Abhijeet Men Academy

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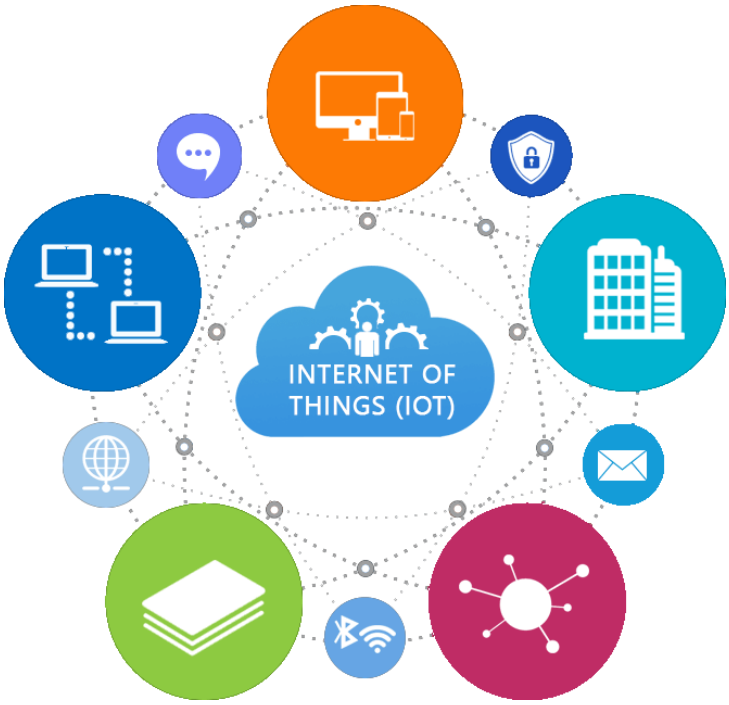
MDB Electrosoft

Manual



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What is IoT?

A thing in the internet of things can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low or any other natural or man-made object that can be assigned an IP address and is able to transfer data over a network.

Increasingly, organizations in a variety of industries are using IoT to operate more efficiently, better understand customers to deliver enhanced customer service, improve decision-making and increase the value of the business.

How IoT works

An IoT ecosystem consists of web-enabled smart devices that use embedded processors, sensors and communication hardware to collect, send and act on data they acquire from their environments. IoT devices share the sensor data they collect by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally. Sometimes, these devices communicate with other related devices and act on the information they get from one another. The devices do most of the work without human intervention, although people can interact with the devices -- for instance, to set them up, give them instructions or access the data.

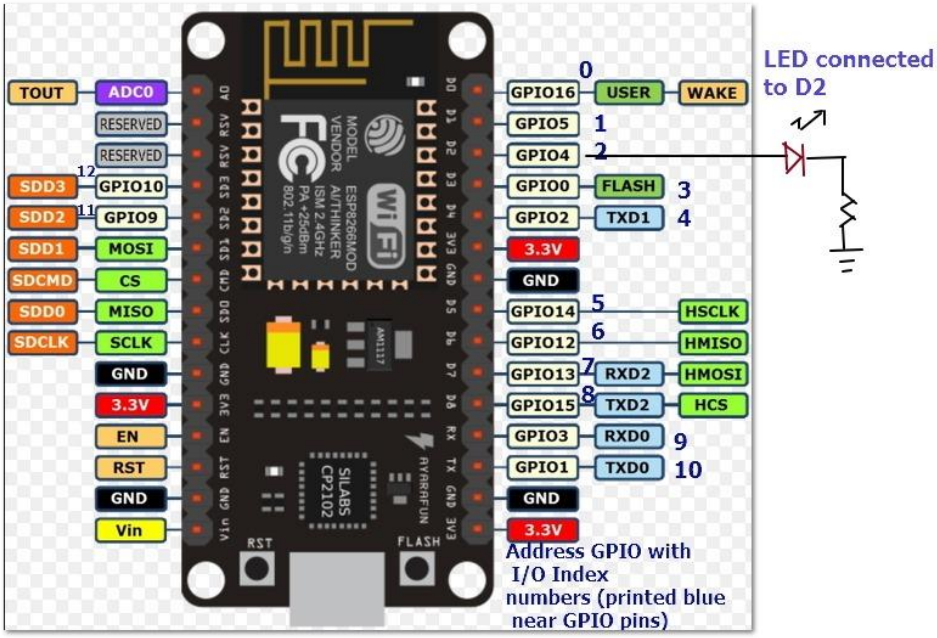
The connectivity, networking and communication protocols used with these web-enabled devices largely depend on the specific IoT applications deployed.

Benefits of IoT

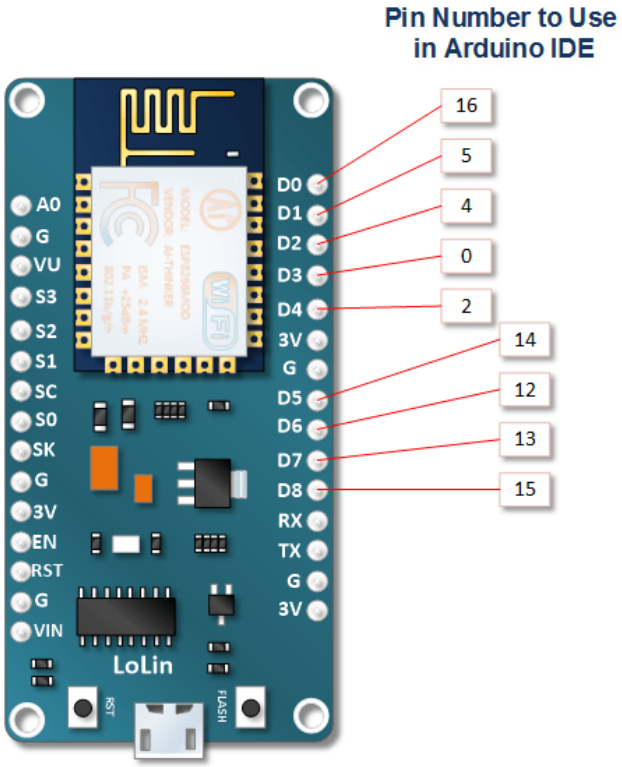
The internet of things offers a number of benefits to organizations, enabling them to:

- monitor their overall business processes;
- improve the customer experience;
- save time and money;
- enhance employee productivity;
- integrate and adapt business models;
- make better business decisions; and

NodeMCU 8266 GPIO Pins



Node MCU8266 with Arduino Pin



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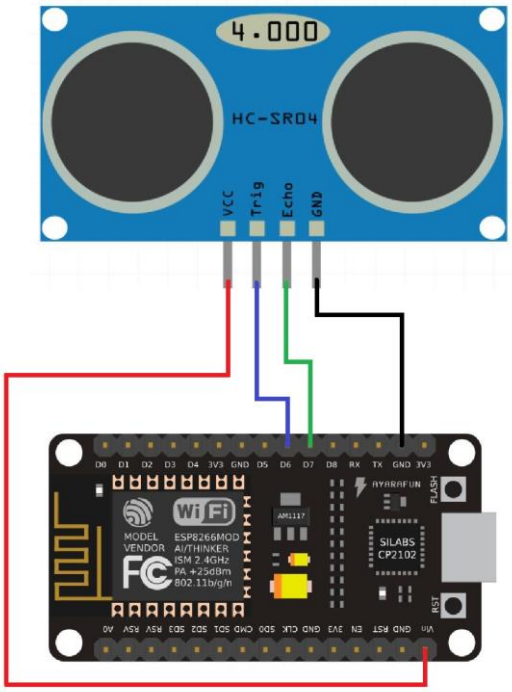
IOT Based Level Monitering System



SPECIFICATION of HC-SR04

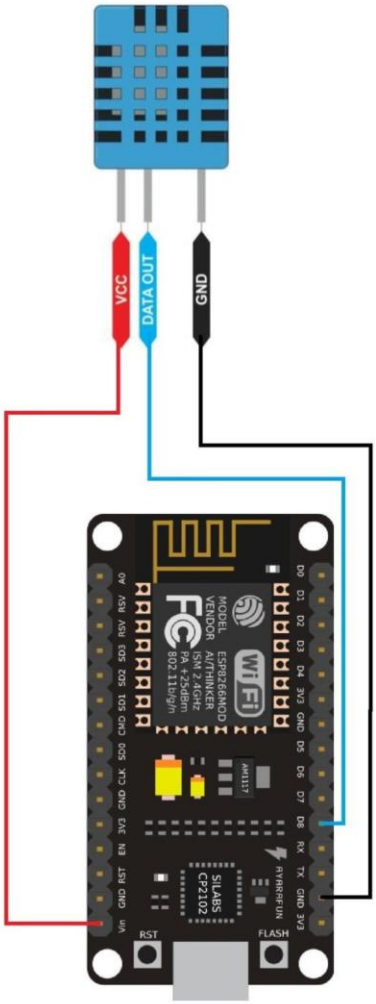
1. Power supply : 5v DC
2. Ranging distance : 2cm – 500 cm
3. Ultrasonic Frequency : 40k Hz

Distance= (Time x Speed of Sound in Air (340 m/s))/2

Distance= (time x speed)/2.

Sound travels at approximately 340 meters per second. This corresponds to about 29.412µs (microseconds) per centimeter. To measure the distance the sound has travelled we use the formula: Distance = (Time x SpeedOfSound) / 2. The "2" is in the formula because the sound has to travel back and forth. First the sound travels away from the sensor, and then it bounces off of a surface and returns back. The easy way to read the distance as centimeters is to use the formula: Centimeters = ((Microseconds / 2) / 29). For example, if it takes 100µs (microseconds) for the ultrasonic sound to bounce back, then the distance is ((100 / 2) / 29) centimeters or about 1.7 centimeters.

IoT Based Wheater Monitering System



DHT11 is a Humidity and Temperature Sensor, which generates calibrated digital output. DHT11 can be interface with any microcontroller like Arduino, Raspberry Pi, etc. and get instantaneous results. DHT11 is a low cost humidity and temperature sensor which provides high reliability and long term stability

The DHT11 Humidity and Temperature Sensor consists of 3 main components. A resistive type humidity sensor, an NTC (negative temperature coefficient) thermistor (to measure the temperature) and an 8-bit microcontroller, which converts the analog signals from both the sensors and sends out single digital signal.

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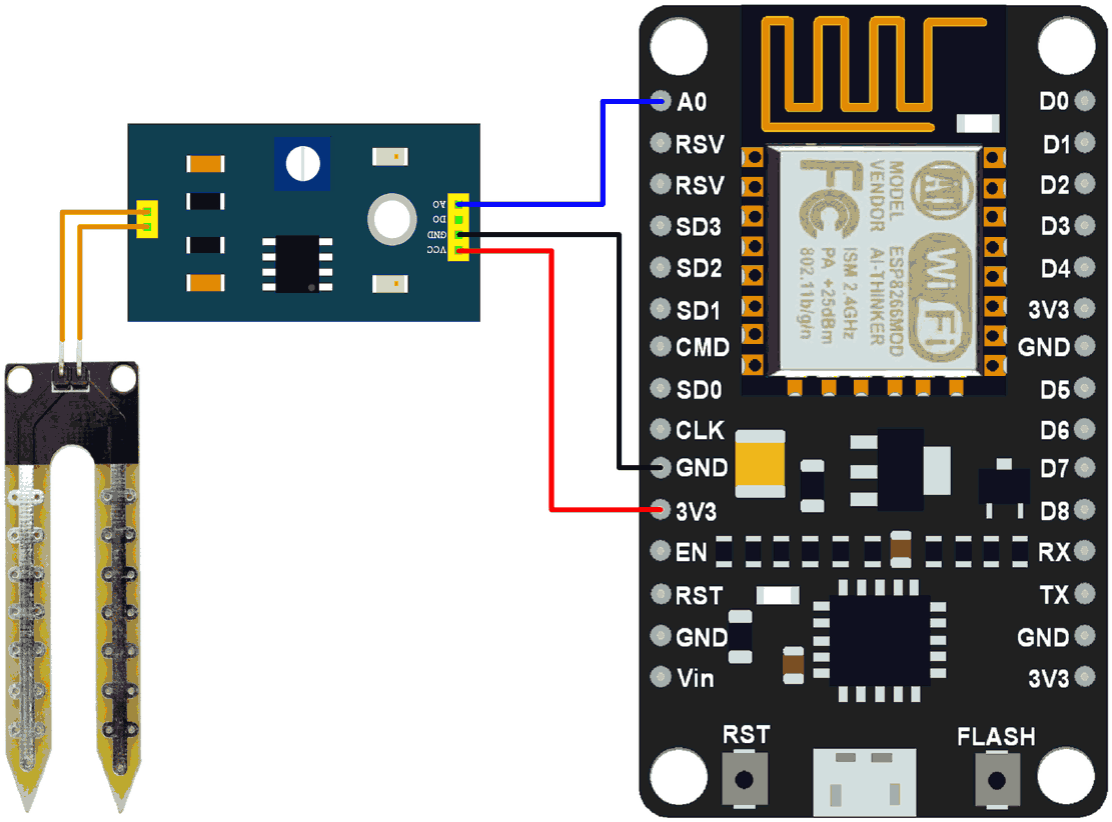
IoT Based Agriculture Monitering System



Most soil moisture sensors are designed to estimate soil volumetric water content based on the dielectric constant (soil bulk permittivity) of the soil. The dielectric constant can be thought of as the soil's ability to transmit electricity. The dielectric constant of soil increases as the water content of the soil increases..

The soil moisture sensor consists of two probes which are used to measure the volumetric content of water. The two probes allow the current to pass through the soil and then it gets the resistance value to measure the moisture value.When there is more water, the soil will conduct more electricity which means that there will be less resistance. Therefore, the moisture level will be higher. Dry soil conducts electricity poorly, so when there will be less water, then the soil will conduct less electricity which means that there will be more resistance. Therefore, the moisture level will be lower.

Application

A Soil Moisture Sensor has many applications, especially in agriculture. Irrigation is a key factor in farming. Detecting the amount of moisture in the soil and managing irrigation systems (turn on the system when the moisture level falls below a certain predefined value) helps to avoid a lot of wastage of water and human resources. These kinds of sensors make automation of farming easier.