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1 #-----
2 # Name:          This script is for reading and writing data from Arduino to
  IOTA test chain
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4 # Created:      18/04/2022
5 # Licence:      MIT
6 #-----
7
8 from brownie import accounts, config, network, IOT_Web3
9 from datetime import datetime
10 import time
11 from typing import Iterator
12 from pyfirmata import Arduino,util
13 import os.path
14
15 def read_arduino(channel):
16     # Reading data from Arduino Channel 01
17     time.sleep(20)
18     board = Arduino('/dev/ttyUSB0')
19     Iterator = util.Iterator(board)
20     Iterator.start()
21     ai_channel = board.get_pin(channel)
22     time.sleep(20)
23     ai_voltage_integer = int(ai_channel.read()*1000)
24     time.sleep(20)
25     print (ai_voltage_integer)
26     return ai_voltage_integer
27
28
29 def read_contract():
30     account = get_account()
31
32     #Writing backup
33     directory = '/home/rejithr/Desktop/IoT/IOT_Web3_Storage'
34     filename = "iota_backup.txt"
35     file_path = os.path.join(directory, filename)
36     if not os.path.isdir(directory):
37         os.mkdir(directory)
38
39
40
41
42     # Sensor_01
43     ai_voltage_integer_01 = read_arduino('a:0:i')
44     tagname_01 = "TEMP_SENSOR_002"
45     time_stamp_01 = datetime.now().strftime("%m/%d/%Y,%H:%M:%S")
46     tagname_01_unit = "degC"
47     iot_data_storage = IOT_Web3[-1]
48     transaction = iot_data_storage.create_iot_data(tagname_01,
49 time_stamp_01,round(ai_voltage_integer_01/2.048),tagname_01_unit,{"from":
50 account})
51     transaction.wait(1)
52
53     # Sensor_02
54     ai_voltage_integer_02 = read_arduino('a:1:i')
55     tagname_02 = "VIBR_SENSOR_002"
56     time_stamp_02 = datetime.now().strftime("%m/%d/%Y,%H:%M:%S")
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55     tagname_02_unit = "Hz"
56     iot_data_storage = IOT_Web3[-1]
57     transcation = iot_data_storage.create_iot_data(tagname_02,
time_stamp_02, round(ai_voltage_integer_02), tagname_02_unit, {"from":
account})
58     transcation.wait(1)
59
60
61     iot_data = iot_data_storage.getiot_datas()
62     print("IOTA Data stored to file!")
63     with open(file_path, 'w') as f:
64         for data in iot_data:
65             #print(data)
66             f.write(str(data) + '\n')
67     print("-----\n")
68     f.close()
69
70
71
72
73 def get_account():
74     if(network.show_active() == "ganache-zero"):
75         return accounts[0]
76     else:
77         return accounts.add(config["wallets"]["from_key"])
78
79
80 def main():
81     while(True):
82         read_contract()
83         print('transcation completed!')
84         time.sleep(1)
85
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