#save this progam as testdistancesensor.py

**HANDOUT 2**

#Library

import RPi.GPIO as GPIO

import time

#Set up Components

TRIG=23

ECHO=24

GPIO.setmode(GPIO.BCM) #we are using the Broadcom pin system GPIO

#Program Logic

while True:

print("distance measurement in progress")

GPIO.setup(TRIG,GPIO.OUT)

GPIO.setup(ECHO,GPIO.IN)

GPIO.output(TRIG,False)

print("waiting for sensor to settle")

time.sleep(0.2)

GPIO.output(TRIG,True) #Trigger Pin sends out pulse

time.sleep(0.00001)

GPIO.output(TRIG,False) #Trigger pin resets itself

#When the trigger pin sends out a pulse, the echo pin becomes high

#this will give us the pulse\_start time

while GPIO.input(ECHO)==0:

pulse\_start=time.time()

#the Echo pin remains high until the pusle echo is received back

#by the receiver. At this point, the echo pin will drop to low - pulse\_end time

while GPIO.input(ECHO)==1:

pulse\_end=time.time()

pulse\_duration=pulse\_end-pulse\_start

#Maths Distance = Speed \* Time

#Speed is the speed of sound which is 343 meters per second, or 34300 cm/second

#Distance = distance from sensor to object and back. Hence need to divide by 2

distance=pulse\_duration\*34300

distance=distance / 2

distance=round(distance,2) #rounding distance to 2 decimal place in Python

print("distance:",distance,"cm")

time.sleep(2)