

DAFTAR LAMPIRAN A

1. Seria_test.py

```
import serial
import mysql.connector
import datetime
con = mysql.connector.connect(user='root', password='admin12345',
                              host='127.0.0.1',
                              database='db_das')

ser = serial.Serial('/dev/ttyACM0',9600)
s = [0,1]
while True:
    read_serial=ser.readline()
    rds=read_serial[:3]
    dsr=str(rds)
    dfc=dsr.strip("b\r\n")
    print(dfc)
    mycursor = con.cursor()
    sql = "INSERT INTO
tbl_keasaman(Kode_Das,Waktu_Monitoring,Tingkat_Keasaman,Kode_Dev
ice) VALUES (%s, %s, %s, %s)"
    now = datetime.datetime.now()
    val = ("DAS-01", now, dfc, "DV001")
    mycursor.execute(sql, val)
    con.commit()
```

2. Sensor.Uno

```
Source Code
/*
SCP1000 Barometric Pressure Sensor Display

Shows the output of a Barometric Pressure Sensor on a
```

Uses the SPI library. For details on the sensor, see:

http://www.sparkfun.com/commerce/product_info.php?products_id=8161

http://www.vti.fi/en/support/obsolete_products/pressure_sensors/

This sketch adapted from Nathan Seidle's SCP1000 example for PIC:

<http://www.sparkfun.com/datasheets/Sensors/SCP1000-Testing.zip>

Circuit:

SCP1000 sensor attached to pins 6, 7, 10 - 13:

DRDY: pin 6

CSB: pin 7

MOSI: pin 11

MISO: pin 12

SCK: pin 13

created 31 July 2010

modified 14 August 2010

by Tom Igoe

*/

// the sensor communicates using SPI, so include the library:

#include <SPI.h>

//Sensor's memory register addresses:

const int PRESSURE = 0x1F; //3 most significant bits of pressure

const int PRESSURE_LSB = 0x20; //16 least significant bits of pressure

const int TEMPERATURE = 0x21; //16 bit temperature reading

const byte READ = 0b11111100; // SCP1000's read command

const byte WRITE = 0b00000010; // SCP1000's write command

// pins used for the connection with the sensor

// the other you need are controlled by the SPI library):

const int dataReadyPin = 6;

const int chipSelectPin = 7;

void setup() {

 Serial.begin(9600);

 // start the SPI library:

 SPI.begin();

 // initialize the data ready and chip select pins:

 pinMode(dataReadyPin, INPUT);

 pinMode(chipSelectPin, OUTPUT);

 //Configure SCP1000 for low noise configuration:

 writeRegister(0x02, 0x2D);

 writeRegister(0x01, 0x03);

```

writeRegister(0x03, 0x02);
// give the sensor time to set up:
delay(100);
}

void loop() {
//Select High Resolution Mode
writeRegister(0x03, 0x0A);

// don't do anything until the data ready pin is high:
if (digitalRead(dataReadyPin) == HIGH) {
//Read the temperature data
int tempData = readRegister(0x21, 2);

// convert the temperature to celsius and display it:
float realTemp = (float)tempData / 20.0;
Serial.print("Temp[C]=");
Serial.print(realTemp);

//Read the pressure data highest 3 bits:
byte pressure_data_high = readRegister(0x1F, 1);
pressure_data_high &= 0b00000111; //you only needs bits 2 to 0

//Read the pressure data lower 16 bits:
unsigned int pressure_data_low = readRegister(0x20, 2);
//combine the two parts into one 19-bit number:
long pressure = ((pressure_data_high << 16) | pressure_data_low) / 4;

// display the temperature:
Serial.println("\tPressure [Pa]=" + String(pressure));
}
}

//Read from or write to register from the SCP1000:
unsigned int readRegister(byte thisRegister, int bytesToRead) {
byte inByte = 0; // incoming byte from the SPI
unsigned int result = 0; // result to return
Serial.print(thisRegister, BIN);
Serial.print("\t");
// SCP1000 expects the register name in the upper 6 bits
// of the byte. So shift the bits left by two bits:
thisRegister = thisRegister << 2;
// now combine the address and the command into one byte
byte dataToSend = thisRegister & READ;
Serial.println(thisRegister, BIN);
// take the chip select low to select the device:
digitalWrite(chipSelectPin, LOW);

```

```

// send the device the register you want to read:
SPI.transfer(dataToSend);
// send a value of 0 to read the first byte returned:
result = SPI.transfer(0x00);
// decrement the number of bytes left to read:
bytesToRead--;
// if you still have another byte to read:
if (bytesToRead > 0) {
    // shift the first byte left, then get the second byte:
    result = result << 8;
    inByte = SPI.transfer(0x00);
    // combine the byte you just got with the previous one:
    result = result | inByte;
    // decrement the number of bytes left to read:
    bytesToRead--;
}
// take the chip select high to de-select:
digitalWrite(chipSelectPin, HIGH);
// return the result:
return (result);
}

//Sends a write command to SCP1000

void writeRegister(byte thisRegister, byte thisValue) {

    // SCP1000 expects the register address in the upper 6 bits
    // of the byte. So shift the bits left by two bits:
    thisRegister = thisRegister << 2;
    // now combine the register address and the command into one byte:
    byte dataToSend = thisRegister | WRITE;

    // take the chip select low to select the device:
    digitalWrite(chipSelectPin, LOW);

    SPI.transfer(dataToSend); //Send register location
    SPI.transfer(thisValue); //Send value to record into register

    // take the chip select high to de-select:
    digitalWrite(chipSelectPin, HIGH);
}

```

DAFTAR LAMPIRAN B

1. Index.php

```
<?php
session_start();
include_once 'includes/functions.php';
?>
<!--
author: W3layouts
author URL: http://w3layouts.com
License: Creative Commons Attribution 3.0 Unported
License URL: http://creativecommons.org/licenses/by/3.0/
-->
<!DOCTYPE html>
<html lang="en">
<head>
<title>Sistem Monitoring Tingkat Keasaman DAS | Home </title>
<!-- for-mobile-apps -->
<meta name="viewport" content="width=device-width, initial-
scale=1">
<meta charset="utf-8">
<script>
    addEventListener("load", function () {
        setTimeout(hideURLbar, 0);
    }, false);

    function hideURLbar() {
        window.scrollTo(0, 1);
    }
</script>
<!-- css files -->
```

```

    <link href="css/bootstrap.css" rel='stylesheet' type='text/css' /><!--
bootstrap css -->
    <link href="css/style.css" rel='stylesheet' type='text/css' /><!-- custom
css -->
    <link href="css/font-awesome.min.css" rel="stylesheet"><!--
fontawesome css -->
        <!-- //css files -->
            <link href="css/css_slider.css" type="text/css" rel="stylesheet"
media="all">
                <!-- google fonts -->
                    <link
href="//fonts.googleapis.com/css?family=Thasadith:400,400i,700,700i&
amp;subset=latin-ext,thai,vietnamese" rel="stylesheet">
                        <!-- //google fonts -->

</head>
<body>

<!-- header -->
<header>
    <div class="container">
        <!-- nav -->
        <nav class="py-4 d-lg-flex">
            <div id="logo">
                <h1> <a href="index.php"><span
class="fa fa-dashboard nav_icon"></span> Tingkat Keasaman
DAS</a></h1>
            </div>
            <label for="drop" class="toggle"><span class="fa
fa-bars"></span></label>
            <input type="checkbox" id="drop" />
            <ul class="menu mt-md-2 ml-auto">
                <li class="mr-lg-4 mr-2
active"><span><span class="fa fa-dashboard nav_icon"></span> <a
href="index.php">Home</a></li>

```

```

                <li class="mr-lg-4 mr-2"><span><span
class="fa fa-thermometer-3"></span> <a href="Keasaman.php">Kadar
Keasaman DAS</a></li>

                <li class="mr-lg-4 mr-2"><span><span
class="fa fa-folder-open-o"></span> <a href="data.php">Data
DAS</a></li>

                <li class="mr-lg-4 mr-2"><span><span
class="fa fa-bar-chart"></span> <a
href="peningkatan.php">Peningkatan Kadar Keasaman DAS</a></li>

                <li class="mr-lg-4 mr-2"><span><span
class="fa fa-phone"></span> <a href="contact.php">Contact</a></li>

<!-- //header -->
<h3 class="text-wh">Sistem Monitoring Tingkat Keasaman DAS</h3>
<!-- footer -->
<footer class="text-center py-5">
    <div class="container py-md-3">
        <!-- logo -->
        <h2 class="logo2 text-center">
            <a href="index.php">
                <span class="fa fa-dashboard
nav_icon"></span> Tingkat Keasaman DAS
            </a>
        </h2>
        <!-- //logo -->
        <!-- address -->
        <div class="contact-left-footer mt-4">
</body>
</html>

```

2. Peningkatan.php

```

<?php
session_start();
include_once 'includes/functions.php';
?>
<!--

```

```

author: W3layouts
author URL: http://w3layouts.com
License: Creative Commons Attribution 3.0 Unported
License URL: http://creativecommons.org/licenses/by/3.0/
-->
<!DOCTYPE html>
<html lang="en">
<head>
<title>Sistem Monitoring Tingkat Keasaman DAS | Peningkatan </title>
<!-- for-mobile-apps -->
<meta name="viewport" content="width=device-width, initial-
scale=1">
<meta charset="utf-8">
<meta name="keywords" content="Agro Harvest Responsive web
template, Bootstrap Web Templates, Flat Web Templates, Android
Compatible web template,
Smartphone Compatible web template, free webdesigns for Nokia,
Samsung, LG, SonyEricsson, Motorola web design" />

<script>
    addEventListener("load", function () {
        setTimeout(hideURLbar, 0);
    }, false);

    function hideURLbar() {
        window.scrollTo(0, 1);
    }
</script>
</head>
<body>
<!-- //header -->
<header>
    <div class="container">
        <!-- nav -->
        <nav class="py-4 d-lg-flex">

```



```

<div id="logo">
<h1> <a href="index.php"><span class="fa fa-dashboard
nav_icon"></span> Tingkat Keasaman DAS</a></h1>
</div>
<label for="drop" class="toggle"><span class="fa
fa-bars"></span></label>
<input type="checkbox" id="drop" />
<ul class="menu mt-md-2 ml-auto">
<li class="mr-lg-4 mr-2"><span><span
class="fa fa-dashboard nav_icon"></span> <a
href="index.php">Home</a></li>
<li class="mr-lg-4 mr-2
active"><span><span class="fa fa-bar-chart"></span> <a
href="peningkatan.php">Peningkatan Kadar Keasaman DAS</a></li>
</div>
</header>
<!-- footer -->
<footer class="text-center py-5">
<div class="container py-md-3">
<!-- logo -->
<h2 class="logo2 text-center">
<a href="index.php">
<span class="fa fa-dashboard
nav_icon"></span> Tingkat Keasaman DAS
</a>
</h2>
<!-- //logo -->
<!-- address -->
<div class="contact-left-footer mt-4">
<!-- move top icon -->
<a href="#home" class="move-top text-center"></a>
<!-- //move top icon -->
</body>
</html>

```

3. Keasaman.php

```
<?php
session_start();
include_once 'includes/functions.php';
?>
<!--
author: W3layouts
author URL: http://w3layouts.com
License: Creative Commons Attribution 3.0 Unported
License URL: http://creativecommons.org/licenses/by/3.0/
-->
<!DOCTYPE html>
<html lang="en">
<head>
<title>Sistem Monitoring Tingkat Keasaman DAS | Kadar Keasaman
DAS </title>
<!-- for-mobile-apps -->
<meta name="viewport" content="width=device-width, initial-
scale=1">
<meta charset="utf-8">
<meta name="keywords" content="Agro Harvest Responsive web
template, Bootstrap Web Templates, Flat Web Templates, Android
Compatible web template,
Smartphone Compatible web template, free webdesigns for Nokia,
Samsung, LG, SonyEricsson, Motorola web design" />

<script>
    addEventListener("load", function () {
        setTimeout(hideURLbar, 0);
    }, false);

    function hideURLbar() {
        window.scrollTo(0, 1);
    }
}
```

```

</script>

<!-- css files -->
<link href="css/bootstrap.css" rel='stylesheet' type='text/css' /><!--
bootstrap css -->
<link href="css/style.css" rel='stylesheet' type='text/css' /><!-- custom
css -->
<link href="css/font-awesome.min.css" rel="stylesheet"><!--
fontawesome css -->

<!-- //css files -->

<link href="css/css_slider.css" type="text/css" rel="stylesheet"
media="all">

<!-- google fonts -->
<link
href="//fonts.googleapis.com/css?family=Thasadith:400,400i,700,700i&
amp;subset=latin-ext,thai,vietnamese" rel="stylesheet">
<!-- //google fonts -->

</head>
<body>
<header>
<div class="container">
<!-- nav -->
<nav class="py-4 d-lg-flex">
<div id="logo">
<h1> <a href="index.php"><span
class="fa fa-dashboard nav_icon"></span> Tingkat Keasaman
DAS</a></h1>
</div>
<label for="drop" class="toggle"><span class="fa
fa-bars"></span></label>
<input type="checkbox" id="drop" />
<ul class="menu mt-md-2 ml-auto">

```

```

                <li class="mr-lg-4 mr-2"><span><span
class="fa fa-dashboard nav_icon"></span> <a
href="index.php">Home</a></li>

                <li class="mr-lg-4 mr-2
active"><span><span class="fa fa-thermometer-3"></span> <a
href="keasaman.php">Kadar Keasaman DAS</a></li>

                </ul>

            </nav>

            <!-- //nav -->

        </div>
</header>
<!-- //header -->

</body>
</html>

```

4. Data.php

```

<?php
session_start();
include_once 'includes/functions.php';
?>

<!--
author: W3layouts
author URL: http://w3layouts.com
License: Creative Commons Attribution 3.0 Unported
License URL: http://creativecommons.org/licenses/by/3.0/
-->
<!DOCTYPE html>
<html lang="en">
<head>
<title>Sistem Monitoring Tingkat Keasaman DAS | Home </title>
<!-- for-mobile-apps -->

```

```
<meta name="viewport" content="width=device-width, initial-
scale=1">
<meta charset="utf-8">

<script>
  addEventListener("load", function () {
    setTimeout(hideURLbar, 0);
  }, false);

  function hideURLbar() {
    window.scrollTo(0, 1);
  }
</script>

<!-- css files -->
<link href="css/bootstrap.css" rel='stylesheet' type='text/css' /><!--
bootstrap css -->
<link href="css/style.css" rel='stylesheet' type='text/css' /><!-- custom
css -->
<link href="css/font-awesome.min.css" rel="stylesheet"><!--
fontawesome css -->
<!-- //css files -->

<link href="css/css_slider.css" type="text/css" rel="stylesheet"
media="all">

<!-- google fonts -->
<link
href="//fonts.googleapis.com/css?family=Thasadith:400,400i,700,700i&
amp;subset=latin-ext,thai,vietnamese" rel="stylesheet">
<!-- //google fonts -->

</head>
<body>
```

```

<!-- header -->
<header>
  <div class="container">
    <!-- nav -->
    <nav class="py-4 d-lg-flex">
      <div id="logo">
        <h1> <a href="index.php"><span
class="fa fa-dashboard nav_icon"></span> Tingkat Keasaman
DAS</a></h1>
      </div>
      <label for="drop" class="toggle"><span class="fa
fa-bars"></span></label>
      <input type="checkbox" id="drop" />
      <ul class="menu mt-md-2 ml-auto">
        <li class="mr-lg-4 mr-2
active"><span><span class="fa fa-dashboard nav_icon"></span> <a
href="index.php">Home</a></li>
        <li class="mr-lg-4 mr-2"><span><span
class="fa fa-thermometer-3"></span> <a href="Keasaman.php">Kadar
Keasaman DAS</a></li>
        <li class="mr-lg-4 mr-2"><span><span
class="fa fa-folder-open-o"></span> <a href="data.php">Data
DAS</a></li>
        <li class="mr-lg-4 mr-2"><span><span
class="fa fa-bar-chart"></span> <a
href="peningkatan.php">Peningkatan Kadar Keasaman DAS</a></li>
        <li class="mr-lg-4 mr-2"><span><span
class="fa fa-phone"></span> <a href="contact.php">Contact</a></li>
      </ul>
    </nav>
    <!-- //nav -->
  </div>
</header>
</body>
</html>

```

5. Database_class.php

```
<?php
class database{
    private $host = "localhost";
    private $uname = "root";
    private $pass = "admin12345";
    private $db = "db_das";

    function __construct(){
        $koneksi = mysql_connect($this->host, $this->uname,
$this->pass);
        mysql_select_db($this->db);
    }
}
?>
```

6. function.php

```
<?php
include_once 'database.class.php';
class User
{
    //Database connect
    public function __construct(){
        $db = new database();
    }

    function tampil_datakeasaman(){
        $data = mysql_query("select * from tbl_keasaman ORDER BY
Kode_Keasaman DESC");
```

```

while($d = mysql_fetch_array($data)){
    $hasil[] = $d;
}
return $hasil;
}

function tampil_datadas($Kode_Das, $Nama_Das, $Panjang_Das,
$Kabupaten_Kota, $Provinsi, $Alur_Das, $Hulu_Das, $Hilir_Das,
$Karakteristik_Das, $Keterangan){
    $hasil=mysql_query("select * from tbl_das ORDER BY
Kode_Das");
}

function tampil_grapik(){
    $data_points = array();

    $result = mysql_query($con, "SELECT * FROM tbl_keasaman");

    while($row = mysql_fetch_array($result))
    {
        $point = array("x" => $row['Waktu_Monitoring'] , "y" =>
$row['Tingkat_Keasaman']);

        array_push($data_points, $point);
    }

    echo json_encode($data_points, JSON_NUMERIC_CHECK);
}
}
?>

```

7. connection.php

```

<?php
error_reporting(0);
$username = "db_das";
$password = "admin";

```



```
$hostname = "localhost";  
  
//connection to the database  
mysql_connect($hostname, $username, $password);  
  
//select a database to work with  
mysql_select_db("db_das");  
//close the connection  
  
?>
```

DAFTAR LAMPIRAN C

1. PH Probe Sensor Pinout

1	TO	Output suhu
2	DO	pemicu batas pH 3,3V
3	PO	output analog PH
4	Gnd	Gnd untuk probe PH
5	Gnd	Gnd untuk board
6	Vc	5V DC

2. Kalibrasi

Papan ini memiliki kemampuan untuk mensuplai output tegangan ke papan analog yang akan mewakili nilai PH seperti sensor lain yang akan terhubung ke pin analog.

Sepertinya PH = 0 harus disajikan oleh output 0V dan PH = 14 untuk mewakili 5V, tetapi... NO

Netral PH = 7 diatur ke 0V, ini berarti bahwa tegangan akan masuk ke minus saat membaca nilai PH asam dan jelas tidak bisa dibaca oleh port Arduino analog.

Pot offset digunakan untuk mengubah ini sehingga PH = 7 akan membaca 2.5V yang diharapkan ke pin analog Arduino, pin analog dapat membaca tegangan antara 0V dan 5V maka 2.5V yang merupakan setengah jalan antara 0V dan 5V sebagai PH = 7 adalah pertengahan antara PH 0 dan PH 14.

Anda perlu memutar potensiometer offset untuk mendapatkan offset yang tepat, pot offset adalah pot biru yang paling dekat dengan konektor BNC.

Untuk mengatur offset cukup mudah.

- a. Putuskan hubungan pendek probe dari konektor BNC.
- b. Gunakan multimeter Anda untuk menyesuaikan potensiometer offset hingga PO mengukur 2.5V
- c. Selesai

3. Diagram pengkabelan

PO	Arduino A0
GND	Arduino GND
GND	Arduino GND

4. Sketch

```
#include <Arduino.h>
int pHSense = A0;
int samples = 10;
float adc_resolution = 1024.0;

void setup()
{
  Serial.begin(9600);
  delay(100);
  Serial.println("cimpleo pH Sense");
}

float ph(float voltage){
  return 7 + ((2.5 - voltage) / 0.18);
}

void loop(){
  int measurings=0;
  for (int i = 0; i < samples; i++)
  {
```

```
    measurings += analogRead(pHSense);  
    delay(10);  
  }  
  float voltage = 5 / adc_resolution * measurings/samples;  
  Serial.print("pH= ");  
  Serial.println(ph(voltage));  
  delay(3000);  
}
```