# first demonstration program for controlling Siglent SDG function generator from Python  
# G. McBane, 28 Jan 2024  
import time  # get functions to make program wait  
import visa  #sets up PyVISA for connection through USB  
  
  
rm = visa.ResourceManager()  # make a resource manager; newer versions might need pyvisa.Res... instead  
devlist = rm.list\_resources()  # get a list of resources (probably instruments)  
print 'VISA resource list:'  
print devlist   # and print it.  
  
for  s in devlist:  # look through all devices in the list; s will represent each signature in turn  
    print 'checking ', s  
    if s.find('SDG')>-1:  # does one of them have 'SDG' in its device signature?  
        funcgen =  rm.open\_resource(s)  #if so, make a "device" object called funcgen to represent it  
        print("Instrument ID:")  
        print funcgen.query('\*IDN?')  # print device's description of itself  
        break  # found what we wanted; leave loop, skipping over 'else' section  
else:  # will only arrive here if we never found an SDG device  
    print 'Failed to find device on USB connection'  # print error mesage  
    exit()   # and quit  
  
  
  
#to code the siglent  
  
#resets siglent to normal state  
funcgen.write('c1:bswv wvtp,sine')  
funcgen.write('c1:bswv frq,500')  
funcgen.write('c1:bswv amp,10')  
  
#begins message  
alphabet = ' abcdefghijklmnopqrstuvwxyz~'  
prompt = raw\_input("Enter Phrase:")  
send = prompt+'~'  
  
fstart = 500  
fstep = 100  
  
for char in send:  
    position = alphabet.find(char)  
      frequency = fstart + (fstep \* position)  
  
  
       command='c1:bswv frq,%4.2f' % frequency  
        funcgen.write(command)  
         time.sleep(2.125)  
funcgen.write('c1:bswv wvtp,sine')  
funcgen.write('c1:bswv frq,800')  
funcgen.write('c1:bswv amp,2')  
  
print' '  
print 'The code has been sent out'