PROGRAMMING

GPS CODE:

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from machine import Pin, UART, SoftI2C
from ssd1306 import SSD1306_I2C
import utime, time
i2c = SoftI2C(scl=Pin(22), sda=Pin(21), freq=10000)     #initializing the I2C method for ESP32
oled = SSD1306_I2C(128, 64, i2c)
gpsModule = UART(2, baudrate=9600)
print(gpsModule)
buff = bytearray(255)
TIMEOUT = False
FIX_STATUS = False
latitude = ""
longitude = ""
satellites = ""
GPStime = ""
def getGPS(gpsModule):
global FIX_STATUS, TIMEOUT, latitude, longitude, satellites, GPStime
timeout = time.time() + 8
while True:
gpsModule.readline()
buff = str(gpsModule.readline())
parts = buff.split(',')
if (parts[0] == "b'$GPGGA" and len(parts) == 15):
if(parts[1] and parts[2] and parts[3] and parts[4] and parts[5] and parts[6] and parts[7]):
print(buff)
```

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latitude = convertToDegree(parts[2])
if (parts[3] == 'S'):
latitude = -latitude
longitude = convertToDegree(parts[4])
if (parts[5] == 'W'):
longitude = -longitude
satellites = parts[7]
GPStime = parts[1][0:2] + ":" + parts[1][2:4] + ":" + parts[1][4:6]
FIX_STATUS = True
break
if (time.time() > timeout):
TIMEOUT = True
break
utime.sleep_ms(500)
def convertToDegree(RawDegrees):
RawAsFloat = float(RawDegrees)
firstdigits = int(RawAsFloat/100)
nexttwodigits = RawAsFloat - float(firstdigits*100)
Converted = float(firstdigits + nexttwodigits/60.0)
Converted = '{0:.6f}'.format(Converted)
return str(Converted)
while True:
getGPS(gpsModule)
if(FIX_STATUS == True):
print("Printing GPS data...")
print(" ")
print("Latitude: "+latitude)
print("Longitude: "+longitude)
print("Satellites: " +satellites)
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print("Time: "+GPStime)
print("----------------------")
oled.fill(0)
oled.text("Lat: "+latitude, 0, 0)
oled.text("Lng: "+longitude, 0, 10)
oled.text("Satellites: "+satellites, 0, 20)
oled.text("Time: "+GPStime, 0, 30)
oled.show()
FIX_STATUS = False
if(TIMEOUT == True):
print("No GPS data is found.")
TIMEOUT = False
```