

## LAMPIRAN

### Lampiran 1 : Untuk Program pada Arduino

```
#include <SoftwareSerial.h>
```

```
SoftwareSerial GPRS(2, 3);
```

```
long duration;
```

```
int distance;
```

```
//=====
```

```
//    UNTUK SENSOR
```

```
//=====
```

```
#define pinSensor A0 // MQ 7 : Co
```

```
#define pinSensor A1 // MQ 135 : So2
```

```
#define pinSensor A2 // MQ 136 : No2
```

```
#define pinSensor A3 // O2
```

```
//=====
```

```
void setup() {
```

```
  //powerUp();
```

```
  GPRS.begin(9600);
```

```
  Serial.begin(9600);
```

```
}
```

```
void koneksi(){
```

```
  Serial.println("Con");
```

```
  delay(2000);
```

```
  Serial.println("Done!...");
```

```
  GPRS.flush();
```

```
  Serial.flush();
```

```
  // See if the SIM900 is ready
```

```
  GPRS.println("AT");
```

```
  delay(1000);
```

```
  toSerial();
```

```

GPRS.print("at+cme=2\r");
toSerial();
// SIM card inserted and unlocked?
GPRS.println("AT+CPIN?");
delay(1000);
toSerial()
// Is the SIM card registered?
GPRS.println("AT+CREG?");
delay(1000);
toSerial();
// Is GPRS attached?
GPRS.println("AT+CGATT?");
delay(1000);
toSerial();
// Check signal strength
GPRS.println("AT+CSQ ");
delay(1000);
toSerial();
// Set connection type to GPRS
GPRS.println("AT+SAPBR=3,1,\"Contype\",\"GPRS\");
delay(2000);
toSerial();
// Set the APN
GPRS.println("AT+SAPBR=3,1,\"APN\",\"3gprs\");
delay(2000);
toSerial();
// Enable GPRS
GPRS.println("AT+SAPBR=1,1");
delay(10000);
toSerial();
// Check to see if connection is correct and get your IP address

```

```

GPRS.println("AT+SAPBR=2,1");
delay(2000);
toSerial();
}
void loop() {

//=====
//
//      UNTUK SENSOR
//=====
//
int SV0 = analogRead(A0); // membaca nilai ADC dari sensor
int SV1 = analogRead(A1); // membaca nilai ADC dari sensor
int SV2 = analogRead(A2); // membaca nilai ADC dari sensor
int SV3 = analogRead(A3); // membaca nilai ADC dari sensor
//=====
//
koneksi();
delay(5000);
GPRS.println("AT+HTTPINIT\r");
delay(1000);
toSerial();
GPRS.println("AT+HTTTPARA=\"CID\",1\r");
delay(1000);
toSerial();

GPRS.println("AT+HTTTPARA=\"URL\", \"monitoringgas.my.id/gas_tambah?sensor=1
&gas1="+String(SV0)+"&gas2="+String(SV1)+"&gas3="+String(SV2)+"&gas4="+Stri
ng(SV3)+"\"");

delay(7000);
toSerial();
GPRS.println("AT+HTTPACTION=0\r");
delay(7000);

```

```
toSerial();
GPRS.println("AT+HTTPTERM\r");
toSerial();
delay(30000);
}
void toSerial() {
  while(GPRS.available()!=0) {
    Serial.write(GPRS.read());
  }
}
```



## Lampiran 2 : Untuk Program pada Arduino

### 1. Program Untuk Tampilan Halaman Utama Pada Website

```
<!DOCTYPE html>

<html>

<head>

    <meta charset="utf-8">

    <title>Monitoring Gas</title>

    <script
src="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.bundle.js"
></script>

    <script
src="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.bundle.mi
n.js"></script>

    <script
src="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.js"></scri
pt>

    <script
src="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.min.js"></
script>

    <!-- <script src="https://cdn.jsdelivr.net/npm/chartjs-plugin-
datalabels@0.7.0"></script -->

    <link
href="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.css"
rel="stylesheet">

    <link
href="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.3/Chart.min.css"
rel="stylesheet">

    <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></s
cript>

    <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.
css">

    <style>
```

```
/* Add a black background color to the top navigation */
.topnav {
  background-color: #333;
  overflow: hidden;
}

/* Style the links inside the navigation bar */
.topnav a {
  float: left;
  color: #f2f2f2;
  text-align: center;
  padding: 14px 16px;
  text-decoration: none;
  font-size: 17px;
}

/* Change the color of links on hover */
.topnav a:hover {
  background-color: #ddd;
  color: black;
}

/* Add a color to the active/current link */
.topnav a.active {
  background-color: #4CAF50;
  color: white;
}

</style>
```

```

</head>
<body>
  <div class="topnav">
    <a class="active" href="http://monitoringgas.my.id">Home</a>
    <a href="backup">Manajemen Data</a>
    <a href="about">Info</a>
  </div>
  <?php
function pilih_tanggal($tanggal){
    $bulan = array (
        1 =>'Januari', 'Februari', 'Maret', 'April', 'Mei', 'Juni', 'Juli',
        'Agustus', 'September', 'Oktober', 'November', 'Desember'
    );
    $pecahkan = explode('-', $tanggal);
    return $pecahkan[2] . ' ' . $bulan[ (int)$pecahkan[1] ] . ' ' .
$pecahkan[0];
}
?>
<div id='container'>
  <div class="row">
    <div class='col'>
      <center>
        <h1>
          MONITORING KUALITAS UDARA DI
          GRESIK<br>PERIODE TANGGAL
        </h1>
        <select id='Gtanggal' name='Gtanggal'>
          <?php
          foreach ($Atanggal as $Titem)
          {
            echo " <option value='".$Titem->tanggal."'">".strtoupper(pilih_tanggal($Titem->tanggal))."</option>";

```



```

        }
        ?>
    </select>
    </h1>
</center>
</div>
</div>
<div id="div1"></div>
</div>
</body>
<script>
    $(document).ready(function() {
        tanggal = $("#Gtanggal").val();
        $("#div1").load("http://monitoringgas.my.id/grafik_gas", {
            "tanggal": tanggal });
        var refreshId = setInterval(function() {
            tanggal = $("#Gtanggal").val();
            $("#div1").load("http://monitoringgas.my.id/grafik_gas",
                { "tanggal": tanggal });
        }, 2000);
        $.ajaxSetup({ cache: false });
    });
</script>
</html>

```

## 2. Program Untuk Menampilkan Grafik

```

<?php
defined('BASEPATH') OR exit('No direct script access allowed');
?><!DOCTYPE html>
<html lang="en">
<head>

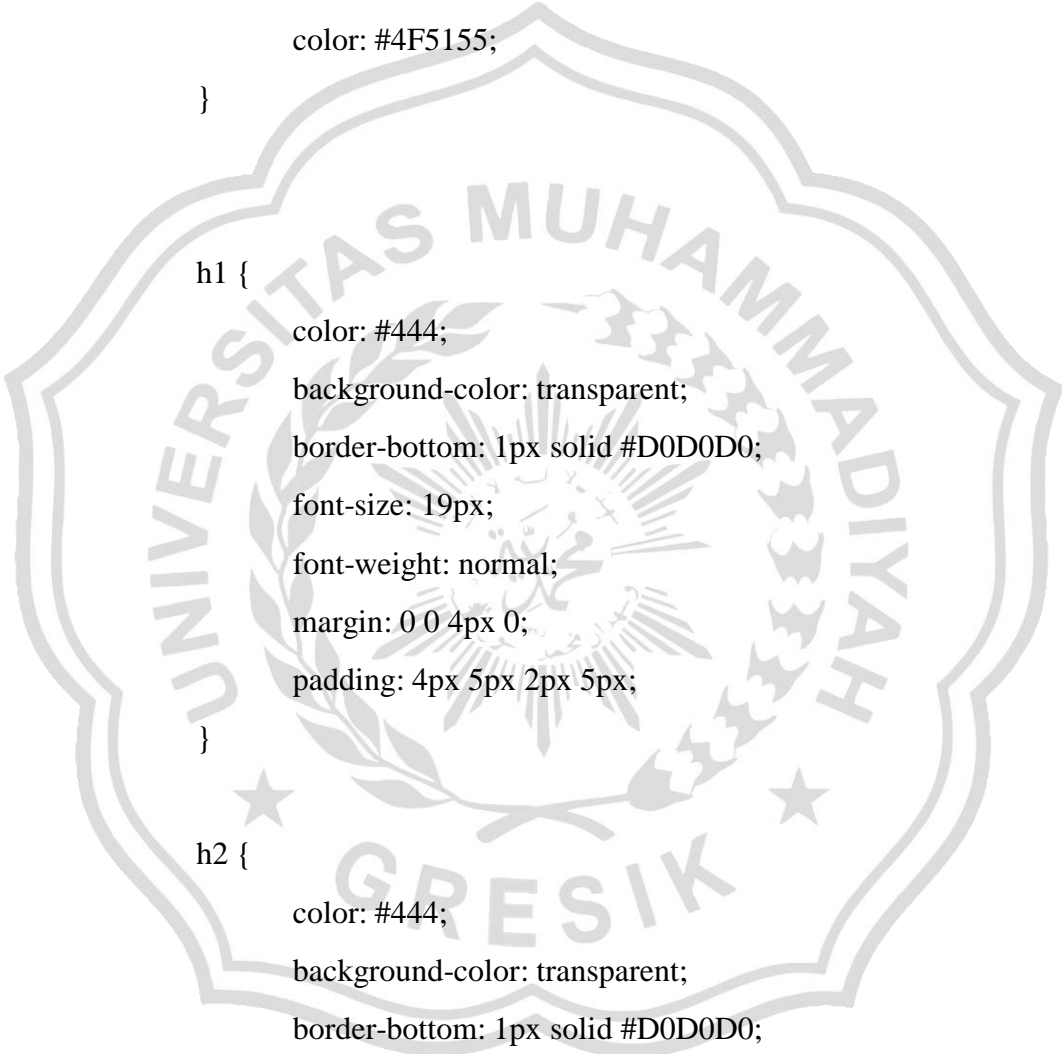
```



```
<style type="text/css">
body {
    background-color: #fff;
    margin: 0px;
    font: 13px/20px normal Helvetica, Arial, sans-serif;
    color: #4F5155;
}

h1 {
    color: #444;
    background-color: transparent;
    border-bottom: 1px solid #D0D0D0;
    font-size: 19px;
    font-weight: normal;
    margin: 0 0 4px 0;
    padding: 4px 5px 2px 5px;
}

h2 {
    color: #444;
    background-color: transparent;
    border-bottom: 1px solid #D0D0D0;
    font-size: 14px;
    font-weight: normal;
    margin: 0 0 4px 0;
    padding: 4px 5px 2px 5px;
}
```



```

code {
    font-family: Consolas, Monaco, Courier New, Courier,
monospace;
    font-size: 12px;
    background-color: #f9f9f9;
    border: 1px solid #D0D0D0;
    color: #002166;
    display: block;
    margin: 0px 0 0px 0;
    padding: 0px 0px 0px 0px;
}

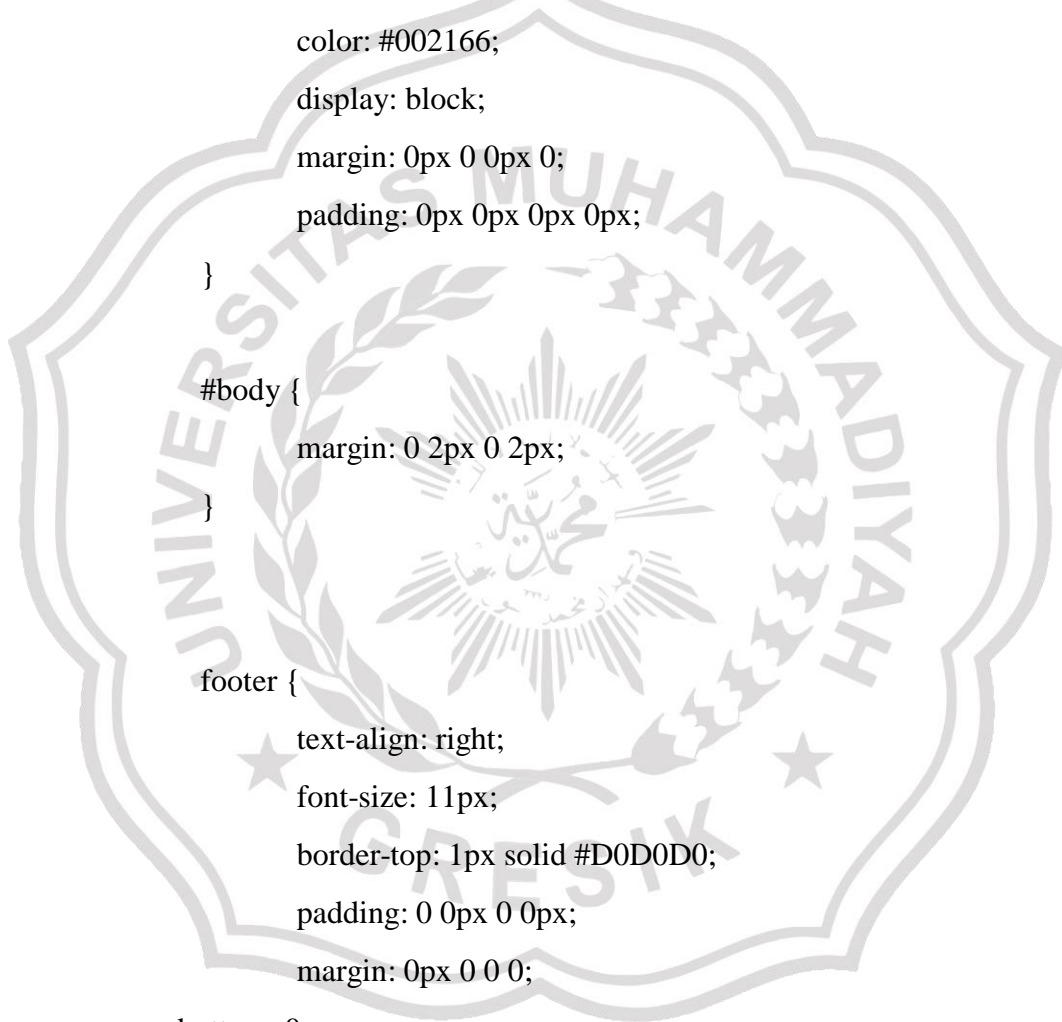
#body {
    margin: 0 2px 0 2px;
}

footer {
    text-align: right;
    font-size: 11px;
    border-top: 1px solid #D0D0D0;
    padding: 0 0px 0 0px;
    margin: 0px 0 0 0;

bottom: 0;
height: 100px;
}

#container {
    margin: 10px;

```



```

border: 1px solid #D0D0D0;
box-shadow: 0 0 8px #D0D0D0;
}

.tabel_angin
{
border: 1px solid green;
border-collapse: collapse;
}

.judul_angin
{
border: 1px solid green;
border-collapse: collapse;
background-color: #F9F9F9;
color: black;
}
</style>
</head>
<body>
<?php
function tgl_indonesia($tanggal){
    $bulan = array (
        1 =>'Januari', 'Februari', 'Maret', 'April', 'Mei', 'Juni', 'Juli',
        'Agustus', 'September', 'Oktober', 'November', 'Desember'
    );
    $pecahkan = explode('-', $tanggal);
    return $pecahkan[2] . ' ' . $bulan[ (int)$pecahkan[1] ] . ' ' .
    $pecahkan[0];
}

```

```
}
```

```
$RL = 1000; // 1000 Ohm
```

```
$RoCo2_1 = 1265;
```

```
$RoCo2_2 = 1744;
```

```
$RoNo2_1 = 4577;
```

```
$RoNo2_2 = 6308;
```

```
$RoSo2_1 = 1071;
```

```
$RoSo2_2 = 945;
```

```
$RoO3_1 = 262;
```

```
$RoO3_2 = 339;
```

```
function ppm_co2($RL,$RO,$adc){  
    $volt = ($adc*5)/1024;  
    $rs = (5 * $RL / $volt) - $RL;  
    $ppm = 100 * pow(($rs/$RO),-1.10);  
    return round($ppm,2);  
}
```

```
function ppm_no2($RL,$RO,$adc){  
    $volt = ($adc*5)/1024;  
    $rs = (5 * $RL / $volt) - $RL;  
    $ppm = 300 * pow(($rs/$RO),-1.49);  
    return round($ppm,2);  
}
```

```
function ppm_so2($RL,$RO,$adc){  
    $volt = ($adc*5)/1024;
```

```

$rs = (5 * $RRL / $volt ) - $RRL;
$ppm = 100 * pow(($rs/$RO),-1.49);
return round($ppm,2);
}
function ppm_o3($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}

```

```

//=====
//      DATA LOKASI 1
//=====
$11_gas_1 = array();
$11_gas_2 = array();
$11_gas_3 = array();
$11_gas_4 = array();
$11_d_tanggal= "";
$11_d_waktu = "";
$11_d_gas1   = null;
$11_d_gas2   = null;
$11_d_gas3   = null;
$11_d_gas4   = null;
if(count($lokasi1))
{
    foreach ($lokasi1 as $11_item)
    {

```

```
$l1_d_tanggal = $l1_item->tanggal;  
$l1_jam=$l1_item->jam;  
$l1_d_waktu .= "$l1_jam". ". ", ";
```

```
//=====
```

```
// DATA GAS CO
```

```
//=====
```

```
$l1_g1 = ppm_co2($RL, $RoCo2_1, $l1_item->gas1);  
$l1_d_gas1 .= "$l1_g1". ". ", ";
```

```
//=====
```

```
// DATA GAS SO2
```

```
//=====
```

```
$l1_g2 = ppm_no2($RL, $RoNo2_1, $l1_item->gas2);  
$l1_d_gas2 .= "$l1_g2". ". ", ";
```

```
//=====
```

```
// DATA GAS NO2
```

```
//=====
```

```
$l1_g3 = ppm_so2($RL, $RoSo2_1, $l1_item->gas3);  
$l1_d_gas3 .= "$l1_g3". ". ", ";
```

```
//=====
```

```

//      DATA GAS O2

//=====

$11_g4    = ppm_o3($RL, $RoO3_1, $11_item->gas4);
$11_d_gas4 := "$11_g4". ", ";

$11_gas_1[] = $11_g1;
$11_gas_2[] = $11_g2;
$11_gas_3[] = $11_g3;
$11_gas_4[] = $11_g4;
}
} else {
    $11_d_tanggal = date('Y-m-d');
    $11_waktu = date('H:i:s');
    $11_d_waktu := "$11_waktu". ", ";
    $11_gas1=0;
    $11_d_gas1 := "$11_gas1". ", ";
    $11_gas2=0;
    $11_d_gas2 := "$11_gas2". ", ";
    $11_gas3=0;
    $11_d_gas3 := "$11_gas3". ", ";
    $11_gas4=0;
    $11_d_gas4 := "$11_gas4". ", ";

    $11_gas_1[] = $11_gas1;
    $11_gas_2[] = $11_gas2;
    $11_gas_3[] = $11_gas3;
    $11_gas_4[] = $11_gas4;
}
$11_a = array($11_gas_1, $11_gas_2, $11_gas_3, $11_gas_4);

```



```
$11_result_a = array_reduce($11_a, 'array_merge', array());
```

```
$11_tanggal = tgl_indonesia($11_d_tanggal);
```

```
//=====
```

```
//      DATA LOKASI 2
```

```
//=====
```

```
$12_gas_1 = array();
```

```
$12_gas_2 = array();
```

```
$12_gas_3 = array();
```

```
$12_gas_4 = array();
```

```
$12_d_tanggal= "";
```

```
$12_d_waktu = "";
```

```
$12_d_gas1      = null;
```

```
$12_d_gas2      = null;
```

```
$12_d_gas3      = null;
```

```
$12_d_gas4      = null;
```

```
if(count($lokasi2))
```

```
{
```

```
    foreach ($lokasi2 as $12_item)
```

```
    {
```

```
        $12_d_tanggal = $12_item->tanggal;
```

```
        $12_jam=$12_item->jam;
```

```
        $12_d_waktu .= "$12_jam". ", ";
```

```
//=====
```

```
//      DATA GAS CO
```

```
//=====
$12_g1 = ppm_co2($RL, $RoCo2_2, $12_item->gas1);
$12_d_gas1 .= "$12_g1". ", ";
```

```
//=====
// DATA GAS SO2
```

```
//=====
$12_g2 = ppm_no2($RL, $RoNo2_2, $12_item->gas2);
$12_d_gas2 .= "$12_g2". ", ";
```

```
//=====
// DATA GAS NO2
```

```
//=====
$12_g3 = ppm_so2($RL, $RoSo2_2, $12_item->gas3);
$12_d_gas3 .= "$12_g3". ", ";
```

```
//=====
// DATA GAS O2
```

```
//=====
$12_g4 = ppm_o3($RL, $RoO3_2, $12_item->gas4);
$12_d_gas4 .= "$12_g4". ", ";
```

```
$12_gas_1[] = $12_g1;
```

```

        $I2_gas_2[] = $I2_g2;
        $I2_gas_3[] = $I2_g3;
        $I2_gas_4[] = $I2_g4;
    }
} else {

    $I2_d_tanggal = date('Y-m-d');
    $I2_waktu = date('H:i:s');
    $I2_d_waktu .= "$I2_waktu". ", ";
    $I2_gas1=0;
    $I2_d_gas1 .= "$I2_gas1". ", ";
    $I2_gas2=0;
    $I2_d_gas2 .= "$I2_gas2". ", ";
    $I2_gas3=0;
    $I2_d_gas3 .= "$I2_gas3". ", ";
    $I2_gas4=0;
    $I2_d_gas4 .= "$I2_gas4". ", ";

    $I2_gas_1[] = $I2_gas1;
    $I2_gas_2[] = $I2_gas2;
    $I2_gas_3[] = $I2_gas3;
    $I2_gas_4[] = $I2_gas4;
}
$I2_a = array($I2_gas_1, $I2_gas_2, $I2_gas_3, $I2_gas_4);
$I2_result_a = array_reduce($I2_a, 'array_merge', array());

$I2_tanggal = tgl_indonesia($I2_d_tanggal);

?>

```

```

<div class="row">
    <div class='col' style='text-align:center; margin-left:5px; margin-
right:5px;'>
        <code><canvas    id="CanvasLokasi1"    style='position:relative;
width:600px;'></canvas></code>
    </div>
    <div class='col' style='text-align:center; margin-left:5px; margin-
right:5px;'>
        <code><canvas    id="CanvasLokasi2"    style='position:relative;
width:600px;'></canvas></code>
    </div>
    <div class='col' style='text-align:center; margin-left:5px; margin-
right:5px;'>
        <table width='100%' class='tabel_angin'>
            <tr>
                <td align='center' colspan='4'><h2>DATA ARAH MATA
ANGIN BERDASARKAN BMKG</h2></td>
            </tr>
            <tr>
                <th width='5%' class='judul_angin'>NO</th>
                <th width='25%' class='judul_angin'>WAKTU</th>
                <th class='judul_angin'>ARAH MATA ANGIN</th>
                <th width='15%' class='judul_angin'>KECEPATAN</th>
            </tr>
        </table>
        <?php
            if(count($angin))
            {
                $no=1;
                foreach ($angin as $item)

```

```

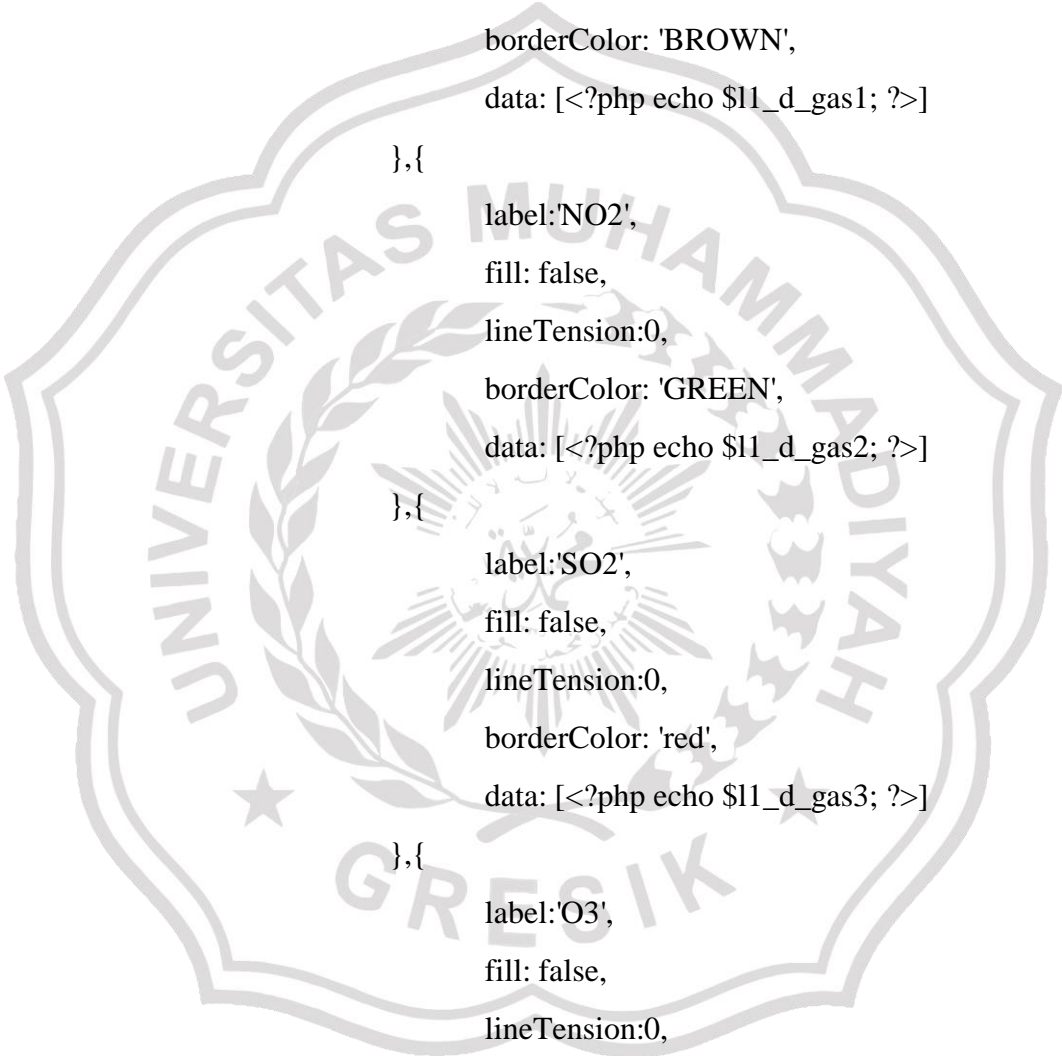
    {
        echo "<tr>
            <td align='center' class='tabel_angin'>$no</td>
            <td align='center' class='tabel_angin'>".$item->jam."</td>
            <td class='tabel_angin'>".$item->arah."</td>
            <td
                class='tabel_angin'>".$item->kecepatan."
KM/JAM</td>
            </tr>";
            $no++;
        }
    } else {
        echo "
            <tr><td align='center' class='tabel_angin'
colspan=4>Data Kosong</td></tr>";
    }
?>
</table>
</div>
</div>
<footer class="mt-auto">
    <div class='col'>
        <p class="footer">Skripsi: Mochammad Rama Prasetya |
16631021</p>
    </div>
</footer>
<script>
function grafik_gas_1()
{
    var
        ctx
        =
document.getElementById('CanvasLokasi1').getContext('2d');
    var chart = new Chart(ctx, {
        type: 'line',

```

```

data: {
  labels: [<?php echo $l1_d_waktu; ?>],
  datasets: [{
    label:'CO',
    fill: false,
    lineTension:0,
    borderColor: 'BROWN',
    data: [<?php echo $l1_d_gas1; ?>]
  },{
    label:'NO2',
    fill: false,
    lineTension:0,
    borderColor: 'GREEN',
    data: [<?php echo $l1_d_gas2; ?>]
  },{
    label:'SO2',
    fill: false,
    lineTension:0,
    borderColor: 'red',
    data: [<?php echo $l1_d_gas3; ?>]
  },{
    label:'O3',
    fill: false,
    lineTension:0,
    borderColor: 'blue',
    data: [<?php echo $l1_d_gas4; ?>]
  ]
},
options: {

```



```

        animation: false,
        title: {
            display: true,
            text: ["LOKASI KECAMATAN MANYAR", "DATA ADC
SATUAN ppm"]
        },
        legend: {
            display: true
        },
        scales: {
            yAxes: [{
                ticks: {
                    beginAtZero: true,
                    max: <?php echo
round(max($l1_result_a)+5); ?>,
                }
            }],
        },
    });
}

grafik_gas_1();

function grafik_gas_2()
{
    var ctx = document.getElementById('CanvasLokasi2').getContext('2d');
    var chart = new Chart(ctx, {
        type: 'line',

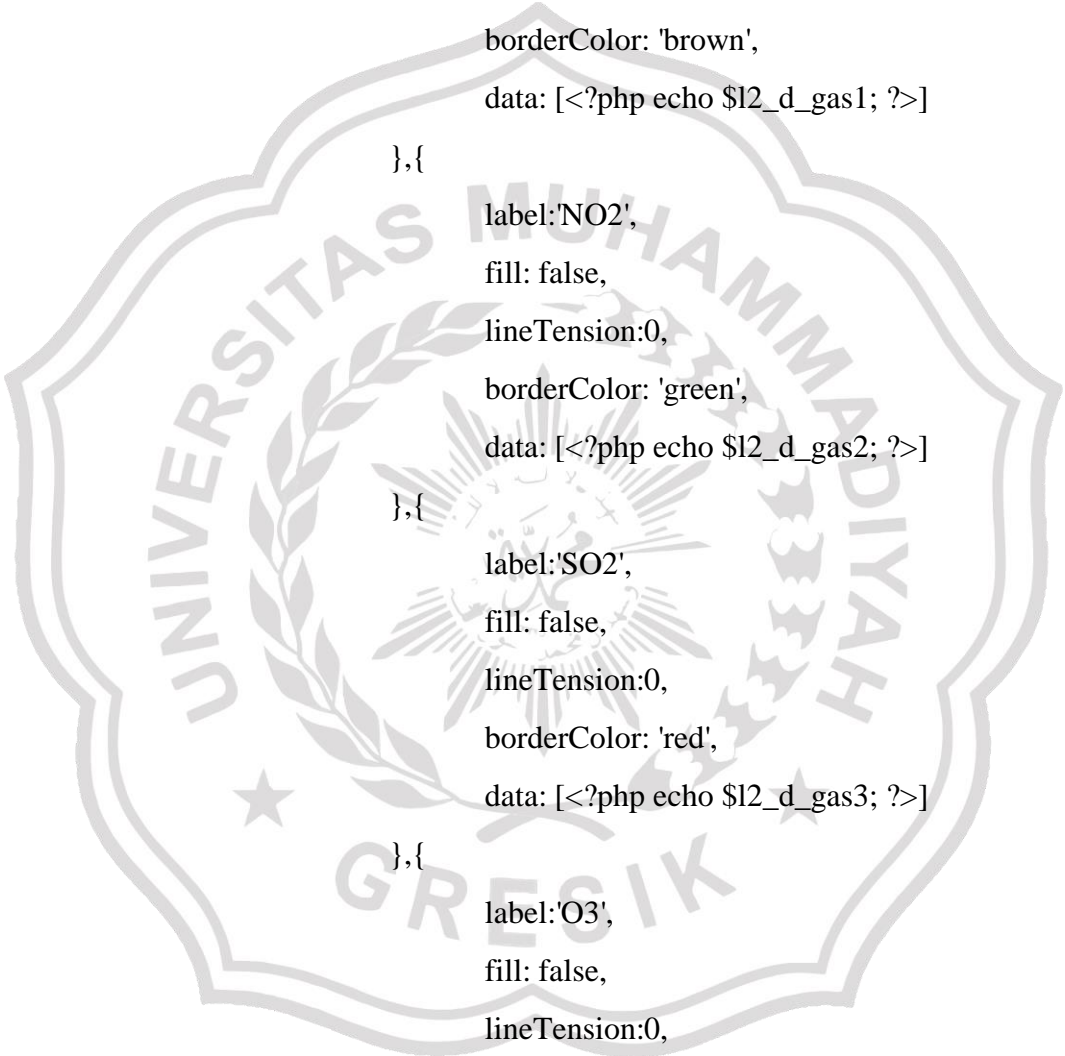
```



```

data: {
  labels: [<?php echo $I2_d_waktu; ?>],
  datasets: [{
    label:'CO',
    fill: false,
    lineTension:0,
    borderColor: 'brown',
    data: [<?php echo $I2_d_gas1; ?>]
  },{
    label:'NO2',
    fill: false,
    lineTension:0,
    borderColor: 'green',
    data: [<?php echo $I2_d_gas2; ?>]
  },{
    label:'SO2',
    fill: false,
    lineTension:0,
    borderColor: 'red',
    data: [<?php echo $I2_d_gas3; ?>]
  },{
    label:'O3',
    fill: false,
    lineTension:0,
    borderColor: 'blue',
    data: [<?php echo $I2_d_gas4; ?>]
  ]
},
options: {

```



```

        animation: false,
        title: {
            display: true,
            text: ["LOKASI KECAMATAN GRESIK", "DATA ADC
SATUAN ppm"]
        },
        legend: {
            display: true
        },
        scales: {
            yAxes: [{
                ticks: {
                    beginAtZero: true,
                    max: <?php echo
round(max($I2_result_a)+5); ?>,
                }
            }],
        },
    });
}
grafik_gas_2();

```

```
</script>
```

```
</body>
```

```
</html>
```

### 3. Program Untuk Menampilkan Grafik

```
<?php
```

```
defined('BASEPATH') OR exit('No direct script access allowed');
```

```
?><!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<style type="text/css">
```

```
body {
```

```
background-color: #fff;
```

```
margin: 0px;
```

```
font: 13px/20px normal Helvetica, Arial, sans-serif;
```

```
color: #4F5155;
```

```
}
```

```
h1 {
```

```
color: #444;
```

```
background-color: transparent;
```

```
border-bottom: 1px solid #D0D0D0;
```

```
font-size: 19px;
```

```
font-weight: normal;
```

```
margin: 0 0 4px 0;
```

```
padding: 4px 5px 2px 5px;
```

```
}
```

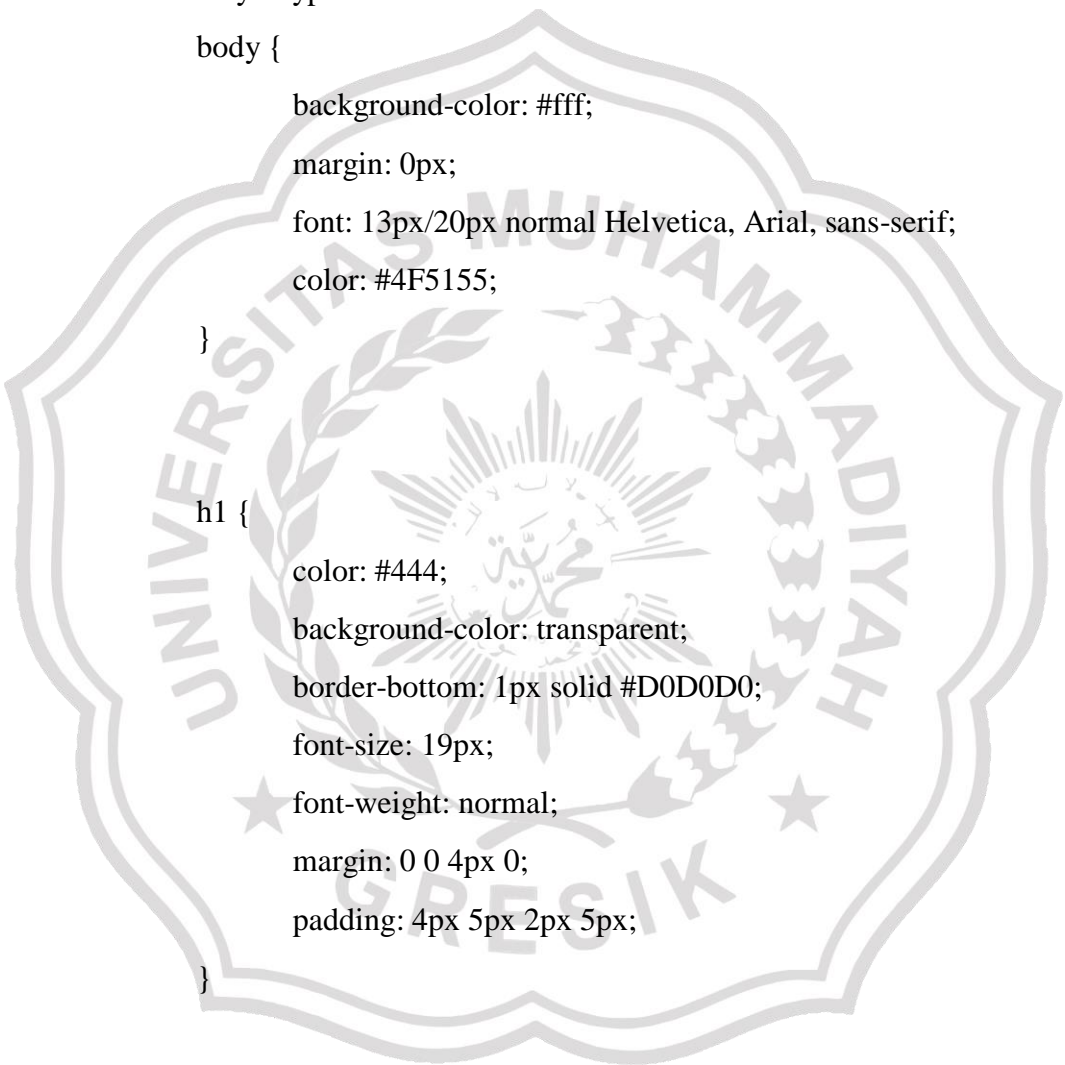
```
h2 {
```

```
color: #444;
```

```
background-color: transparent;
```

```
border-bottom: 1px solid #D0D0D0;
```

```
font-size: 14px;
```

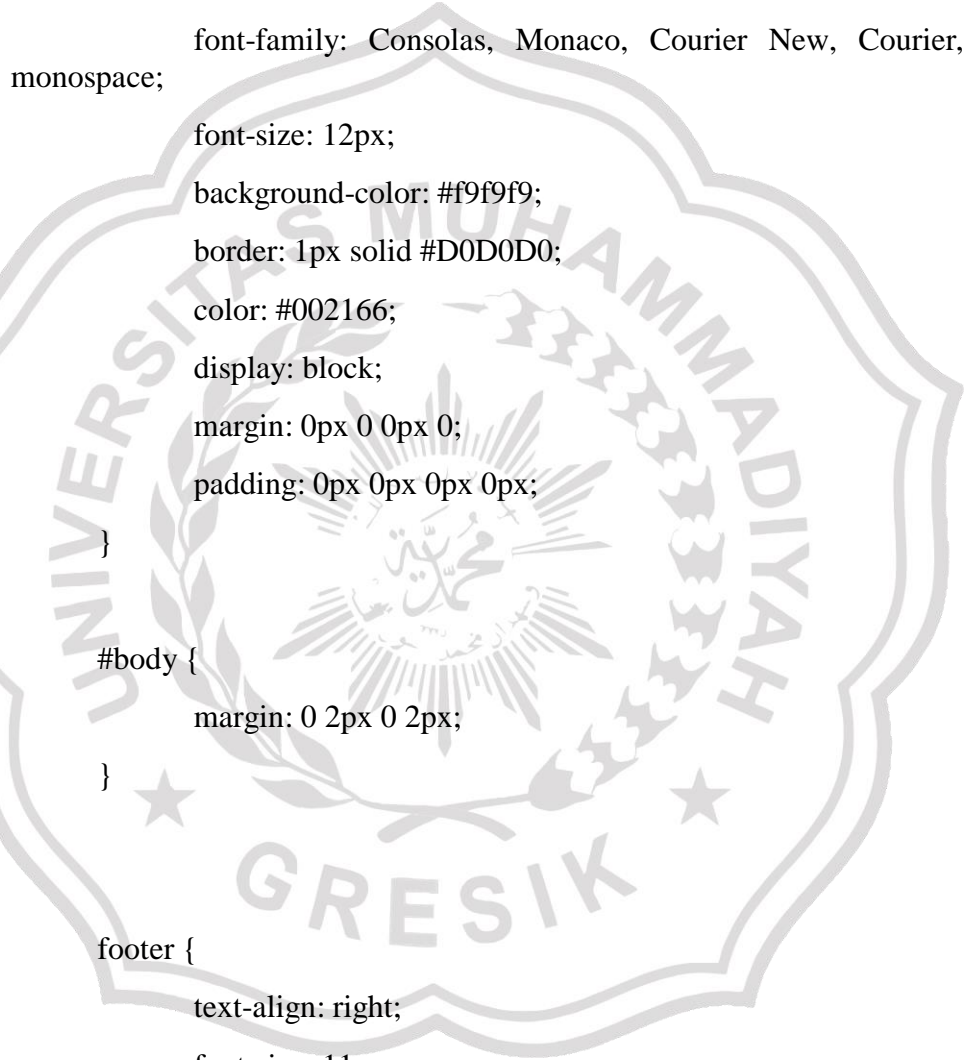


```
font-weight: normal;
margin: 0 0 4px 0;
padding: 4px 5px 2px 5px;
}

code {
font-family: Consolas, Monaco, Courier New, Courier,
monospace;
font-size: 12px;
background-color: #f9f9f9;
border: 1px solid #D0D0D0;
color: #002166;
display: block;
margin: 0px 0 0px 0;
padding: 0px 0px 0px 0px;
}

#body {
margin: 0 2px 0 2px;
}

footer {
text-align: right;
font-size: 11px;
border-top: 1px solid #D0D0D0;
padding: 0 0px 0 0px;
margin: 0px 0 0 0;
bottom: 0;
height: 100px;
```

The image features a large, semi-transparent watermark of the Universitas Muhammadiyah Gresik logo. The logo is circular with a scalloped border. Inside the circle, there is a central emblem with Arabic calligraphy and a star. The text 'UNIVERSITAS MUHAMMADIYAH' is written along the top inner edge, and 'GRESIK' is written along the bottom inner edge. Two stars are positioned on the left and right sides of the bottom inner edge.

```

    }

    #container {
        margin: 10px;
        border: 1px solid #D0D0D0;
        box-shadow: 0 0 8px #D0D0D0;
    }

    .tabel_angin
    {
        border: 1px solid green;
        border-collapse: collapse;
    }

    .judul_angin
    {
        border: 1px solid green;
        border-collapse: collapse;
        background-color: #F9F9F9;
        color: black;
    }
</style>

</head>
<body>
<?php
function tgl_indonesia($tanggal){
    $bulan = array (
        1 =>'Januari', 'Februari', 'Maret', 'April', 'Mei', 'Juni', 'Juli',
        'Agustus', 'September', 'Oktober', 'November', 'Desember'

```

```

);
$pecahkan = explode('-', $tanggal);
return $pecahkan[2] . ' ' . $bulan[ (int)$pecahkan[1] ] . ' ' .
$pecahkan[0];
}

```

```
$RRL = 1000; // 1000 Ohm
```

```
$RoCo2_1 = 1265;
```

```
$RoCo2_2 = 1744;
```

```
$RoNo2_1 = 4577;
```

```
$RoNo2_2 = 6308;
```

```
$RoSo2_1 = 1071;
```

```
$RoSo2_2 = 945;
```

```
$RoO3_1 = 262;
```

```
$RoO3_2 = 339;
```

```

function ppm_co2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.10);
    return round($ppm,2);
}

```

```

function ppm_no2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 300 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}

```

```

}
function ppm_so2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}
function ppm_o3($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}

//=====
//      DATA LOKASI 1
//=====
$11_gas_1 = array();
$11_gas_2 = array();
$11_gas_3 = array();
$11_gas_4 = array();
$11_d_tanggal= "";
$11_d_waktu = "";
$11_d_gas1      = null;
$11_d_gas2      = null;
$11_d_gas3      = null;
$11_d_gas4      = null;
if(count($lokasi1))

```



```

{
  foreach ($lokasi1 as $l1_item)
  {
    $l1_d_tanggal = $l1_item->tanggal;
    $l1_jam=$l1_item->jam;
    $l1_d_waktu .= "$l1_jam". ", ";

    //=====
    //      DATA GAS CO
    //=====
    $l1_g1    = ppm_co2($RL, $RoCo2_1, $l1_item->gas1);
    $l1_d_gas1 .= "$l1_g1". ", ";

    //=====
    //      DATA GAS SO2
    //=====
    $l1_g2    = ppm_no2($RL, $RoNo2_1, $l1_item->gas2);
    $l1_d_gas2 .= "$l1_g2". ", ";

    //=====
    //      DATA GAS NO2
    //=====
    $l1_g3    = ppm_so2($RL, $RoSo2_1, $l1_item->gas3);
    $l1_d_gas3 .= "$l1_g3". ", ";
  }
}

```

```

=====
//
//      DATA GAS O2
//
=====

$11_g4    = ppm_o3($RL, $RoO3_1, $11_item->gas4);
$11_d_gas4 .= "$11_g4". ", ";

$11_gas_1[] = $11_g1;
$11_gas_2[] = $11_g2;
$11_gas_3[] = $11_g3;
$11_gas_4[] = $11_g4;
}
} else {
    $11_d_tanggal = date('Y-m-d');
    $11_waktu = date('H:i:s');
    $11_d_waktu .= "$11_waktu". ", ";
    $11_gas1=0;
    $11_d_gas1 .= "$11_gas1". ", ";
    $11_gas2=0;
    $11_d_gas2 .= "$11_gas2". ", ";
    $11_gas3=0;
    $11_d_gas3 .= "$11_gas3". ", ";
    $11_gas4=0;
    $11_d_gas4 .= "$11_gas4". ", ";

    $11_gas_1[] = $11_gas1;
    $11_gas_2[] = $11_gas2;
    $11_gas_3[] = $11_gas3;

```

```

        $l1_gas_4[] = $l1_gas4;
    }
    $l1_a = array($l1_gas_1, $l1_gas_2, $l1_gas_3, $l1_gas_4);
    $l1_result_a = array_reduce($l1_a, 'array_merge', array());
    $l1_tanggal = tgl_indonesia($l1_d_tanggal);

```

```

//=====
//          DATA LOKASI 2
//=====
$l2_gas_1 = array();
$l2_gas_2 = array();
$l2_gas_3 = array();
$l2_gas_4 = array();
$l2_d_tanggal= "";
$l2_d_waktu = "";
$l2_d_gas1      = null;
$l2_d_gas2      = null;
$l2_d_gas3      = null;
$l2_d_gas4      = null;
if(count($lokasi2))
{
    foreach ($lokasi2 as $l2_item)
    {
        $l2_d_tanggal = $l2_item->tanggal;
        $l2_jam=$l2_item->jam;
        $l2_d_waktu .= "$l2_jam". " ", ";

```

```
//=====
```

```
// DATA GAS CO
```

```
//=====
```

```
$I2_g1 = ppm_co2($RL, $RoCo2_2, $I2_item->gas1);
```

```
$I2_d_gas1 := "$I2_g1". ", ";
```

```
//=====
```

```
// DATA GAS SO2
```

```
//=====
```

```
$I2_g2 = ppm_no2($RL, $RoNo2_2, $I2_item->gas2);
```

```
$I2_d_gas2 := "$I2_g2". ", ";
```

```
//=====
```

```
// DATA GAS NO2
```

```
//=====
```

```
$I2_g3 = ppm_so2($RL, $RoSo2_2, $I2_item->gas3);
```

```
$I2_d_gas3 := "$I2_g3". ", ";
```

```
//=====
```

```
// DATA GAS O2
```

```
//=====
```

```
$I2_g4 = ppm_o3($RL, $RoO3_2, $I2_item->gas4);
```

```

    $I2_d_gas4 .= "$I2_g4". ", ";

    $I2_gas_1[] = $I2_g1;
    $I2_gas_2[] = $I2_g2;
    $I2_gas_3[] = $I2_g3;
    $I2_gas_4[] = $I2_g4;
}
} else {
    $I2_d_tanggal = date('Y-m-d');
    $I2_waktu = date('H:i:s');
    $I2_d_waktu .= "$I2_waktu". ", ";
    $I2_gas1=0;
    $I2_d_gas1 .= "$I2_gas1". ", ";
    $I2_gas2=0;
    $I2_d_gas2 .= "$I2_gas2". ", ";
    $I2_gas3=0;
    $I2_d_gas3 .= "$I2_gas3". ", ";
    $I2_gas4=0;
    $I2_d_gas4 .= "$I2_gas4". ", ";

    $I2_gas_1[] = $I2_gas1;
    $I2_gas_2[] = $I2_gas2;
    $I2_gas_3[] = $I2_gas3;
    $I2_gas_4[] = $I2_gas4;
}
$I2_a = array($I2_gas_1, $I2_gas_2, $I2_gas_3, $I2_gas_4);
$I2_result_a = array_reduce($I2_a, 'array_merge', array());

$I2_tanggal = tgl_indonesia($I2_d_tanggal);

```

?>

```
<div class="row">
```

```
    <div class='col' style='text-align:center; margin-left:5px; margin-right:5px;'>
```

```
        <code><canvas id="CanvasLokasi1" style='position:relative; width:600px;'></canvas></code>
```

```
    </div>
```

```
    <div class='col' style='text-align:center; margin-left:5px; margin-right:5px;'>
```

```
        <code><canvas id="CanvasLokasi2" style='position:relative; width:600px;'></canvas></code>
```

```
    </div>
```

```
    <div class='col' style='text-align:center; margin-left:5px; margin-right:5px;'>
```

```
        <table width='100%' class='tabel_angin'>
```

```
        <tr>
```

```
            <td align='center' colspan='4'><h2>DATA ARAH MATA ANGIN BERDASARKAN BMKG</h2></td>
```

```
        </tr>
```

```
        <tr>
```

```
            <th width='5%' class='judul_angin'>NO</th>
```

```
            <th width='25%' class='judul_angin'>WAKTU</th>
```

```
            <th class='judul_angin'>ARAHA MATA ANGIN</th>
```

```
            <th width='15%' class='judul_angin'>KECEPATAN</th>
```

```
        </tr>
```

```
    <?php
```

```
        if(count($angin))
```

```

    {
        $no=1;
        foreach ($angin as $item)
        {
            echo "<tr>
                <td align='center' class='tabel_angin'>$no</td>
                <td align='center' class='tabel_angin'>". $item->jam."</td>
                <td class='tabel_angin'>". $item->arah."</td>
                <td
                    class='tabel_angin'>". $item->kecepatan."
KM/JAM</td>
                </tr>";
            $no++;
        }
    } else {
        echo " <tr><td align='center' class='tabel_angin'
colspan='4'>Data Kosong</td></tr>";
    }
    ?>
</table>
</div>
</div>
<footer class="mt-auto">
    <div class='col'>
        <p class="footer">Skripsi: Mochammad Rama Prasetya |
16631021</p>
    </div>
</footer>
<script>
function grafik_gas_1()
{

```



```

var                                ctx                                =
document.getElementById('CanvasLokasi1').getContext('2d');

var chart = new Chart(ctx, {
    type: 'line',
    data: {
        labels: [<?php echo $l1_d_waktu; ?>],
        datasets: [{
            label:'CO',
            fill: false,
            lineTension:0,
            borderColor: 'BROWN',
            data: [<?php echo $l1_d_gas1; ?>]
        },{
            label:'NO2',
            fill: false,
            lineTension:0,
            borderColor: 'GREEN',
            data: [<?php echo $l1_d_gas2; ?>]
        },{
            label:'SO2',
            fill: false,
            lineTension:0,
            borderColor: 'red',
            data: [<?php echo $l1_d_gas3; ?>]
        },{
            label:'O3',
            fill: false,
            lineTension:0,
            borderColor: 'blue',
            data: [<?php echo $l1_d_gas4; ?>]
        }
    ]
});

```

```

        ]]
    },
    options: {
        animation: false,
        title: {
            display: true,
            text: ["LOKASI KECAMATAN MANYAR", "DATA ADC
SATUAN ppm"]
        },
        legend: {
            display: true
        },
        scales: {
            yAxes: [{
                ticks: {
                    beginAtZero: true,
                    max: <?php echo
round(max($l1_result_a)+5); ?>,
                }
            }]
        },
    }
});
}

```

```
grafik_gas_1());
```

```
function grafik_gas_2()
{
```

```

var                                ctx                                =
document.getElementById('CanvasLokasi2').getContext('2d');

var chart = new Chart(ctx, {
    type: 'line',
    data: {
        labels: [<?php echo $I2_d_waktu; ?>],
        datasets: [{
            label:'CO',
            fill: false,
            lineTension:0,
            borderColor: 'brown',
            data: [<?php echo $I2_d_gas1; ?>]
        },{
            label:'NO2',
            fill: false,
            lineTension:0,
            borderColor: 'green',
            data: [<?php echo $I2_d_gas2; ?>]
        },{
            label:'SO2',
            fill: false,
            lineTension:0,
            borderColor: 'red',
            data: [<?php echo $I2_d_gas3; ?>]
        },{
            label:'O3',
            fill: false,
            lineTension:0,
            borderColor: 'blue',
            data: [<?php echo $I2_d_gas4; ?>]
        }
    ]
});

```

```

        ]]
    },
    options: {
        animation: false,
        title: {
            display: true,
            text: ["LOKASI KECAMATAN GRESIK", "DATA ADC
SATUAN ppm"]
        },
        legend: {
            display: true
        },
        scales: {
            yAxes: [{
                ticks: {
                    beginAtZero: true,
                    max: <?php echo
round(max($I2_result_a)+5); ?>,
                }
            }]
        },
    }
});
}

```

```
grafik_gas_2());
```

```
</script>
```

```
</body>
```

```
</html>
```

#### 4. Program Untuk Backup Data

```

<!DOCTYPE html>

<html>
<head>
  <meta charset="utf-8">
  <title>Monitoring Gas</title>

  <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/twitter-
bootstrap/4.1.3/css/bootstrap.css">

  <link rel="stylesheet"
href="https://cdn.datatables.net/1.10.21/css/dataTables.bootstrap4.min.css
">

  <link rel="stylesheet"
href="https://cdn.datatables.net/responsive/2.2.5/css/responsive.bootstrap
4.min.css">

  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">

  <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></s
cript>

  <script
src="https://cdn.datatables.net/1.10.21/js/jquery.dataTables.min.js"></scri
pt>

  <script
src="https://cdn.datatables.net/1.10.21/js/dataTables.bootstrap4.min.js"><
/script>

  <script
src="https://getbootstrap.com/docs/4.1/dist/js/bootstrap.min.js"></script>

  <style>
  /* Add a black background color to the top navigation */
  .topnav {
    background-color: #333;

```

```
overflow: hidden;
}
```

```
/* Style the links inside the navigation bar */
```

```
.topnav a {
float: left;
color: #f2f2f2;
text-align: center;
padding: 14px 16px;
text-decoration: none;
font-size: 17px;
}
```

```
/* Change the color of links on hover */
```

```
.topnav a:hover {
background-color: #ddd;
color: black;
}
```

```
/* Add a color to the active/current link */
```

```
.topnav a.active {
background-color: #4CAF50;
color: white;
}
```

```
body {
```

```
background-color: #fff;
```

```
margin: 0px;
```

```
font: 13px/20px normal Helvetica, Arial, sans-serif;
```

```
color: #4F5155;
}
```

```
h1 {
color: #444;
background-color: transparent;
border-bottom: 1px solid #D0D0D0;
font-size: 19px;
font-weight: normal;
margin: 0 0 4px 0;
padding: 4px 5px 2px 5px;
}
```

```
h2 {
color: #444;
background-color: transparent;
border-bottom: 1px solid #D0D0D0;
font-size: 14px;
font-weight: normal;
margin: 0 0 4px 0;
padding: 4px 5px 2px 5px;
}
```

```
code {
font-family: Consolas, Monaco, Courier New, Courier,
monospace;
font-size: 12px;
background-color: #f9f9f9;
border: 1px solid #D0D0D0;
```



```
color: #002166;
display: block;
margin: 0px 0 0px 0;
padding: 0px 0px 0px 0px;
}
```

```
#body {
margin: 0 2px 0 2px;
}
```

```
footer {
text-align: right;
font-size: 11px;
border-top: 1px solid #D0D0D0;
padding: 0 0px 0 0px;
margin: 0px 0 0 0;
bottom: 0;
height: 100px;
}
```

```
#container {
margin: 10px;
border: 1px solid #D0D0D0;
box-shadow: 0 0 8px #D0D0D0;
}
```

```
.tabel_angin
{
border: 1px solid green;
```

```

        border-collapse: collapse;
    }

    .judul_angin
    {
        border: 1px solid green;
        border-collapse: collapse;
        background-color: #F9F9F9;
        color: black;
    }
</style>
</head>
<body>
    <div class="topnav">
        <a href="http://monitoringgas.my.id">Home</a>
        <a class="active" href="http://monitoringgas.my.id/backup">Manajemen
        Data</a>
        <a href="about">About</a>
    </div>
    <div id='container'>
        <div class="row">
            <div class='col'>
                <center><h1>DOWNLOAD DATA SENSOR</h1></center>
            </div>
        </div>
        <div class="row">
            <div class='col' style='text-align:center; margin:15px 15px 15px
            15px;'>
                <h1>DATA MONITORING GAS PER HARI</h1>

```

```
<table width='100%' id='data_gas' class="table table-striped table-bordered">
```

```
<thead>
```

```
<tr>
```

```
<th width='5%'>NO</th>
```

```
<th>TANGGAL</th>
```

```
<th>LOKASI</th>
```

```
<th>JUMLAH DATA</th>
```

```
<th width='5%'>DOWNLOAD</th>
```

```
</tr>
```

```
</thead>
```

```
<tbody>
```

```
<?php
```

```
function namalokasi($id) {
```

```
    $nama='-';
```

```
    if($id==1) { $nama = 'KECAMATAN MANYAR'; } else
```

```
    if($id==2) { $nama = 'KECAMATAN KEBOMAS'; }
```

```
    return $nama;
```

```
}
```

```
function tgl_indonesia($tanggal){
```

```
    $bulan = array (
```

```
        1 =>'Januari', 'Februari', 'Maret', 'April', 'Mei', 'Juni',  
'Juli', 'Agustus', 'September', 'Oktober', 'November', 'Desember'
```

```
    );
```

```
    $pecahkan = explode('-', $tanggal);
```

```
    return $pecahkan[2] . ' ' . $bulan[ (int)$pecahkan[1] ] . ' ' .  
    $pecahkan[0];
```

```
}
```

```
if(count($gas))
```



```
<div class='col' style='text-align:center; margin:15px 15px 15px 15px;'>
```

```
<h1>DATA MONITORING GAS PER BULAN</h1>
```

```
<table width='100%' id='data_gas_bulan' class="table table-striped table-bordered">
```

```
<thead>
```

```
<tr>
```

```
<th width='5%'>NO</th>
```

```
<th>TAHUN</th>
```

```
<th>BULAN</th>
```

```
<th>LOKASI</th>
```

```
<th>JUMLAH DATA</th>
```

```
<th width='5%'>DOWNLOAD</th>
```

```
</tr>
```

```
</thead>
```

```
<tbody>
```

```
<?php
```

```
$bulan = array (
```

```
1 =>'Januari', 'Februari', 'Maret', 'April', 'Mei', 'Juni',  
'Juli', 'Agustus', 'September', 'Oktober', 'November', 'Desember'
```

```
);
```

```
if(count($bgas))
```

```
{
```

```
$no=1;
```

```
foreach ($bgas as $item)
```

```
{
```

```
echo "<tr>
```

```
<td align='center'>$no</td>
```

```
<td align='center'>".$item->tahun."</td>
```



```

<thead>
    <tr>
        <th width='5%'>NO</th>
        <th>TANGGAL</th>
        <th>JAM</th>
        <th>ARAH</th>
        <th>KECEPATAN</th>
        <th width='5%'>HAPUS</th>
    </tr>
</thead>
<tbody>
    <?php
    if(count($angin))
    {
        $sno=1;
        foreach ($angin as $item)
        {
            echo "<tr>
                <td align='center'>$sno</td>
                <td align='center'>".tgl_indonesia($item-
>tanggal)."</td>
                <td align='center'>".$item->jam."</td>
                <td>".$item->arah."</td>
                <td>".$item->kecepatan." KM/JAM</td>
                <td><a href='".base_url('backup/hapus_arah/'.$item-
>id)."'><i class='fa fa-trash fa-lg' aria-hidden='true'></i></a></td>
            </tr>";
            $sno++;
        }
    } else {

```



```

        echo "<tr><td align='center' colspan='6'>Data
Kosong</td></tr>";
    }
    ?>
</tbody>
</table>
</div>
</div>
</div>

```

```

<div class="modal fade" id="exampleModal" tabindex="-1" role="dialog"
aria-labelledby="exampleModalLabel" aria-hidden="true">
  <div class="modal-dialog" role="document">
    <div class="modal-content">
      <div class="modal-header">
        <h5 class="modal-title" id="exampleModalLabel">Modal title</h5>
        <button type="button" class="close" data-dismiss="modal" aria-
label="Close">
          <span aria-hidden="true">&times;</span>
        </button>
      </div>
      <form action="<?=base_url('backup/simpan');?>" method="post">
        <div class="modal-body">
          <div class="form-row">
            <div class="form-group col-md-6">
              <label for="tanggal">Tanggal</label>
              <input type="text" class="form-control" value="<?php echo
date('Y-m-d');?>" id="tanggal" name="tanggal">

```

```

</div>
<div class="form-group col-md-6">
  <label for="jam">Jam</label>
  <input type="text" class="form-control" value="<?php echo
date('H:i:s');?>" id="jam" name="jam">
</div>
</div>
<div class="form-row">
  <div class="form-group col-md-6">
    <label for="arah">Arah Mata Angin</label>
    <select id="arah" name="arah" class="form-control">
      <option value='Timur'>Timur</option>
      <option value='Tenggara'>Tenggara</option>
      <option value='Selatan'>Selatan</option>
      <option value='Barat Daya'>Barat Daya</option>
      <option value='Barat'>Barat</option>
      <option value='Barat Laut'>Barat Laut</option>
      <option value='Utara'>Utara</option>
      <option value='Timur Laut'>Timur Laut</option>
    </select>
  </div>
  <div class="form-group col-md-6">
    <label for="kecepatan">Kecepatan</label>
    <input type="text" class="form-control" placeholder="0"
id="kecepatan" name="kecepatan">
  </div>
</div>
</div>
</div>
<div class="modal-footer">

```

```
<button type="button" class="btn btn-secondary" data-dismiss="modal">Close</button>
```

```
<button type="submit" class="btn btn-primary">Simpan</button>
```

```
</div>
```

```
</form>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
<footer class="mt-auto">
```

```
<div class='col'>
```

```
<p class="footer">Skripsi: Mochammad Rama Prasetya |  
16631021</p>
```

```
</div>
```

```
</footer>
```

```
</body>
```

```
<script>
```

```
$(document).ready(function() {
```

```
$('#data_gas').DataTable({
```

```
"lengthMenu": [[5, 25, 50, -1], [5, 25, 50, "All"]]
```

```
});
```

```
$('#data_gas_bulan').DataTable({
```

```
"lengthMenu": [[5, 25, 50, -1], [5, 25, 50, "All"]]
```

```
});
```

```
$('#data_angin').DataTable();
```

```
});
```

```
function tambah_data(){
```

```

        $('modal-title').text('Tambah Data BMKG');
        $('#exampleModal').modal('show');
    }

</script>
</html>
<!--
http://monitoringgas.my.id/gas_tambah?gas1=3&gas2=1&gas3=2&gas4=
5 -->

```

## 5. Program Untuk Backup Data

```

<?php
header("Content-type: application/vnd-ms-excel");
header("Content-Disposition: attachment; filename=$title.xls");
header("Pragma: no-cache");
header("Expires: 0");

$Rl = 1000; // 1000 Ohm
$RoCo2_1 = 1265;
$RoCo2_2 = 1744;

$RoNo2_1 = 4577;
$RoNo2_2 = 6308;

$RoSo2_1 = 1071;
$RoSo2_2 = 945;

$RoO3_1 = 262;
$RoO3_2 = 339;

function ppm_co2($Rl,$RO,$adc){

```

```

    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.10);
    return round($ppm,2);
}

```

```

function ppm_no2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 300 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}

```

```

function ppm_so2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}

```

```

function ppm_o3($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}

```

```

if($pilihan=='Hari')
{
    ?>

```

```

<table border="1" width="100%">
  <tbody>
    <tr>
      <td align='center' colspan='6'>DATA MONITORING
      GAS</td>
    </tr>
    <tr>
      <td align='center' colspan='6'>PERIODE TANGGAL <?php
      echo strtoupper($tanggal);?></td>
    </tr>
    <tr>
      <td align='center' colspan='6'>LOKASI <?php echo $lokasi;
      ?></td>
    </tr>
  </tbody>
  <thead>
    <tr>
      <th>NO</th>
      <th>WAKTU</th>
      <th>CO</th>
      <th>NO2</th>
      <th>SO2</th>
      <th>O3</th>
    </tr>
  </thead>
  <tbody>
    <?php
      $i=1;
      if($idlokasi==1)
      {

```

```

        foreach($gas as $item)
        {
        echo "<tr>
            <td>".$i."</td>
            <td>".$item->jam."</td>
            <td>".ppm_co2($RRL, $RoCo2_1, $item->gas1)."</td>
            <td>".ppm_no2($RRL, $RoNo2_1, $item->gas2)."</td>
            <td>".ppm_so2($RRL, $RoSo2_1, $item->gas3)."</td>
            <td>".ppm_o3($RRL, $RoO3_1, $item->gas4)."</td>
        </tr>";
        $i++;
        }
        } else if($idlokasi==2)
        {
        foreach($gas as $item)
        {
        echo "<tr>
            <td>".$i."</td>
            <td>".$item->jam."</td>
            <td>".ppm_co2($RRL, $RoCo2_2, $item->gas1)."</td>
            <td>".ppm_no2($RRL, $RoNo2_2, $item->gas2)."</td>
            <td>".ppm_so2($RRL, $RoSo2_2, $item->gas3)."</td>
            <td>".ppm_o3($RRL, $RoO3_2, $item->gas4)."</td>
        </tr>";
        $i++;
        }
        }
        ?>
    </tbody>

```



```

</table>
<?php
} else {
    $Abulan = array (
        1 =>'JANUARI', 'FEBRUARI', 'MARET', 'APRIL', 'MEI',
        'JUNI', 'JULI', 'AGUSTUS', 'SEPTEMBER', 'OKTOBER', 'NOVEMBER',
        'DESEMBER'
    );
?>
<table border="1" width="100%">
<tbody>
<tr>
<td align='center' colspan='7'>DATA MONITORING
GAS</td>
</tr>
<tr>
<td align='center' colspan='7'>PERIODE BULAN <?php echo
strtoupper($Abulan[$bulan]).' TAHUN ':$tahun; ?></td>
</tr>
<tr>
<td align='center' colspan='7'>LOKASI <?php echo $lokasi;
?></td>
</tr>
</tbody>
<thead>
<tr>
<th>NO</th>
<th>TANGGAL</th>
<th>WAKTU</th>
<th>CO</th>
<th>NO2</th>

```

```

        <th>SO2</th>
        <th>O3</th>
    </tr>
</thead>
<tbody>
    <?php
        $i=1;
        if($idlokasi==1)
        {
            foreach($gas as $item)
            {
                echo "<tr>
                    <td>".$i."</td>
                    <td>".$item->tanggal."</td>
                    <td>".$item->jam."</td>
                    <td>".ppm_co2($RRL, $RoCo2_1, $item->gas1)."</td>
                    <td>".ppm_no2($RRL, $RoNo2_1, $item->gas2)."</td>
                    <td>".ppm_so2($RRL, $RoSo2_1, $item->gas3)."</td>
                    <td>".ppm_o3($RRL, $RoO3_1, $item->gas4)."</td>
                </tr>";
                $i++;
            }
        } else if($idlokasi==2)
        {
            foreach($gas as $item)
            {
                echo "<tr>
                    <td>".$i."</td>
                    <td>".$item->tanggal."</td>

```

```

<td>".$item->jam."</td>
<td>".ppm_co2($Rl, $RoCo2_2, $item->gas1)."</td>
<td>".ppm_no2($Rl, $RoNo2_2, $item->gas2)."</td>
<td>".ppm_so2($Rl, $RoSo2_2, $item->gas3)."</td>
<td>".ppm_o3($Rl, $RoO3_2, $item->gas4)."</td>
</tr>";
$i++;
}
}
?>
</tbody>
</table>
<?php
}
?>

```

## 6. Program Untuk Mengunduh Data Backup

```

<?php
header("Content-type: application/vnd-ms-excel");
header("Content-Disposition: attachment; filename=$title.xls");
header("Pragma: no-cache");
header("Expires: 0");

$Rl = 1000; // 1000 Ohm
$RoCo2_1 = 1265;
$RoCo2_2 = 1744;

$RoNo2_1 = 4577;
$RoNo2_2 = 6308;

```

\$RoSo2\_1 = 1071;

\$RoSo2\_2 = 945;

\$RoO3\_1 = 262;

\$RoO3\_2 = 339;

```
function ppm_co2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.10);
    return round($ppm,2);
}
function ppm_no2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 300 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}
function ppm_so2($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
    return round($ppm,2);
}
function ppm_o3($RRL,$RO,$adc){
    $volt = ($adc*5)/1024;
    $rs = (5 * $RRL / $volt ) - $RRL;
    $ppm = 100 * pow(($rs/$RO),-1.49);
```

```
return round($ppm,2);
}
```

```
if($pilihan=='Hari')
```

```
{
    ?>
```

```
<table border="1" width="100%">
  <tbody>
    <tr>
      <td align='center' colspan='6'>DATA MONITORING
GAS</td>
    </tr>
    <tr>
      <td align='center' colspan='6'>PERIODE TANGGAL <?php
echo strtoupper($tanggal);?></td>
    </tr>
    <tr>
      <td align='center' colspan='6'>LOKASI <?php echo $lokasi;
?></td>
    </tr>
  </tbody>
  <thead>
    <tr>
      <th>NO</th>
      <th>WAKTU</th>
      <th>CO</th>
      <th>NO2</th>
      <th>SO2</th>
```

```

<th>O3</th>
</tr>
</thead>
<tbody>
<?php
    $i=1;
    if($idlokasi==1)
    {
    foreach($gas as $item)
    {
    echo "<tr>
        <td>".$i."</td>
        <td>".$item->jam."</td>
        <td>".ppm_co2($Rl, $RoCo2_1, $item->gas1)."</td>
        <td>".ppm_no2($Rl, $RoNo2_1, $item->gas2)."</td>
        <td>".ppm_so2($Rl, $RoSo2_1, $item->gas3)."</td>
        <td>".ppm_o3($Rl, $RoO3_1, $item->gas4)."</td>
    </tr>";
    $i++;
    }
    } else if($idlokasi==2)
    {
    foreach($gas as $item)
    {
    echo "<tr>
        <td>".$i."</td>
        <td>".$item->jam."</td>
        <td>".ppm_co2($Rl, $RoCo2_2, $item->gas1)."</td>
        <td>".ppm_no2($Rl, $RoNo2_2, $item->gas2)."</td>

```

```

        <td>".ppm_so2($Rl, $RoSo2_2, $item->gas3)."</td>
        <td>".ppm_o3($Rl, $RoO3_2, $item->gas4)."</td>
    </tr>";
    $i++;
}
}
?>
</tbody>
</table>
<?php
} else {
    $Abulan = array (
        1 =>'JANUARI', 'FEBRUARI', 'MARET', 'APRIL', 'MEI',
        'JUNI', 'JULI', 'AGUSTUS', 'SEPTEMBER', 'OKTOBER', 'NOVEMBER',
        'DESEMBER'
    );
?>
<table border="1" width="100%">
    <tbody>
        <tr>
            <td align='center' colspan='7'>DATA MONITORING
GAS</td>
        </tr>
        <tr>
            <td align='center' colspan='7'>PERIODE BULAN <?php echo
strtoupper($Abulan[$bulan]).' TAHUN '.$tahun; ?></td>
        </tr>
        <tr>
            <td align='center' colspan='7'>LOKASI <?php echo $lokasi;
?></td>
        </tr>

```



```

</tbody>
<thead>
  <tr>
    <th>NO</th>
    <th>TANGGAL</th>
    <th>WAKTU</th>
    <th>CO</th>
    <th>NO2</th>
    <th>SO2</th>
    <th>O3</th>
  </tr>
</thead>
<tbody>
<?php
  $i=1;
  if($idlokasi==1)
  {
    foreach($gas as $item)
    {
      echo "<tr>
        <td>".$i."</td>
        <td>".$item->tanggal."</td>
        <td>".$item->jam."</td>
        <td>".ppm_co2($URL, $RoCo2_1, $item->gas1)."</td>
        <td>".ppm_no2($URL, $RoNo2_1, $item->gas2)."</td>
        <td>".ppm_so2($URL, $RoSo2_1, $item->gas3)."</td>
        <td>".ppm_o3($URL, $RoO3_1, $item->gas4)."</td>
      </tr>";
      $i++;
    }
  }
}

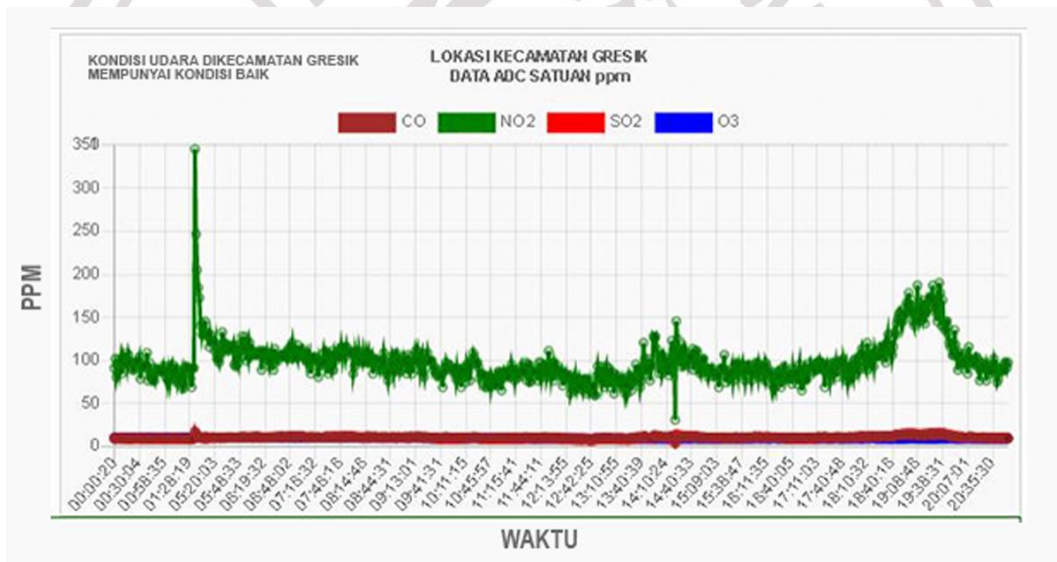
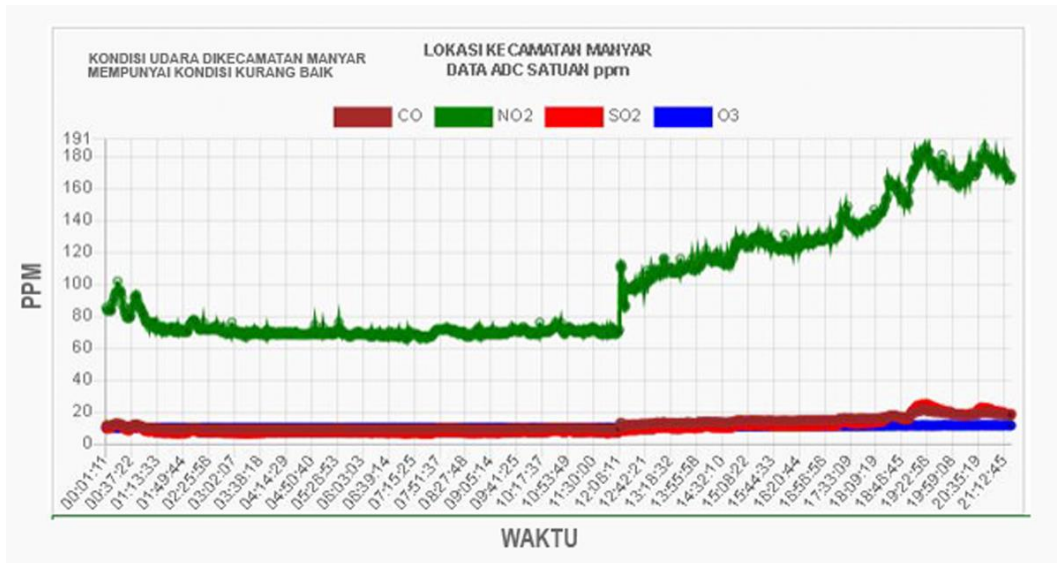
```

```

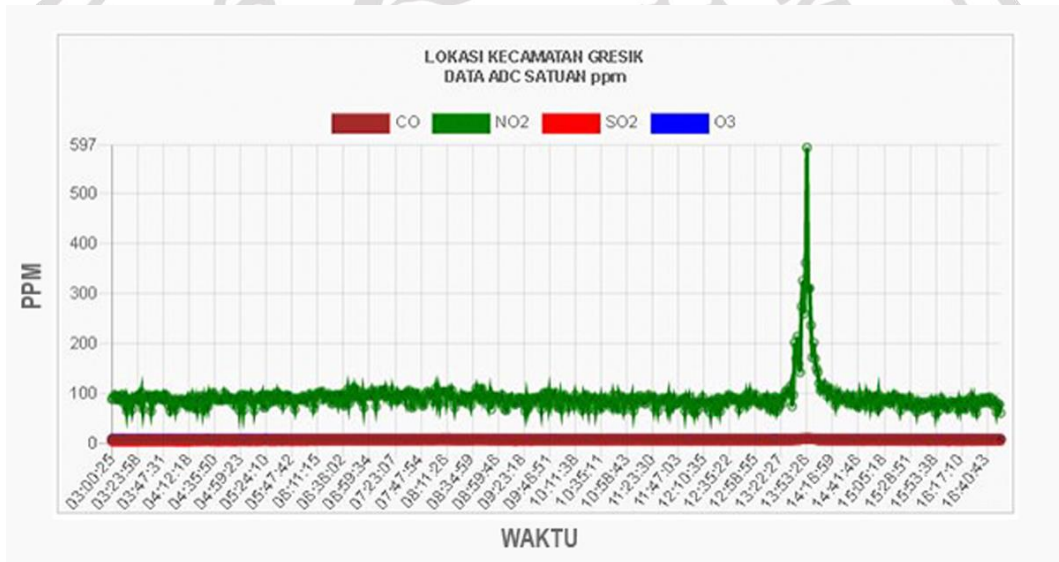
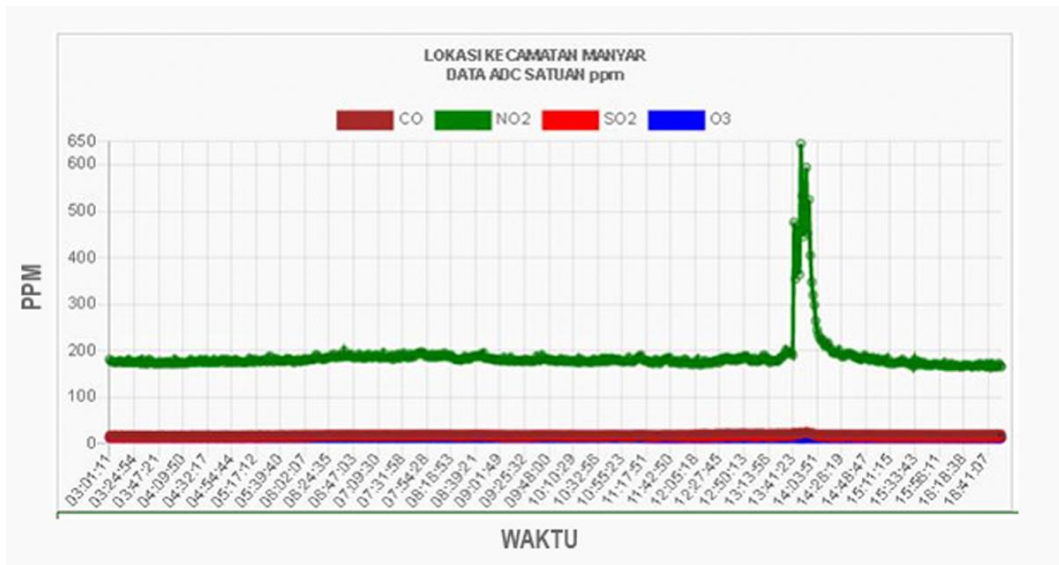
    }
    } else if($idlokasi==2)
    {
    foreach($gas as $item)
    {
    echo "<tr>
        <td>".$.i."</td>
        <td>".$item->tanggal."</td>
        <td>".$item->jam."</td>
        <td>".ppm_co2($RRL, $RoCo2_2, $item->gas1)."</td>
        <td>".ppm_no2($RRL, $RoNo2_2, $item->gas2)."</td>
        <td>".ppm_so2($RRL, $RoSo2_2, $item->gas3)."</td>
        <td>".ppm_o3($RRL, $RoO3_2, $item->gas4)."</td>
    </tr>";
    $i++;
    }
    }
?>
</tbody>
</table>
<?php
}
?>

```

### Lampiran 3 : Tampilan Web Untuk Data Percobaan Lokasi 1 dan lokasi 2



### Lampiran 4 : Tampilan Web Untuk Data Percobaan Konsentrasi Bensol Gas LPG Alat 1 dan Alat 2



**Lampiran 5 : Tampilan Web Untuk Data Percobaan Konsentrasi Asap Kendaraan Alat 1 dan Alat 2**

