OBJECT DETECTION ON CAR REVERSE USING ULTRASONIC SENSOR

The HC-SR04 ultrasonic sensor uses SONAR to determine the distance of an object just like the bats do. It offers excellent non-contact range detection with high accuracy and stable readings in an easy-to-use package from 2 cm to 400 cm or 1" to 13 feet.

Features

Here's a list of some of the HC-SR04 ultrasonic sensor features and specs:

- Power Supply :+5V DC

- Quiescent Current : <2mA

- Working Current: 15mA

- Effectual Angle: <15°

- Ranging Distance : 2cm – 400 cm/1″ – 13ft

- Resolution : 0.3 cm

- **Measuring Angle: 30 degree**
- Trigger Input Pulse width: 10uS

- Dimension: 45mm x 20mm x 15mm
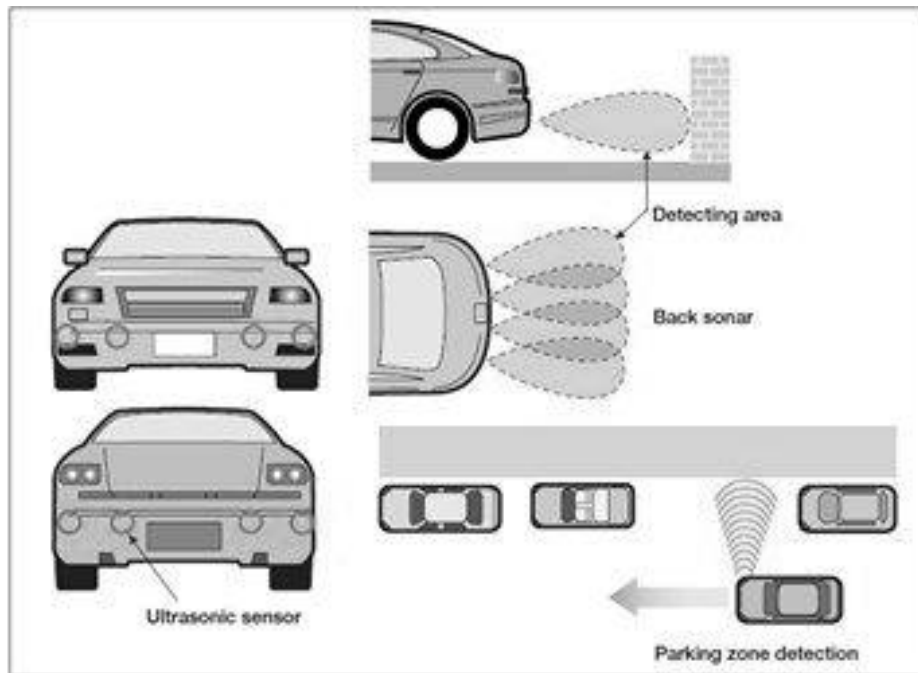
How It Works – Ultrasonic Sensor

Pins

- VCC: +5VDC

- Trig : Trigger (INPUT)

- Echo: Echo (OUTPUT)

- GND: GND

It emits an ultrasound at 40 000 Hz which travels through the air and if there is an object or obstacle on its path It will bounce back to the module. Considering the travel time and the speed of the sound you can calculate the distance.

The HC-SR04 Ultrasonic Module has 4 pins, Ground, VCC, Trig and Echo. The Ground and the VCC pins of the module needs to be connected to the Ground and the 5 volts pins on the

Arduino Board respectively and the trig and echo pins to any Digital I/O pin on the Arduino Board.

In order to generate the ultrasound you need to set the Trig on a High State for 10 µs. That will send out an 8 cycle sonic burst which will travel at the speed sound and it will be received in the Echo pin. The Echo pin will output the time in microseconds the sound wave traveled.

In this the ultrasonic sensor reads and writes the distance to an object in the serial monitor.In the setup you have to define the triggerPin as an output and the echoPin as an Input and also start the serial communication for showing the results on the serial monitor. The trigger pin is connected to digital pin 8, and the echo pins is connected to digital pin 9.