

GIE HC-SR04 Ultrasonic Module

User Manual



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HC-SR04 Ultrasonic Module

1. Introduction

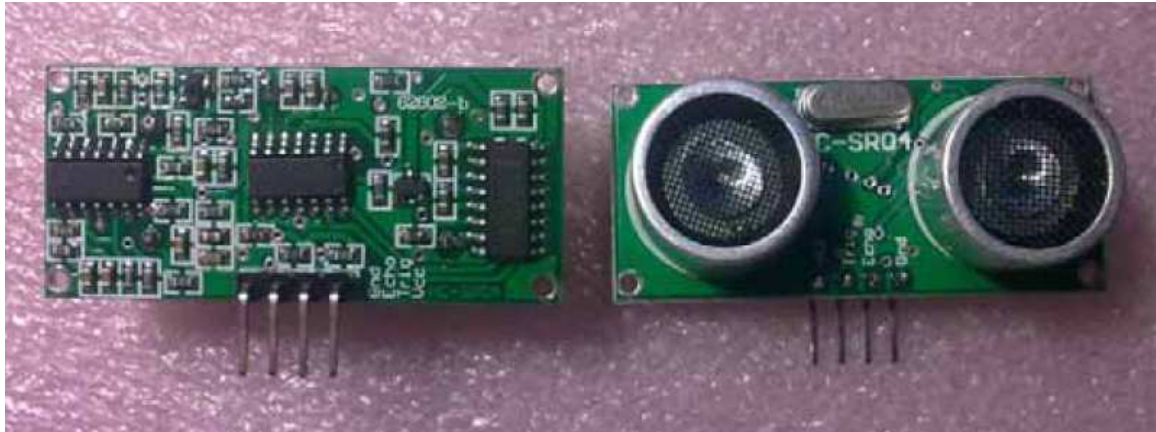
The Ultrasonic module detects the distance of the closest object in front of the sensor (from 2 cm up to 400cm). It works by sending out a burst of ultrasound and listening for the echo when it bounces off of an object.

The module sends a short pulse through (Pin ‘Trig’) to trigger the detection, then listens for a pulse on the Pin ‘Echo’. The duration of this second pulse is equal to the time taken by the ultrasound to travel to the object and back to the sensor. Using the speed of sound, this time can be converted to distance.

2. Features

- Operating voltage: +5V.
- Static current: less than 2mA.
- Detection angle: not greater than 15°.
- Range: 2cm ~ 400cm.
- Precision: 0.3cm.

3. Module

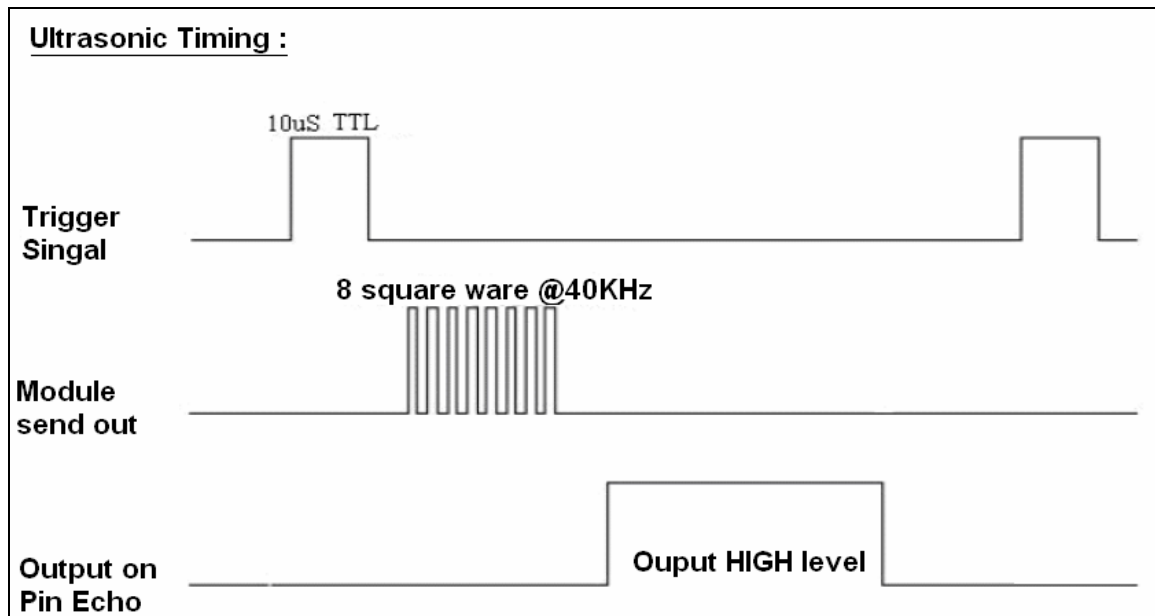


4. Pin Definition

Pin #	Pin Name
1	Vcc
2	Trig
3	Echo
4	Gnd

5. How its work

- a.) Use an I/O to trigger the module, provide at least 10us HIGH signal on Pin 'Trig'.
- b.) The module will send out 8 square wave @40Khz, it will auto detect the return signal.
- c.) If got any signal return back, it will output a HIGH signal on Pin 'Echo', the duration (T) for the HIGH signal is the time taken by the ultrasound to travel to the object and back to the sensor.
- d.) Distance = Speed of Sound * T / 2;
where Speed of Sound = 340M/s



6. Precaution

This module is not support hot plug, power off before connect to the module otherwise the operation may works abnormal.

7. Warranty

- a.) Product warranty is valid for 3 months.
- b.) Warranty is only applies to manufacturing defect.
- c.) Damage caused by improper use is not cover under warranty.
- d.) Warranty does not cover freight cost for both ways.