LAMPIRAN

LAMPIRAN I :
  Program XAMPP

Cekarus.php

```php
<?php

//konek database
$konek = mysqli_connect("localhost", "root", "", "dbmultisensor");
//baca tabel
$sql = mysqli_query($konek, "select * from tb order by id
    desc"); //data terakhir di atas

//baca data tb
$data = mysqli_fetch_array($sql);
$arus = $data['arus'] ?? 0;

//uji daya
if( $arus == "" ) $arus = 0;

//cetak nilai
echo $arus ;

 ?>
```

Cekbiaya.php

```php
<?php

//konek database
$konek = mysqli_connect("localhost", "root", "", "dbmultisensor");
//baca tabel
$sql = mysqli_query($konek, "select * from tb order by id
    desc"); //data terakhir di atas

//baca data tb
$data = mysqli_fetch_array($sql);
$biaya = $data['biaya'] ?? 0;

//uji daya
if( $biaya == "" ) $biaya = 0;

//cetak nilai
echo $biaya ;
```

```
    ?>
```

Cekdaya.php
```php
<?php

//konek database
$konek = mysqli_connect("localhost", "root", "", "dbmultisensor");
//baca tabel
$sql = mysqli_query($konek, "select * from tb order by id
     desc"); //data terakhir di atas

//baca data tb
$data = mysqli_fetch_array($sql);
$daya = $data['daya'] ?? 0;

//cetak nilai
echo $daya ;

 ?>
```

Cekjumlahdaya.php
```php
<?php

//konek database
$konek = mysqli_connect("localhost", "root", "", "dbmultisensor");
//baca tabel
$sql = mysqli_query($konek, "select * from tb order by id desc");
//data terakhir di atas

//baca data tb
$data = mysqli_fetch_array($sql);
$jumlahdaya = $data['jumlah_daya'] ?? 0;

//cetak nilai
echo $jumlahdaya ;

 ?>
```

Cektegangan.php

```php
<?php

//konek database
$konek = mysqli_connect("localhost", "root", "", "dbmultisensor");
//baca tabel
$sql = mysqli_query($konek, "select * from tb order by id desc");
//data terakhir di atas

//baca data tb

$data = mysqli_fetch_array($sql);
$tegangan = $data['tegangan'] ?? 0;

// //uji daya

//cetak nilai
echo $tegangan;

 ?>
```

Index.php

```html
<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->
    <link                              rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/css/boot
strap.min.css"                            integrity="sha384-
Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAiS6JXm
" crossorigin="anonymous">


  <title>SISTEM MONITORING LISTRIK</title>

  <script type="text/javascript" src="jquery/jquery.min.js">
  </script>
```

```
<script type="text/javascript">
  $(document).ready(function () {
    setInterval (function () {
    $("#cekdaya").load("cekdaya.php");
    $("#cektegangan").load("cektegangan.php");
    $("#cekarus").load("cekarus.php");
    $("#cekjumlahdaya").load("cekjumlahdaya.php");
    $("#cekbiaya").load("cekbiaya.php");
     }, 1000 );
  } )
</script>

</head>
<body>

  <div class="container" style="text-align: center; margin-top:
200px;">
    <h2>SISTEM MONITORING KONSUMSI ENERGI LISTRIK <br> SECARA
REALTIME</h2>

    <div style="display: flex" ;>

    <div class="card text-center" style="width: 20%">
  <div class="card-header" style="font-size: 30px; font-weight:
bold; background-color: blueviolet;">
    DAYA
  </div>
  <div class="card-body">
   <h1> <span id="cekdaya"> 0 </span> </h1>
  </div>
  </div>

    <div class="card text-center" style="width: 20%">
  <div class="card-header" style="font-size: 30px; font-weight:
bold; background-color: darkcyan;">
    TEGANGAN
  </div>
  <div class="card-body">
   <h1> <span id="cektegangan"> 0 </span> </h1>
  </div>
  </div>

    <div class="card text-center" style="width: 20%">
```

```html
    <div class="card-header" style="font-size: 30px; font-weight:
bold; background-color: mediumvioletred;">
     ARUS
   </div>
   <div class="card-body">
    <h1> <span id="cekarus"> 0 </span> </h1>
   </div>
</div>

     <div class="card text-center" style="width: 20%">
   <div class="card-header" style="font-size: 30px; font-weight:
bold; background-color: yellowgreen; ">
     JUMLAH DAYA
   </div>
   <div class="card-body">
    <h1> <span id="cekjumlahdaya"> 0 </span> </h1>
   </div>
   </div>

     <div class="card text-center" style="width: 20%">
   <div class="card-header" style="font-size: 30px; font-weight:
bold; background-color: pink;">
     JUMLAH BIAYA
   </div>
   <div class="card-body">
    <h1> <span id="cekbiaya"> 0 </span> </h1>
   </div>
   </div>

    </div>
    </div>

    <script
src="https://cdn.jsdelivr.net/npm/popper.js@1.12.9/dist/umd/popp
er.min.js"                                integrity="sha384-
ApNbgh9B+Y1QKtv3Rn7W3mgPxhU9K/ScQsAP7hUibX39j7fakFPskvXusvfa0b4Q
" crossorigin="anonymous"></script>
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/js/bootst
rap.min.js"                               integrity="sha384-
JZR6Spejh4U02d8jOt6vLEHfe/JQGiRRSQQxSfFWpi1MquVdAyjUar5+76PVCmYl
" crossorigin="anonymous"></script>
  </body>
</html>
```

Kirimdata.php

```php
<?php



//konek database
$konek = mysqli_connect("localhost", "root", "", "dbmultisensor");
//baca dari esp8266
$daya = $_GET['daya'];
$tegangan = $_GET['tegangan'];
$arus = $_GET['arus'];
$energi = $_GET['energi'];
$biaya = $_GET['biaya'];

//auto increment
mysqli_query($konek, "ALTER TABLE tb AUTO_INCREMENT=1");
$simpan      =      mysqli_query($konek,      "insert      into
tb(daya,tegangan,arus,jumlah_daya,biaya)values('$daya',
'$tegangan', '$arus', '$energi','$biaya')");

//uji tersimpan
if ($simpan)
    echo "Berhasil Dikirim";
else
    echo "Gagal Terkirim";


  ?>
```

Program Arduino

Final.ino

```cpp
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <PZEM004Tv30.h>
PZEM004Tv30 pzem (12,13); //12=TX=D6 RX=13=D7
#include <ESP8266WiFi.h>
#include <ESP8266HTTPClient.h>



LiquidCrystal_I2C lcd(0x27,16,2);
```

```
//float daya, energi, tegangan, arus;
const char *ssid = "MONITORING LISTRIK"; //nama SSID
const char *password = "12345678";    // password SSID

const char* host = "192.168.4.2";


void setup(){
  Wire.begin(2,0);
  Serial.begin(115200);
  delay(10);
  lcd.begin(16,2);
  lcd.init();    // initializing the LCD
  lcd.backlight(); // Enable or Turn On the backlight
  lcd.setCursor(0,0);
  lcd.print("SISTEM"); // Start Printing
  lcd.setCursor(0,1);
  lcd.print("MONITORING"); // Start Printing
  delay(2000);
  lcd.clear();


  WiFi.softAP(ssid, password);         //Memulai membuat acces point
  //lcd.println(WiFi.softAPIP());
  {
    lcd.print("..");
    delay(500);
  }
  Serial.println("Scanning...");

}
void loop(){
  lcd.init();
  lcd.backlight();

  float daya = pzem.power();
  if(daya != NAN){
    lcd.setCursor(0,0);
    lcd.print("P:");
    lcd.print(daya); lcd.println("W");
  }else{
    lcd.println("Error reading power");
  }
```

```cpp
int tegangan = pzem.voltage();
if(tegangan != NAN){
  lcd.setCursor(0,1);
  lcd.print("V:");
  lcd.print(tegangan); lcd.println("V");
}else{
  lcd.println("Error reading voltage");
}

float arus = pzem.current();
if(arus != NAN){
  lcd.setCursor(8,0);
  lcd.print("I:");
  lcd.print(arus); lcd.println("A");
}else{
  lcd.println("Error reading current");
}
float energi = pzem.power() * 1 / 1000;
if( energi != NAN){
  lcd.setCursor(7,1);
  lcd.print("E:");
  lcd.print(energi); lcd.println("kWh");
}else{
  lcd.println("Error reading  energy");
}
lcd.println();
delay(2000);
lcd.clear();

float biaya = pzem.power() * 1 / 1000 * 1352;
if( biaya != NAN){
  lcd.setCursor (0,0);
  lcd.print("Biaya: Rp.");
  lcd.print(biaya);
}else{
  lcd.println("Error reading...");
}
delay(2000);


// Kirim data ke server
WiFiClient client;
const int httpPort = 80;
```

```
  // Coba koneksi selama 5 detik
  if (!client.connect(host, httpPort)) {
    Serial.print(host);
    Serial.print(" ");
    Serial.print("Koneksi Gagal! Status: ");
    Serial.println(client.status());
    return;
  }

  // Kondisi terkoneksi
  // Kirim data sensor ke web
  String link;
  HTTPClient http;

  link         =         "http://"         +         String(host)         +
"/multisensor/kirimdata.php?daya=" + String(daya) + "&tegangan="
+ String(tegangan) + "&arus=" + String(arus) + "&energi=" +
String(energi) + "&biaya=" + String(biaya);
  http.begin(client, link);
  int httpCode = http.GET();

  // Periksa status HTTP
  if (httpCode > 0) {
    Serial.print("Status HTTP: ");
    Serial.println(httpCode);
    if (httpCode == HTTP_CODE_OK) {
      String response = http.getString();
      Serial.println(response);
      lcd.setCursor(0, 1);
      lcd.println("Data terkirim!");
    }
  } else {
    Serial.println("Gagal mengirim data!");
  }

  http.end();
  delay(1000);
}
```

LAMPIRAN II : Daftar Riwayat Hidup

DAFTAR RIWAYAT HIDUP

Penulis memiliki nama Raafi' Yanuar Purnama Arifian, lahir di Gresik, 12 Januari 2000. Penulis merupakan anak keempat dari Purwanto dan Munawaroh. Agama penulis adalah Islam dan berkewanegaraan Indonesia. Penulis menyelesaikan pendidikan Sekolah Dasar di MI Mambaus Sholihin lulus pada tahun 2012, pendidikan Sekolah Menengah Pertama di SMP Negeri 2 Gresik lulus pada tahun 2015, dan pendidikan Sekolah Menengah Atas di SMA Negeri 1 Kebomas lulus pada tahun 2018. Selama menjadi mahasiswa, penulis mengikuti kegiatan mahasiswa HIMATEKTRO (Himpunan Mahasiswa Teknik Elektro).

Penulis berharap skripsi ini dapat bermanfaat untuk dijadikan referensi dan dapat dikembangkan kembali untuk penelitian selanjutnya. Penulis dapat dihubungi via email : rafi.arifian1@gmail.com