import time

import busio

import board

import adafruit\_rfm9x

import RPi.GPIO as GPIO

#import adafruit\_character\_lcd.character\_lcd as characterlcd

from datetime import datetime

from digitalio import DigitalInOut, Direction, Pull

import csv

import I2C\_LCD\_driver

mylcd = I2C\_LCD\_driver.lcd()

mylcd2 = I2C\_LCD\_driver.lcd()

#configure file to werite to

file=open("altitude.txt", "a")

file.write("Intern Space Program\n")

file.write(datetime.now().strftime('%Y -%m-%d %H:%M:%S'))

file.write("\n\n")

file.close()

ALT=0

GYRO=0,0,0

VELOCITY=0

ACCELERATION=0

VELOCITY=0

def parse():

data=packet\_text.split(" ")

for i in data:

print (i)

ALT=0

GYRO=0

def LORA():

# mylcd.lcd\_display\_string("Latitude, Longitude:", 1, 0)

# mylcd.lcd\_display\_string("Altitude: ", 3, 0)

# mylcd = I2C\_LCD\_driver.lcd()

print("ready for packet")

# mylcd.lcd\_display\_string("Ready for Packet", 1, 0)

packet=rfm9x.receive()

if packet is not None:

try:

packet\_text=str(packet, 'ascii')

file=open("grounddata.txt", "a")

file.write(str(datetime.now().time()))

file.write("\n")

file.write(packet\_text)

file.write("\n\n")

file.close()

print("received packet!!!")

print("Received: {0}".format(packet\_text))

# lcd1.clear()

# lcd2.clear()

data=packet\_text.split(" ")

packetnum=data[0]

acceleration=data[1]

orientation=data[2]

temperature=data[3]

pressure=data[4]

altitude=data[5]

latitude=data[6]

longitude=data[7]

mylcd.lcd\_display\_string("Latitude, Longitude:", 1, 0)

mylcd.lcd\_display\_string("Altitude: ", 3, 0)

print("Latitude, Longitude: (" + latitude +", " + longitude + ")")

# mylcd.lcd\_display\_string("Latitude, Longitude:", 1, 0)

# mylcd.lcd\_display\_string("Altitude: ", 3, 0)

mylcd.lcd\_display\_string(latitude[:9]+ ", " + longitude[:9], 2, 0)

#for i in data:

# print (i)

# ALT=data[5]

mylcd.lcd\_display\_string(altitude[:15] + " Feet", 4, 0)

print("Altitude: " + altitude)

file=open("altitude.txt", "a")

file.write(altitude +" ")

file.close()

except:

pass

#print(ALT[0:5])

# lcd2.message="Altitude:\n"+ALT[0:5]+" feet"

# GYRO1=data[1]

# GYRO2=data[2]

# GYRO3=data[3]

# GYRO=GYRO1[1:5]+"\n"+GYRO2[0:5]+ " "+GYRO3[0:5]

# lcd1.message=GYRO

# Configure LoRa Radio

CS = DigitalInOut(board.D5)

RESET = DigitalInOut(board.D6)

spi = busio.SPI(board.SCK, MOSI=board.MOSI, MISO=board.MISO)

rfm9x = adafruit\_rfm9x.RFM9x(spi, CS, RESET, 915.0)

rfm9x.tx\_power = 23

#setup filesave

file=open("grounddata.txt", "a")

file.write("Data Received from Rocket for Intern Space Program\n")

file.write(datetime.now().strftime('%Y-%m-%d %H:%M:%S'))

file.write("\n\n")

#pins for lcds

#lcd1\_rs = DigitalInOut(board.D22)

#lcd1\_en = DigitalInOut(board.D17)

#lcd1\_d4 = DigitalInOut(board.D25)

#lcd1\_d5 = DigitalInOut(board.D24)

#lcd1\_d6 = DigitalInOut(board.D23)

#lcd1\_d7 = DigitalInOut(board.D18)

#lcd2\_rs = DigitalInOut(board.D15) #pin 10

#lcd2\_en = DigitalInOut(board.D4) #pin 7

#lcd2\_d4 = DigitalInOut(board.D7) #pin

#lcd2\_d5 = DigitalInOut(board.D8) #pin

#lcd2\_d6 = DigitalInOut(board.D27) #pin

#lcd2\_d7 = DigitalInOut(board.D14) #pin

#lcd\_columns = 16

#lcd\_rows = 2

#lcd1 = characterlcd.Character\_LCD\_Mono(lcd1\_rs, lcd1\_en, lcd1\_d4, lcd1\_d5, lcd1\_d6, lcd1\_d7, lcd\_columns, lcd\_rows)

#lcd2= characterlcd.Character\_LCD\_Mono(lcd2\_rs, lcd2\_en, lcd2\_d4, lcd2\_d5, lcd2\_d6, lcd2\_d7, lcd\_columns, lcd\_rows)

#pins and relays

#sw2=20

#sw3=26

#sw4=16

#sw5=19

#relay=12

#GPIO.setup(sw2, GPIO.IN, pull\_up\_down=GPIO.PUD\_DOWN)

#GPIO.setup(sw3, GPIO.IN, pull\_up\_down=GPIO.PUD\_DOWN)

#GPIO.setup(sw4, GPIO.IN, pull\_up\_down=GPIO.PUD\_DOWN)

#GPIO.setup(sw5, GPIO.IN, pull\_up\_down=GPIO.PUD\_DOWN)

#GPIO.setup(relay, GPIO.OUT)

#GPIO.output(relay, GPIO.LOW)

#while GPIO.input(sw2)!=1:

# print("waiting on switch 2\n")

# time.sleep(1)

#print("sw2 activated")

#SET 8's on both LCDS

#lcd1.clear()

#lcd2.clear()

#text = "888"

#lcd1.message=text

#lcd2.message=text

#time.sleep(1)

#while GPIO.input(sw3)!=1:

# print("waiting on switch 3\n")

# time.sleep(1)

#print("sw3 activated")

#SET LCDS TO ALTITUDE AND TIMER

#lcd1.clear()

#lcd2.clear()

#lcd1.message="Timer:"

#lcd2.message="Altitude:\n0"

#time.sleep(1)

#while GPIO.input(sw4)!=1:

# print("waiting on switch 4\n")

# time.sleep(1)

#print("sw4 activated")

#start countdown

#t=10

#while(t>=0):

# text1 = t

# lcd1.clear()

# lcd1.message = "Countdown:\n"+str(t)

# time.sleep(1)

# t=t-1

#if(GPIO.input(sw5)==1):

# GPIO.output(relay, GPIO.HIGH)

# print("button active")

#else:

# print("waiting on five")

#print("launch")

#file.write("ALL SYSTEMS GO: ")

#file.write(str(datetime.now().time()))

#file.write("\n")

#file.close()

#Continuous Program

while True:

mylcd = I2C\_LCD\_driver.lcd()

# mylcd.lcd\_display\_string("Latitude, Longitude:", 1, 0)

# mylcd.lcd\_display\_string("Altitude: ", 3, 0)

# mylcd2.lcd\_display\_string("Velocity: ", 1, 0)

# mylcd2.lcd\_display\_string("Acceleration: ", 3, 0)

LORA()

time.sleep(.5)

#lcd2.clear

#lcd1.clear

#lcd2.message=ALT

#lcd1.message=GYRO1