```
#define trigger 9 // all defines assign specific pieces of code to each pin

#define echo 8


#define MOTOR 2
float time=0,distance=0;


void measure_distance()

{

digitalWrite(trigger,LOW); //the following code emits a sound at intervals

delayMicroseconds(2);

digitalWrite(trigger,HIGH);

delayMicroseconds(10);

digitalWrite(trigger,LOW);

delayMicroseconds(2);

time=pulseIn(echo,HIGH); //echo receives reflected noise and works out the time since //sound
was emitted to received

distance=time*340/20000; // formula for calculating the distance

}

void setup()
{
 Serial.begin(9600); // how fast information will be sent to the serial monitor
 pinMode(trigger,OUTPUT); // each of the following tell the pins whether they are inputs or
//outputs

 pinMode(echo,INPUT);

 pinMode(MOTOR,OUTPUT);

delay(2000); // wait two seconds
```

```
}

void loop()

{

measure_distance();

  if(distance<100){ // if the distance measured by the ultrasonic sensor is less than 100cm then
//run the code immediately below
  digitalWrite(MOTOR,HIGH); //The MOTOR turns on
  }
  else{
    digitalWrite(MOTOR,LOW); // if the the distance measured is more than 100cm then
//MOTOR is off
  }
delay(500);// wait half a second

}
```