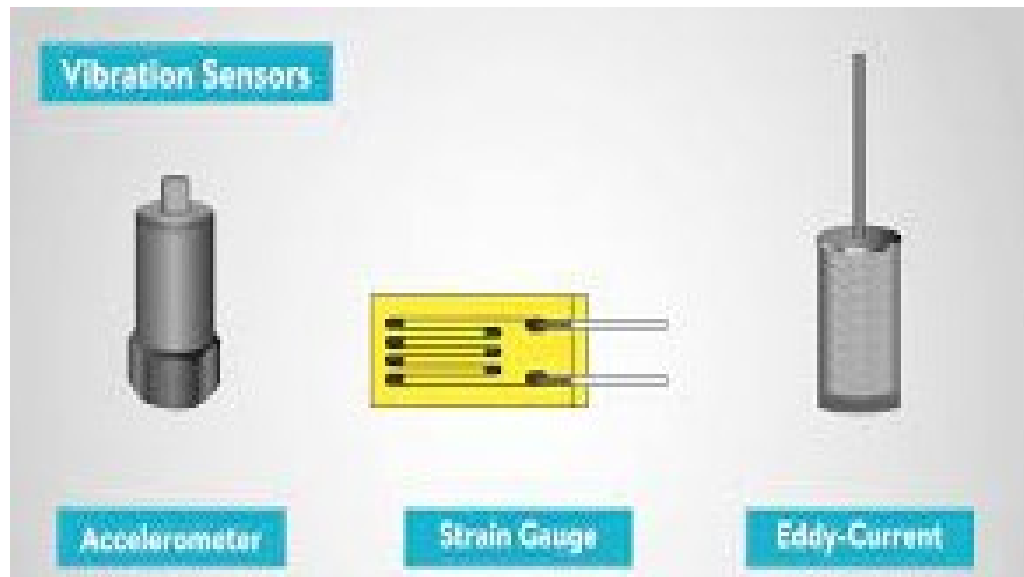
VIBRATION SENSORS

- A vibration sensor is a measuring device. As the name implies it senses the vibration or to-and-fro movement of any equipment or system at the location where it is applied.
- The most widespread application of vibration sensors is found to measure the vibration of rotating equipment and machines like pumps, compressors, steam turbines, and connected lines.
- These measured outputs are then studied to detect any imbalance or issues in the asset or equipment under investigation to predict the condition of the system.
- Vibration sensors are very important components of a vibration-measuring tool.





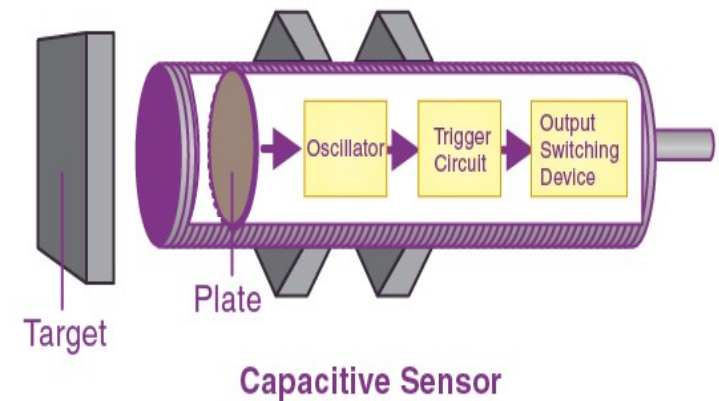
VIBRATION SENSOR TYPES





WHAT IS A CAPACITIVE SENSOR?

The non-contact device that can detect or sense the presence or absence of any object virtually irrespective of its material is known as a capacitive proximity sensor. They use the alteration of capacitance based on the change in the electrical field and the electrical property of capacitance and everywhere around the active face of the sensor.





ADVANTAGES OF CAPACITIVE SENSING

1. Capacitive sensing can sense diverse kinds of materials like metal, liquid, skin and plastic.
2. Capacitive sensing is wear-free and contactless.
3. With small sensor sizes, capacitive sensing has the capability to sense up to a large distance.
4. Capacitive sensing is a low power solution.



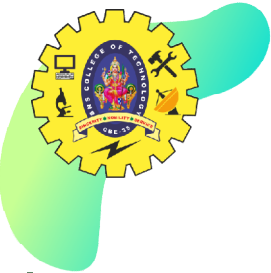


ASSESSMENT - 1



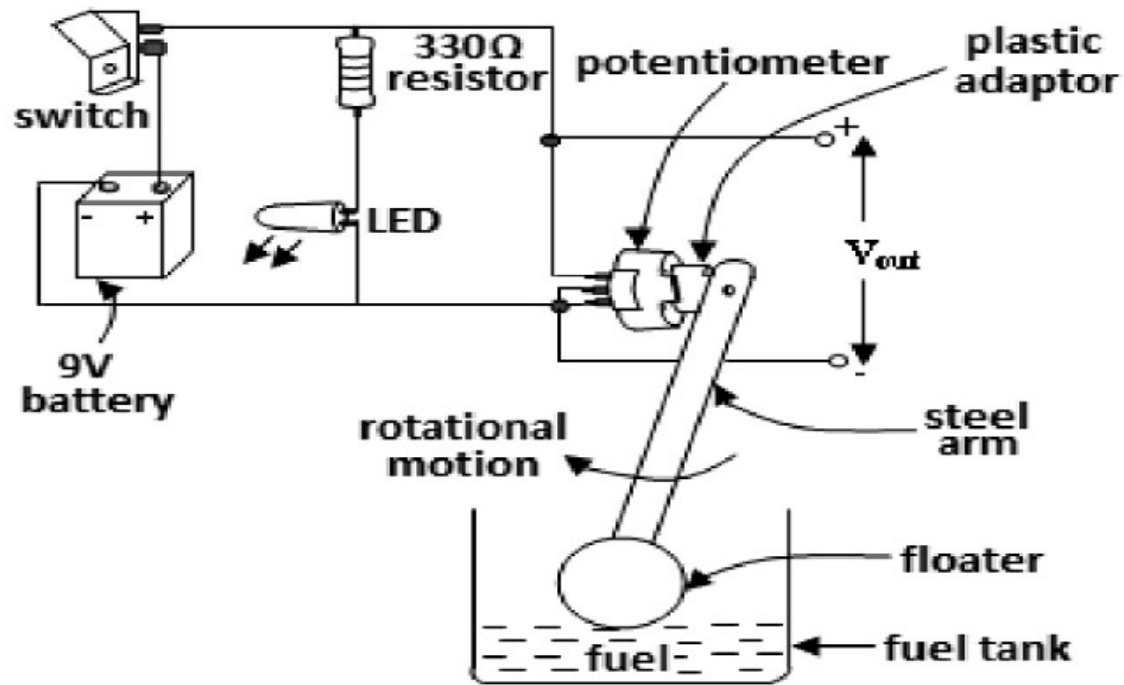
CAN YOU IDENTIFY THIS SENSOR?





ASSESSMENT - 2

Can you explain the circuit?





References



- <https://www.navixy.com/docs/academy/fuel-control/fuel-sensor/>
- <https://www.skf.com/in/products/condition-monitoring-systems/sensors/vibration-sensors>
- <https://byjus.com/physics/capacitive-sensors/>

Thank You