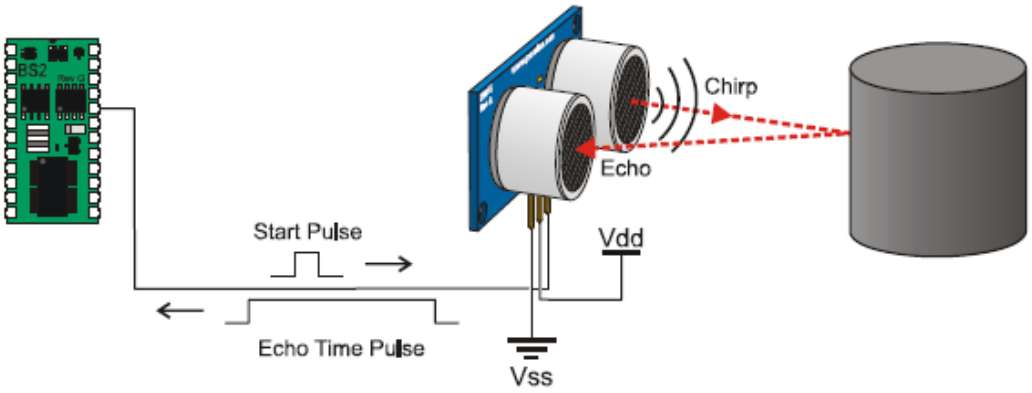
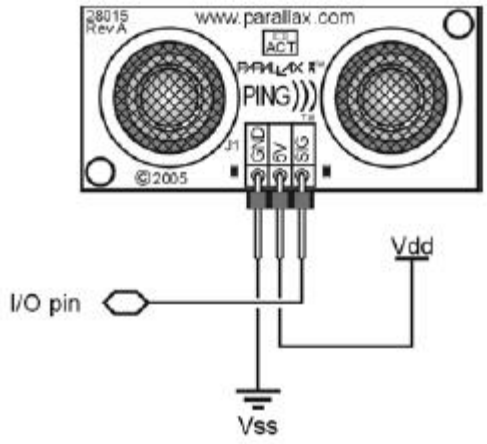
Dalkey Dojo

Proximity Sensor



The Parallax PING)))™ ultrasonic distance sensor provides precise, non-contact distance measurements from about 2 cm (0.8 inches) to 3 meters (3.3 yards). It works The PING))) sensor works by transmitting an ultrasonic (well above human hearing range) burst and providing an output pulse that corresponds to the time required for the burst echo to return to the sensor. By measuring the echo pulse width, the distance to target can easily be calculated.



Code

```
// DALKEY DOJO - PING PROJECT

//Arduino IDE 1.0.6 , Arduino UNO R3. 2/11/2014.
//This project uses Ultrasonic Distance sensor HC-SR04.
//With VCC(+5v) and GND connected it sends a 10uS+ pulse
//from Arduino pin 8 to Trigger pin on HC-SR04.
//When triggered the SR04 sends an ultrasonic "PING"
//from its transmitter which bounces off a distant
//object back to the receiver. After a short time
//it sends a pulse from the Echo pin back to
//Arduino pin 9. The length of this pulse is
//relative to the time it took for ping to bounce back.
//The Arduino converts the length of this pulse to
//an integer the converts it to centimeters and
//sends it to serial port monitor.


int trigPin = 8;       //you could also use: #define trigPin 8 for this.
int echoPin = 9;       //and this or: const int echoPin = 9; .
int distance;
unsigned long echoTime = 0;   //'unsigned long'stores much bigger number then'int'

void setup()
{
       pinMode(trigPin , OUTPUT);    //make trigPin an output.
       pinMode(echoPin , INPUT);     //make echoPin an input.
       Serial.begin(9600);           //set up serial monitor.
       digitalWrite(trigPin , LOW);//make sure trigPin is low to start with.
       delay(100);                   //wait 100mS for SR04 to settle.
}

void ping()
{
       digitalWrite(trigPin , HIGH); //make trigPin high.
       delayMicroseconds(12);                //wait 12uS.
       digitalWrite(trigPin , LOW);  //make trigPin low again.

       //now that  SR04 has been triggered we will read in the length of echo pulse.
       echoTime = pulseIn(echoPin , HIGH , 100000); //see Help/Reference - pulseIn().
}

void loop()
{
       ping();                       //go to 'ping()' function to read distance.
       echoTime = (echoTime/2);      //echoTime = itself divided by 2.There and back.
       distance = int(echoTime/29);//distance=(echoTime/29)and chast from 'long' to 'int'
       //now we have distance in centimeters we can print it to serial monitor.
       Serial.print("Distance = ");//print "Distance = " on monitor, followed by -
       Serial.print(distance);       // the number of centimeters , followed by -
       Serial.println(" cm's");      // " cm's" and move to beginning of next line.
       delay(500);                   // wait 500mS before repeating loop.
}
```