SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

23ECE304-SMART SENSORS AND DEVICES
III ECE / V SEMESTER

UNIT 1 – OVERVIEW OF MEASUREMENTS AND SENSORS
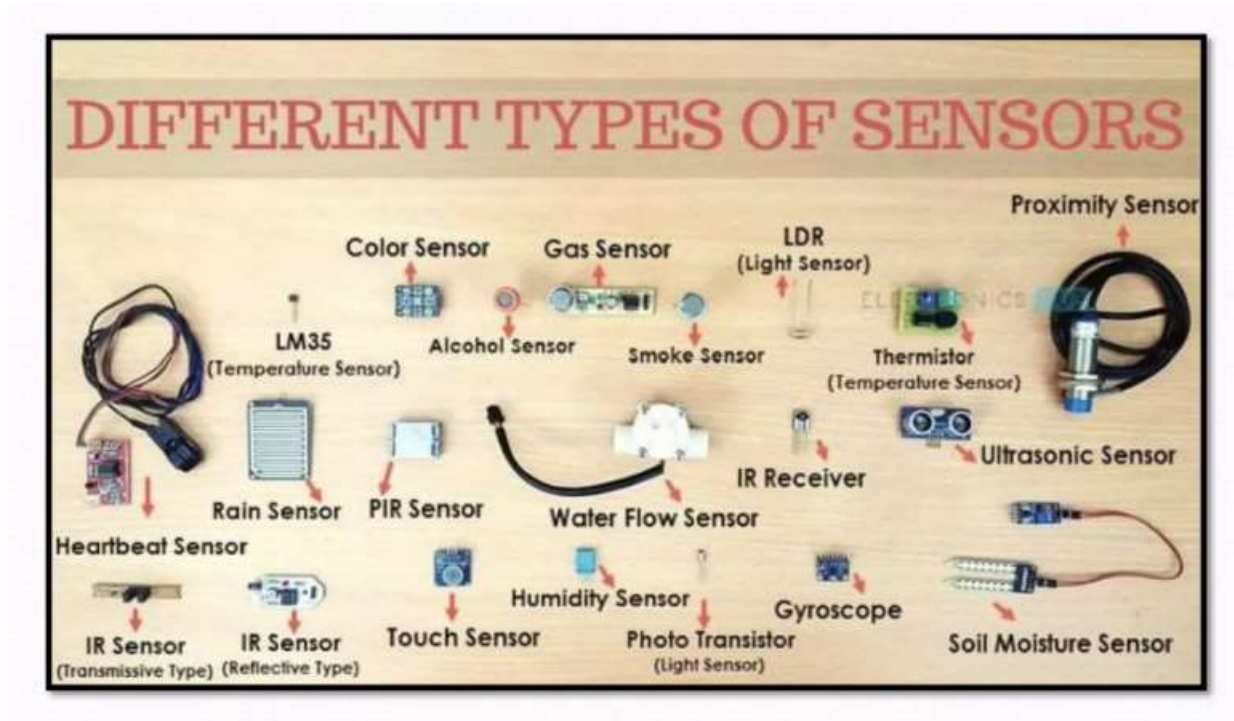
TOPIC –SENSOR CLASSIFICATION

SENSOR CLASSIFICATION

- LM35(Temperature sensors)
- Color sensor
- Alcohol sensor
- Smoke sensor
- Ultrasonic sensor
- Soil moisture sensor
- Touch sensor
- Humidity sensor

- Rain sensor
- Proximity sensor
- Gas sensor
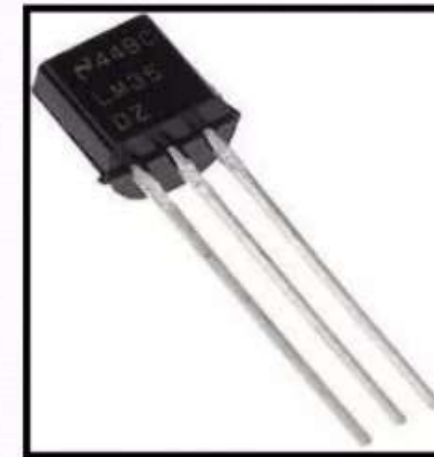- Water flow sensor
- Heartbeat sensors

Types of sensor

TEMPERATURE SENSOR

➢ LM35 is a precession Integrated circuit Temperature sensor, whose output voltage varies, based on the temperature around it. It is a small and cheap IC which can be used to measure temperature anywhere between -55°C to 150°C

➢ Application

➢ Measuring temperature of a particular environment

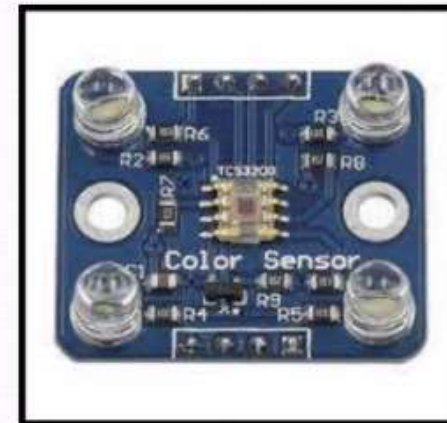➢ It can be used in HVAC applications as a temperature measurement device.

Color Sensor

➤ A color sensor is a type of "photoelectric sensor" which emits light from a transmitter, and then detects the light reflected back from the detection object with a receiver.

➤ Applications

➤ Light color temperature measurement

➤ Medical diagnosis system

➤ Industrial process control

Alcohol Sensor

Alcohol sensor

- An alcohol sensor detects the attentiveness of alcohol gas in the air .

- Application

- Alcohol Detector project" can be used in the various vehicles for detecting whether the driver has consumed alcohol or not.
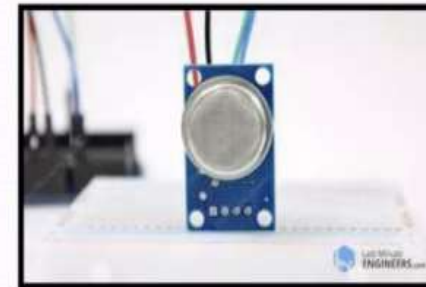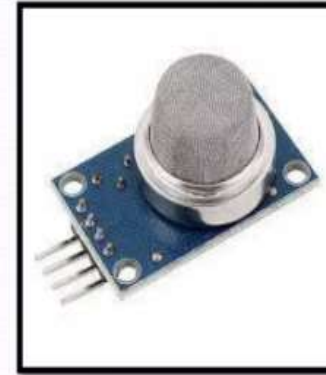
- Use in breath analyzer

Smoke Sensor

> A smoke sensor is a device fitted to smoke alarms. A smoke alarm is designed to detect the presence of smoke in a home to alert the occupants that a fire has broken out.

> Application

> They are used in gas leakage detecting equipment in family and industry.

> It is suitable for detecting of LPG ,Natural gas, town gas.

> Avoid the noise of alcohol and cooking fumes cigarette smoke.
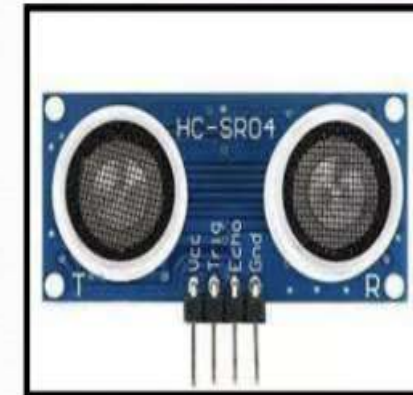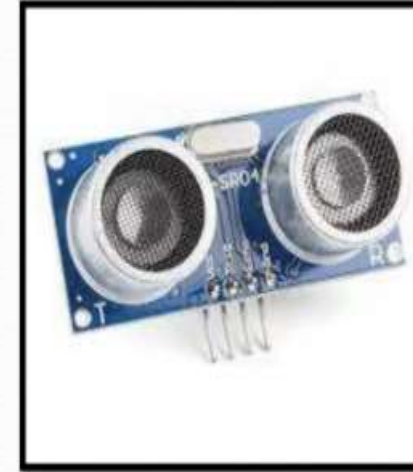
Ultrasonic Sensor

➢ An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal.

➢ Application

➢ Presence detection.

➢ People detection for counting.

➢ Loop control.

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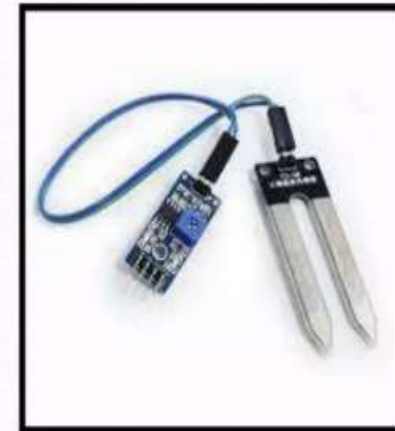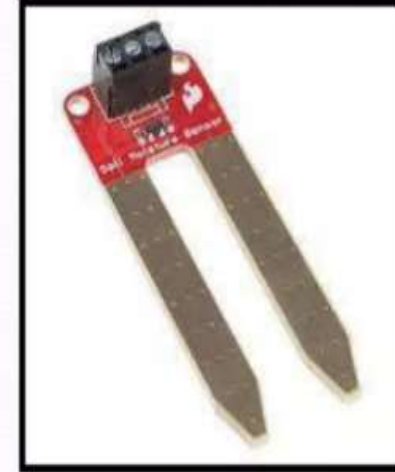
Soil Moisture Sensor

➤ The soil moisture sensor is one kind of sensor used to gauge the volumetric content of water within the soil As the straight graven

➤ Application

➤ environmental science

➤ Horticulture

➤ Biology

➤ used to measure the volumetric water content of soil

Touch Sensor

➤ A touch sensor is an electronic sensor used in detecting and recording physical touch.

➤ Application
➤ Mobile phone.
➤ monitor screens.
➤ control panels.
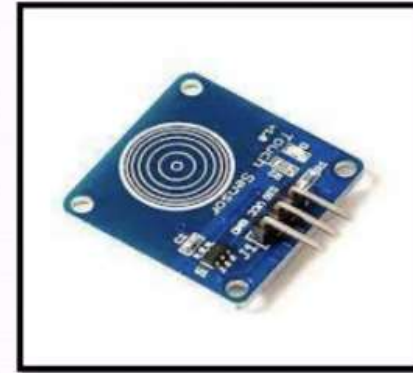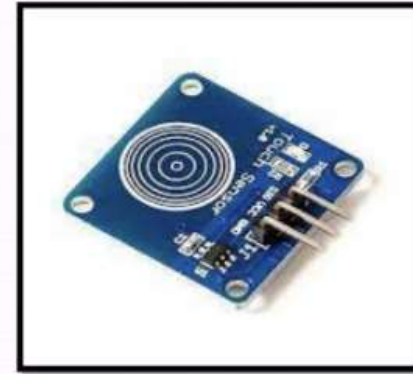
Touch Sensor

➢ A touch sensor is an electronic sensor used in detecting and recording physical touch.

➢ Application
➢ Mobile phone.
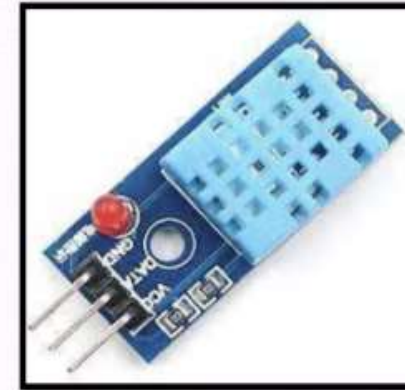➢ monitor screens.
➢ control panels.

Humidity Sensor

- A humidity sensor is an electronic device that measures the humidity in its environment and converts its findings into a corresponding electrical signal.

- Application

- Climate control for green house.

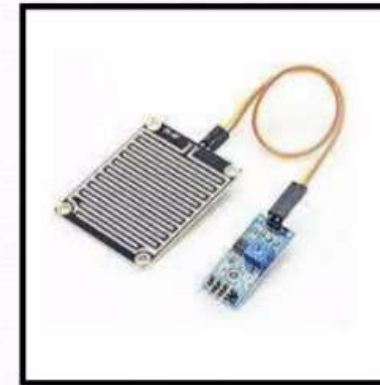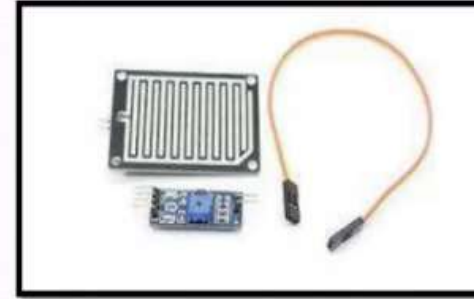- Automotive cabin air control

- Food processing

Rain Sensor

➤ A rain sensor is one kind of switching device which is used to detect the rainfall. It works like a switch and the working principle of this sensor is, whenever there is rain, the switch will be normally closed.

➤ Application

➤ This sensor is used as a water preservation devices and this is connected to the irrigation system to shut down the system in the event of rainfall.

➤ This sensor is used to guard the internal parts of an automobile against the rainfall as well as to support the regular windscreen wiper's mode.

Proximity Sensor

➤ A proximity sensor is a device that can detect or sense the approach or presence of nearby objects and for this it does not need physical contact.

➤ Application

➤ recycling plants

➤ self-driving cars

➤ anti-aircraft systems

Gas Sensor

➢Gas sensors (also known as gas detectors) are electronic devices that detect and identify different types of gasses. They are commonly used to detect toxic or explosive gasses and measure gas concentration.

➢Application

➢Process control industries

➢Boiler control

➢Fire detection

➢Alcohol breath tests

Water Pressure Sensor

> Water pressure sensors are often used to measure the level of water in a tank, or the rate of change in that level.

> Application
> Flow of water
> Flow of Gases
> Flow of speed

Heart Beat Sensor

> Heartbeat Sensor is an electronic device that is used to measure the heart rate i.e. speed of the heartbeat.

> Application

> Detect the heart beat

> Heart beat pressure

> Heartbeat speed