SNS COLLEGE OF TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING
19MEB204 IoT FOR PRODUCTION SYSTEM

TOPIC – Types of Sensors

Types of Sensors

- Sensors or Actuators are the devices that are able to emit, accept and process data over the network.
- These sensors or actuators may be connected either through wired or wireless.
- This contains GPS, Electrochemical, Gyroscope, RFID, etc. Most of the sensors need connectivity through sensors gateways. The connection of sensors or actuators can be through a Local Area Network (LAN) or Personal Area Network.

Types of Sensors

1.HC-SR04 ultrasonic sensor
- The HC-SR04 ultrasonic sensor uses sonar to determine distance to an object like bats do.
- It offers excellent non-contact range detection with high accuracy and stable readings in an easy-to-use package.

Types of Sensors

2. IR Infrared Obstacle Avoidance Sensor Module

- This module is very easy to use and is often used in robots to detect objects near the sensor.
- These sensors have a digital output pin that outputs a signal when it detects an object.
- When the module detects an obstacle, the green indicator light on the board lights up.
- The module detects the distance 2 ~ 30cm, detection angle 35 ° .
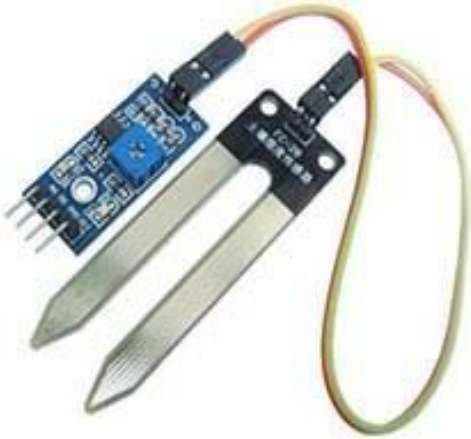
3.Soil Hygrometer Detection Module Soil Moisture Sensor:

- This is a simple water sensor that can be used to detect soil moisture.
- It outputs a high signal when the moisture is above a certain threshold.
- You can also read an analog signal whose value is proportional to the moisture level. Use this sensor to create an automatic self-watering plant.

Types of Sensors

4.Microphone Sensor:

- This sensor is used for sound detection. This module has two outputs: AO (analog output), or DO (digital output).
- The digital output sends a high signal when the sound intensity reaches a certain threshold.
- The threshold-sensitivity can be adjusted via potentiometer on the sensor.

Types of Sensors

5.Digital Barometric Pressure Sensor Board:
- You can use this module to measure the absolute pressure of the environment.
- By converting the pressure measures into altitude, you have a reliable sensor for determining the height of your robot or projectile, for example.
- This sensor also measures temperature and humidity.

6.Photoresistor Sensor Module Light Detection Light:

- This module can be used for light detection with an Arduino.

7.Digital Thermal Sensor Module Temperature Sensor Module:

- The thermal sensor module is very sensitive to the ambient temperature, generally used to detect the ambient temperature.
- Through the adjustment of the potentiometer, you can change the temperature detection threshold.

Types of Sensors

8.Rotary Encoder Module Brick Sensor Development Board

- When you rotate the rotary encoder it counts in the positive direction and the reverse direction.
- Rotation counts are not limited. With the buttons on the rotary encoder, you can reset to its initial state and start counting from 0.

9.MQ-2 Gas Sensor Module Smoke Methane Butane Detection

- This sensor module utilizes an MQ-2 as the sensitive component and has a protection resistor and an adjustable resistor on board.
- The MQ-2 gas sensor is sensitive to LPG, i-butane, propane, methane, alcohol, Hydrogen and smoke.
- It could be used in gas leakage detecting equipments in family and industry.
- The resistance of the sensitive component changes as the concentration of the target gas changes.

Types of Sensors

10.SW-420 Motion Sensor Module Vibration Switch Alarm

• This module can be used to <mark>trigger the effect of various vibration, theft alarm, intelligent car, earthquake alarm, motorcycle alarm, etc.</mark>

11. Humidity and Rain Detection Sensor Module:

- This is a rain sensor.
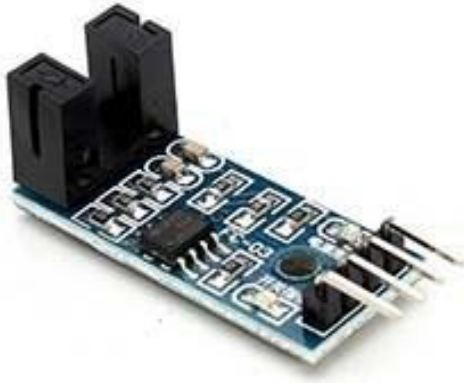- It's used for all kinds of weather monitoring.

12. Passive Buzzer Module:

- A simple sound making module.
- You set high or low to drive this module. By changing the frequency you'll hear a different sound.

13. Speed Sensor Module:

- Tachometer is a simple module that allow you to test the speed of the motor.
- Widely used for motor speed detection, pulse count, position limit, and so on.

14. IR Infrared Flame Detection Sensor Module:

- Flame detection sensor module is sensitive to the flame, but also can detect ordinary light.
- This is usually used as a flame alarm.
- Detects a flame or a light source of a wavelength in the <mark>range of 760nm to 1100 nm.</mark>
- Detection point of about <mark>60 degrees,</mark> particularly sensitive to the flame spectrum.

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15. 5V 2-Channel Relay Module:
- This is a 2 Channel 5V Relay Module.
- It allows you to control various appliances that operate at high voltages, with low voltages like 5V.
- It can be controlled directly by any microcontroller.

16. Breadboard Power Supply Module 3.3V 5V:

- A simple module to power your breadboard.
- It supplies both 3.3V and 5V.
- This is specially useful to power up your breadboard circuits from an external power supply.
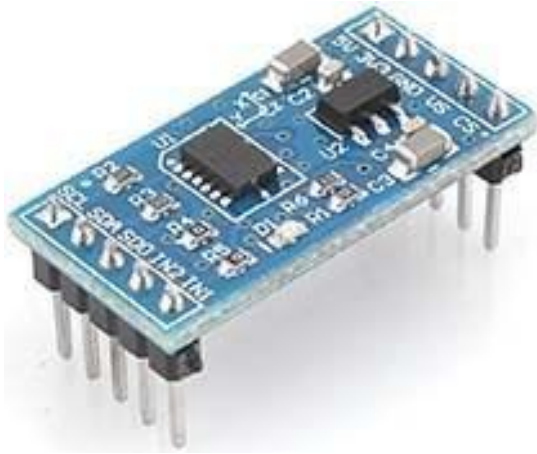
Types of Sensors

17. HC-SR501 Pyroelectric Infrared Sensor Module:
- A PIR sensor is a little module that allows you to detect movement from humans or pets.
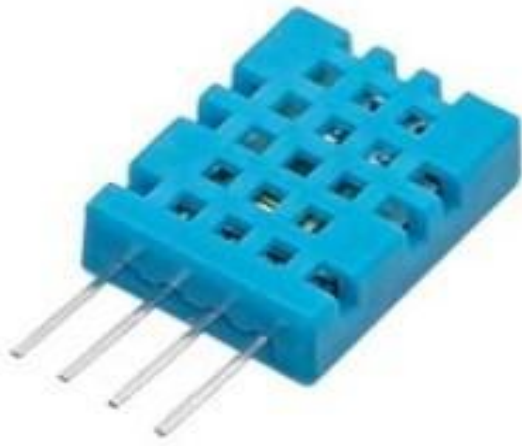- It's easy to integrate with your microcontroller.

18. Accelerometer Module:

- This module measures the acceleration.
- It's commonly used in portable devices and video game controllers to detect movement and actions from the player.
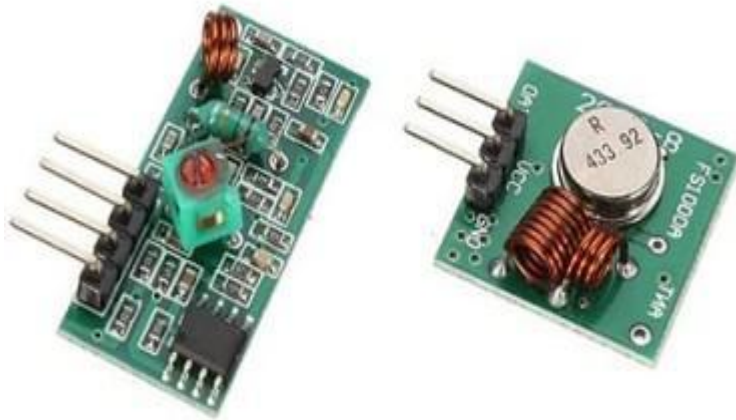
19. DHT11 Temperature and Humidity Sensor:
- It's a great little sensor to measure temperature and humidity in your room or outside.
- It integrates seamlessly with the Arduino.

Types of Sensors

20. RF 433MHz Transmitter/Receiver:

- If you need data sent from one microcontroller to another, the 433MHz link modules are a cheap way to do that (all data is sent via Radio Frequency).

THANKS!