

```

1  #include <DHT.h>
2  #define Type DHT11
3  int sensePin=2;
4  DHT HT(sensePin,Type);
5  float tempC;
6  int setTime = 500;
7  const int pingPin = 4; // Trigger Pin of Ultrasonic Sensor
8  const int echoPin = 3; // Echo Pin of Ultrasonic Sensor
9
10 void setup(){
11     Serial.begin(9600);
12     HT.begin();
13     delay(setTime);
14 }
15
16 void loop(){
17
18     //Temperature mesurment, FOUND HERE //https://www.youtube.com/watch?v=-AvF2TsB2GI
19     tempC=HT.readTemperature();
20
21     //Distance mesurment, FOUND HERE:https://www.tutorialspoint.com/arduino/arduino_ultrasonic_sensor.htm
22     pinMode(pingPin, OUTPUT);
23     digitalWrite(pingPin, LOW);
24     delayMicroseconds(2);
25     digitalWrite(pingPin, HIGH);
26     delayMicroseconds(10);
27     digitalWrite(pingPin, LOW);
28     pinMode(echoPin, INPUT);
29     double duration = pulseIn(echoPin, HIGH);
30
31     // Calculate speed at different temperatures, FOUND
32     HERE:https://pressbooks.online.ucf.edu/osuniversityphysics/chapter/17-2-speed-of-sound/?fbclid=IwAR3WV0SWWh4tINIsEPC_i
33     1R6s_xExNJ2cJh4sT3p4QPq-8YPk6A5OIbx8Vp8#:~:text=The%20equation%20for%20the%20speed%20of%20sound%20in%20air%20v,s%E2%8
34     8%9AT273K
35     double v = 331*sqrt(1+(tempC/273));
36
37     // Calculate the distance by using the given formula in cm, FOUND HERE:
38     https://nerdyelectronics.com/how-to-improve-readings-of-ultrasonic-sensor-temperature-and-humidity-compensation/
39     double cm = duration*(v/10000)/2;
40
41     Serial.println(cm);
42     //Waits for 2 seconds to match the python program execution
43     delay(2000);
44 }

```