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LAMPIRAN

Lampiran 1. Detail program

```
#!/usr/bin/python
# -*- coding: utf-8 -*-

import json
import urllib2
from urllib2 import Request, urlopen, URLError
import urllib
import sys, argparse, logging
import time
import datetime
from time import strftime
import random
import serial
import RPi.GPIO as GPIO
import MySQLdb
import os
import csv

path=os.getenv("HOME")+"/insinas2018"
print 'System Up'

ID_NODE1='1'
ID_NODE2='2'
ID_NODE3='3'
currenttime=0
interval=1
menit = 10
```

```

####Cek Serial XBee
##try:
## XBeeSerial = serial.Serial('/dev/ttyUSB0',38400) #USB
## print "Serial XBee OK"
## XBeeSerial.close()
##except:
## print "Serial XBee Failed"

#DB Connection
db = MySQLdb.connect("muzul98XBee.com", "muzulxbe_sinas2018",
                    "muzulXBee", "muzulxbe_sinas2018")
cur = db.cursor()

def
    saveDB(datetimeWrite,suhu,kelembapan,cahaya,soil,nitrogen,pospor
    ,kalium,hujan,node):
#datetimeWrite=(time.strftime("%Y-%m-%d")+time.strftime("%H:%M:%S"))
sql = (""" INSERT INTO datasensor VALUES
        (%s,%s,%s,%s,%s,%s,%s,%s,%s,%s,%s)""",(node,datetimeWrite,suhu,k
        elembapan,cahaya,soil,nitrogen,pospor,kalium,hujan))

try:
    cur.execute(*sql)
    db.commit()
    print('['+datetimeWrite+'] Update DB RPI Success!!)
except:
    db.rollback()
    print 'Error Update DB RPI'

while True:
    currenttime = currenttime+1

```

```

try:
    XBeeSerial = serial.Serial('/dev/ttyUSB0',9600,timeout=5) #USB timeout 5
        second
print "Serial XBee OK"
XBeeSerial.close()

if(XBeeSerial.isOpen()==False):
    XBeeSerial.open()
    print "Serial Opened"

    #send to sensor node 1
    XBeeSerial.write('@R1#') #send to node 1
    print "Send Request Data to Sensor Node 1"
    #print "send data @R1#"
    dataXBee = XBeeSerial.readline()

    while(dataXBee==""):
        XBeeSerial.write('@R1#') #send to node 1
        print "Send Request Data to Sensor Node 1"
        dataXBee = XBeeSerial.readline()
    dataXBee = dataXBee.strip()
    dataArraySensor1 = dataXBee.split(':')
    #print dataXBee
    n2 = float(dataArraySensor1[0])
    n3 = (n2/1024)*5000 # mV
    nitrogen = "{:.2f}".format(n3)
    print "Nitrogen: "+"{:.2f}".format(n3)+" mV"

    n2 = float(dataArraySensor1[1])
    n3 = (n2/1024)*5000 # mV
    pospor = "{:.2f}".format(n3)

```

```

print "Pospor: "+"{:2f}".format(n3)+" mV"

n2 = float(dataArraySensor1[2])
n3 = (n2/1024)*5000 # mV
kalium = "{:2f}".format(n3)
print "Kalium: "+"{:2f}".format(n3)+" mV"

soil2 = float(dataArraySensor1[3])
soil3 = 100-(((soil2)/1024)*100) # dalam persen
soil = "{:2f}".format(soil3)
print "Soil: "+"{:2f}".format(soil3)+" %"#+dataArraySensor1[3]

#send to sensor node 2
XBeeSerial.write('@R2#') #send to node 2
print "Send Request Data to Sensor Node 2"
dataXBee = XBeeSerial.readline()
while(dataXBee==""):
    XBeeSerial.write('@R2#') #send to node 2
    print "Send Request Data to Sensor Node 2"
    dataXBee = XBeeSerial.readline()
dataXBee = dataXBee.strip()
dataArraySensor2 = dataXBee.split(':')
#print dataXBee

suhu = dataArraySensor2[0]
kelembapan = dataArraySensor2[1]
cahaya = dataArraySensor2[2]
hujan = dataArraySensor2[3]

print "Suhu: "+suhu
print "Kelembapan: "+kelembapan

```

```

    print "Cahaya: "+cahaya
    print "Hujan: "+hujan
    XBeeSerial.close()
    flag=True
except:
    flag=False
    print "Serial XBee Failed"

if(flag==True):
    try:

        jam = time.strftime("%H:%M:%S")
        tgl = time.strftime("%Y-%m-%d")

        #save to database
        node = ID_NODE1;
        saveDB(tgl+'
            '+jam,suhu,kelembapan,cahaya,soil,nitrogen,pospor,kalium,hujan,
            node)
    except:
        print "Save to Database Failed"

#interval request
time.sleep(menit*interval)#1 menit

```


Lampiran 2 Tabel Data Sensor

Time	Suhu (°C)	Humadity (%)	Intensitas Cahaya (Lux)	Soil (%)	Curah Hujan
09:11:16	25,3	82,3	107	1,5 6	1017
09:11:32	25	82,1	107	5,2 7	1018
09:11:48	25,1	81,8	109	5,7 6	1018
09:12:18	25,1	81,7	107	3,9 1	1018
09:12:34	25,2	81,4	108	1,6 6	1018
09:12:50	25,2	81,3	108	1,1 7	1018
09:13:05	25,2	81,3	109	3,1 2	1018
09:13:21	25,2	81,2	110	2,0 5	1018
09:13:37	25,3	81,2	110	1,6 6	1018
09:13:53	25,3	81,2	110	1,8 6	1018
09:14:08	25,3	81,1	110	2,3 4	1018
09:14:39	25,3	81	112	1,9 5	1018
09:14:55	25,4	80,8	94	3,3 2	1018
09:15:10	25,7	80,7	108	2,3 4	1018
09:15:26	25,4	80,5	104	3,7 1	1018
09:15:42	25,4	80,3	112	1,6 6	1018
09:15:58	25,5	80,1	114	2,2 5	1018
09:16:13	25,5	80,1	116	1,8 6	1018
09:16:34	25,5	80	116	6,5 4	1018
09:17:00	25,5	79,9	116	6,0 5	1018

09:17:21	25,5	79,8	115	3	1018
09:17:37	25,6	79,6	115	6,4 5	1018
09:17:52	25,6	79,6	115	9,0 8	1018
09:18:13	25,6	79,7	115	6,2 5	1018
09:18:44	25,6	79,5	117	10,74	1018
09:19:00	25,6	79,3	116	9,8 6	1018
09:19:30	25,6	79,1	114	4,3	1018
09:19:46	25,7	79,1	111	1,7 6	1018
09:20:02	25,7	79,1	109	4,2	1018
09:20:18	25,7	79,2	109	3,3 2	1018
09:20:33	25,7	79,2	109	1,6 6	1018
09:21:04	25,7	79,1	110	4,3	1018
09:21:35	25,8	79,1	111	0,1	1018
09:21:50	25,8	79,1	110	2,7 3	1018
09:22:21	25,8	78,9	109	0,2	1018
09:22:37	25,9	78,9	109	3,8 1	1018
09:22:53	25,9	78,8	109	2,8 3	1018
09:23:08	25,9	78,9	108	1,2 7	1018
09:23:39	25,9	78,8	95	3,8 1	1018
09:23:55	25,9	78,9	105	1,4 6	1018
09:24:10	25,9	78,7	109	2,2 5	1018
09:24:26	25,9	78,6	111	0,1	1018
09:24:42	25,9	78,6	112	2,6 4	1018
09:25:12	26	79,1	113	1,1 7	1018
09:25:28	26	79,1	113	3,7 1	1018
09:25:59	26	79,1	114	2,5 4	1018

10:59:20	27,1	72,8	87	4,5 9	1018
10:59:51	26,8	71,9	87	4,9 8	1018
11:00:16	26,8	71,7	72	2,4 4	1018
11:00:42	26,8	71,9	75	4,4 9	1018
11:01:03	26,8	72	81	3,7 1	1018
11:01:34	26,8	71,9	86	2,3 4	1018
11:01:49	26,8	71,9	85	1,6 6	1018
11:02:05	26,8	71,8	86	2,0 5	1018
11:02:21	26,8	71,9	85	2,7 3	1018
11:02:37	26,8	71,7	85	2,7 3	1018
11:03:08	26,8	71,6	85	0,1	1018
11:03:38	26,9	71,7	85	1,3 7	1018
11:03:59	26,8	71,6	85	2,0 5	1018
11:04:20	26,9	71,5	85	2,7 3	1018
11:04:51	26,9	71,6	85	1,6 6	1018
11:05:21	26,8	71,6	85	1,6 6	1018
11:05:52	26,9	71,6	85	4,3	1018
11:06:08	26,9	71,6	85	3,1 2	1018
11:06:39	26,9	71,5	85	1,8 6	1018
11:06:54	26,9	71,3	85	3,1 2	1018
11:07:15	26,9	71,3	85	3,4 2	1018
11:07:31	26,9	71,2	85	0,1	1018
11:07:46	26,9	71,2	85	1,4 6	1018
11:08:02	26,9	71,2	85	0,5	1018

				9	
11:08:23	26,9	71,2	85	4	1018
11:08:39	26,9	71,1	85	4,3 9	1018
11:08:54	26,9	71	85	3,1 2	1018
11:09:25	26,9	71	85	1,7 6	1018
11:09:41	26,9	71	85	4,5 9	1018
11:09:57	26,9	70,9	85	4	1018
11:10:12	26,9	70,9	85	3,8 1	1018
11:10:28	26,9	70,8	85	0,1	1018
11:10:44	26,9	70,7	85	3,0 3	1018
11:11:10	26,9	70,7	85	0,1	1018
11:11:25	26,9	70,7	85	3,7 1	1018
11:11:56	26,9	70,7	85	3,6 1	1018
11:12:12	26,9	70,6	85	3,9 1	1018
11:12:32	26,9	70,6	85	2,4 4	1018
11:12:48	26,9	70,6	85	1,4 6	1018
11:13:04	26,9	70,5	85	0,9 8	1018
11:13:20	26,9	70,5	85	3,6 1	1018
11:13:35	26,9	70,5	85	4,2	1018
11:13:51	26,9	70,5	85	3,5 2	1018
11:14:00	26,9	70,5	85	0,1	1018
11:14:37	26,9	70,4	84	4,4 9	1018
11:14:53	26,9	70,4	84	4,2	1018
11:15:09	26,9	70,4	84	1,2 7	1018
11:15:25	26,9	70,4	85	1,6 6	1018
11:15:55	26,9	70,4	85	3,0 3	1018

11:16:11	26,9	70,4	84	2,6 4	1018
11:16:27	26,9	70,3	85	0,7 8	1018
11:16:57	26,9	70,4	84	2,7 3	1018
11:17:13	26,9	70,5	79	1,4 6	1018
11:17:44	26,9	70,5	83	1,4 6	1018
11:17:59	26,9	70,6	84	2,6 4	1018
11:18:15	27	71,2	85	1,5 6	1018
11:18:46	26,9	70,5	85	3,5 2	1018
11:19:02	26,9	70,5	85	2,9 3	1018
11:19:17	27	71,1	85	2,6 4	1018
11:19:33	27	71	85	1,6 6	1018
11:19:49	27	71	85	4,3	1018
11:20:05	27	71,1	85	4	1018