

LAMPIRAN

Lampiran-1 Listing program alat menggunakanm Arduino IDE

```
#include <Arduino.h>
#include <WiFi.h>
#include <HTTPClient.h>
#include
<LiquidCrystal_I2C_STEM.h>
LiquidCrystal_I2C_STEM
lcd(0x27, 16, 2);

const char* ssid = "hotspot";
const char* password =
"1234567890";

//Your Domain name with URL
path or IP address with path

String serverName =
"http://citra.buana.mas.maggur
u-it.web.id/post-data.php";

String no_pelanggan = "0001";
//ganti sesuai data pelanggan
di web

// PIN

#define PIN_solenoid 5 // Pin
buka tutup air

const int sensorPin = 4; //
Define pin untuk sensor YF-S201
atau sensor aliran air

// Variabel global untuk sensor
flow

volatile int pulseCount = 0;

float debit = 0.0; // Debit
awal

const float calibrationFactor
= 0.00316; // Faktor kalibrasi
(L/pulse)

float totalVolume = 0.0; //
Total volume air yang telah
mengalir

float totalVolumeHarian = 0.0;
// Total volume per hari

unsigned long lastPulseTime =
0; // Waktu dari detik terakhir
terdeteksi pulsa

unsigned long resetTime = 0; //
Waktu untuk reset totalVolume

const unsigned long
resetInterval = 5 * 60 * 1000;
// 5 menit dalam milidetik

int status1;

// Variables for volume edit

float volumeEdit = 0; // Total
volume air perubahan data

float initialTotalVolume = 0;

float initialVolumeEdit = 0;

float debit_air;

float volume;

// Timer for sending data

Unsigned long
sendDataPrevMillis = 0;

bool signupOK = false;

void IRAM_ATTR pulseCounter()
{
pulseCount++;
}

// the following variables are
unsigned longs because the
time, measured in

// milliseconds, will quickly
become a bigger number than can
be stored in an int.

unsigned long lastTime = 0;
```

```

// Timer set to 10 minutes
(600000)

//unsigned long timerDelay =
600000;

// Set timer to 5 seconds
(5000)

unsigned long timerDelay =
5000;

void setup() {
  Serial.begin(115200);

  lcd.init();          // initialize
  the lcd

  lcd.backlight();      // Set
  backlight on

  // Print a message to the LCD.
  lcd.setCursor(2, 0);

  lcd.print("Aplikasi    Tagihan
  Air");

  lcd.setCursor(0, 1);

  lcd.print("Citra Buana Mas");

  // Initialize Wi-Fi
  WiFi.begin(ssid,    password);
  Serial.println("Connecting");

  while(WiFi.status()      !=
  WL_CONNECTED) {

    delay(500);

    Serial.print(".");

  }

  Serial.println("");

  Serial.print("Connected    to
  WiFi network with IP Address:
  ");
  Serial.println(WiFi.localIP())
  ;

  Serial.println("Timer set to 5
  seconds (timerDelay variable),
  it will take 5 seconds before
  publishing    the    first
  reading.");

  // Set pin sensor sebagai input
  dan aktifkan internal pull-up
  resistor

  pinMode(sensorPin,
  INPUT_PULLUP);

  //pin selenoit sebagai output
  pinMode(PIN_solenoid,OUTPUT);

  digitalWrite(PIN_solenoid,
  HIGH);

  // Reset variabel

  pulseCount = 0;

  lastPulseTime = millis();

  resetTime = millis();

  // Attach interrupt untuk
  sensor YF-S201
  attachInterrupt(digitalPinToIn
  terrupt(sensorPin),
  pulseCounter, FALLING);

  lcd.clear();

}

void send(){
  //Send an HTTP POST request
  every 10 minutes

  if ((millis() - lastTime) >
  timerDelay) {

    //Check WiFi connection status

    if(WiFi.status()==
    WL_CONNECTED){

      WiFiClient client;

      HTTPClient http;

      // Your Domain name with URL
      path or IP address with path

      http.begin(client,
      serverName);

      // If you need Node-RED/server
      authentication, insert user
      and password below
      //http.setAuthorization("REPLA
      CE_WITH_SERVER_USERNAME",
      "REPLACE_WITH_SERVER_PASSWORD"
      );
    }
  }
}

```

```

// Specify content-type header
http.addHeader("Content-Type",
"application/x-www-form-
urlencoded");

// Data to send with HTTP POST
String httpRequestData =
"api_key=tPmAT5Ab3j7F9&value1="
+ no_pelanggan + "&value2="
+ String(debit,4)+ "&value3="
+ String(totalVolume,4) + "";

// Send HTTP POST request
Int httpResponseCode =
http.POST(httpRequestData);

Serial.print("HTTP Response
code: ");
Serial.println(httpResponseCod
e);

int httpCode =
http.POST(httpRequestData);

// httpCode will be negative on
error

if(httpCode > 0) {

// file found at server

if(httpCode == HTTP_CODE_OK) {

String payload =
http.getString();

Serial.println(payload);

if (payload=="blokir"){
digitalWrite(PIN_solenoid,
LOW);

}else{
digitalWrite(PIN_solenoid,
HIGH);

}

} else {

// HTTP header has been send
and Server response header has
been handled

Serial.printf("[HTTP] GET...
code: %d\n", httpCode);

}

} else {

Serial.printf("[HTTP] GET...
failed, error: %s\n",
http.errorToString(httpCode).c
_str());

}

// Free resources

http.end();

}

else {

Serial.println("WiFi
Disconnected");

}

lastTime = millis();

}

}

void loop() {

unsigned long currentTime =
millis();

// Sensor Waterflow

if (millis() - lastPulseTime >
2000){
detachInterrupt(digitalPinToIn
terrupt(sensorPin));

debit = calibrationFactor *
pulseCount / (2000 / 1000.0);
//Menggunakan
calibrationFactor, hasil dalam
liter per detik

float volume = debit * (2000 /
1000.0); // Volume dalam
interval waktu

totalVolumeHarian += volume;

totalVolume += volume;

Serial.print("Debit: ");

Serial.print(debit, 4);

Serial.println(" L/s");

```

```

Serial.print("Total      Volume
Harian:          ");
Serial.print(totalVolumeHarian
, 4);

Serial.println(" L");

Serial.print("Total      Volume:
");
Serial.print(totalVolume, 4);

Serial.println(" L");

pulseCount = 0;

lastPulseTime = millis();
attachInterrupt(digitalPinToIn
terrupt(sensorPin),
pulseCounter,      FALLING);
lcd.setCursor(0, 0);

lcd.print("Debit      :      " +
String(debit,4) + " L/s");

lcd.setCursor(0, 1);

lcd.print("Total      :      " +
String(totalVolume, 4) + " L");

}

Serial.print("Volume Edit: ");
Serial.println(volumeEdit);

send();

delay(100);    //    Mengurangi
delay untuk loop yang lebih
cepat

}

```

Lampiran-1 Listing program Web Monitoring Biaya Penggunaan Air

```

<?php include 'header.php'; ?>
<div class="content-wrapper">
<section class="content-header">
<h1>
Pemakaian
<small>Data Pemakaian</small>
</h1>
<ol class="breadcrumb">
<li><a
href="#"><i
class="fa fa-dashboard"></i>
Home</a></li>
<li class="active">Dashboard</li>
</ol>
</section>
<section class="content">
<div class="row">
<section class="col-lg-12">
<div class="box box-info">
<div class="box-header">
<h3 class="box-title">
Pemakaian</h3>
<div class="btn-group pull-right">
</div><hr>
<?php
if(isset($_GET['alert'])) {
if($_GET['alert']=='gagal') {
?>
<div class="alert alert-warning
alert-dismissible">
<button type="button" class="close"
data-dismiss="alert"
aria-hidden="true">×</button>
<h4><i class="icon fa fa-warning"></i>
Peringatan !</h4>
Ekstensi Tidak Diperbolehkan
</div>
<?php
}elseif($_GET['alert']=="berhasil") {
?>
<div class="alert alert-success
alert-dismissible">
<button type="button" class="close"
data-dismiss="alert"
aria-hidden="true">×</button>
<h4><i class="icon fa fa-check"></i>
Success</h4>
Berhasil Disimpan
</div>
<?php
}elseif($_GET['alert']=="berhasilupdate") {
?>
<div class="alert alert-success
alert-dismissible">
<button type="button" class="close"
data-dismiss="alert"
aria-hidden="true">×</button>
<h4><i class="icon fa
fa-check"></i>
Success</h4>
Berhasil Update

```

```

</div>
<?php
}
}
?>
</div>
<div class="box-body">
<!-- Modal
>
<div class="table-responsive">
<table class="table
table-bordered table-striped"
id="table-datatable">
<thead>
<tr>
<th width="1%"
rowspan="2">NO</th>
<th width="10%"
rowspan="2"
class="text-center">NO PELANGGAN
</th>
<th rowspan="2"
class="text-center">NAMA
</th>
<th rowspan="2"
class="text-center">ALAMAT
</th>
<th rowspan="2"
class="text-center">STATUS</th>
<th colspan="3"
class="text-center">PEMAKAIAN</th>
<th rowspan="2"
class="text-center">JUMLAH BAYAR (Rp)
<th rowspan="2" width="15%"
class="text-center">OPSI</th>
</tr>
<tr>
<th class="text-center">
METER PAKAI SEKARANG (Cm3)</th>
<th class="text-center">
METER PAKAI LALU (Cm3)</th>
<th class="text-center">
JUMLAH VOLUME PAKAI (Cm3)</th>
</tr>
</thead>
<tbody>
<?php
include '../koneksi.php';
$no=1;
$data = mysqli_query
($conn,"SELECT * FROM pelanggan
order by no_pelanggan asc");
//$data=query("SELECT
pelanggan.no_pelanggan,
pelanggan.nama_pelangga,pelanggan.alamat,
pelanggan.status, pelanggan.volume,
pembayaran.volume, pembayaran.max(tanggal)
//FROM pelanggan INNER JOIN
pembayaran ON
pelanggan.no_pelanggan =
pembayaran.
no_pelanggan GROUP BY pembayaran.volume");
while($d = mysqli_fetch_array
($data)){
$volume= (float) $d['volume'];
$skubik=$volume/1000;
?>
</tr>

```

```

<td class="text-center"><?php
echo $no++; ?></td>
<td class="text-center"><?php
echo $d['no_pelanggan']; ?></td>
<td class="text-center"><?php
echo $d['nama_pelanggan']; ?></td>
<td class="text-center"><?php
echo $d['alamat']; ?></td>
<td class="text-center"><?php
echo $d['status']; ?></td>
<td class="text-center"><?php
echo $kubik; ?></td>
<?php
$nop=$d['no_pelanggan'];
$datah = mysqli_query
($conn,"SELECT volume,
max(tanggal) FROM pembayaran
where no_pelanggan =
$nop GROUP BY volume ");
while($b = mysqli_fetch_array
($datah)){
$vol=(float) $b['volume'];
}
?>
<td class="text-center">
<?php
//meter pakai lalu
if($vol>0){
echo $vol;
}else if ($vol==0){
echo "0"; };
?>
</td>
<td class="text-center">
<?php
//volume pakai
if(($vol>0) && ($kubik>0)){
$jumlah=$kubik-$vol;
echo $jumlah;
} else {
$jumlah=$kubik;
echo $jumlah;
}
?>
</td>
<td class="text-center">
<?php
if ($jumlah>10){
$harga=$jumlah*3800;
}else if ($jumlah<=10&&$jumlah>=0){
$harga=$jumlah*5000;
}
echo "Rp. ".number_format
($harga)." ,-";
?>
</td>
<td>
<button type="button"
class="btn btn-warning btn-sm"
data-toggle="modal"
data-target="#bayar_<?php
echo $d['id'] ?>">Bayar</button>
<button type="button" class="btn
btn-danger btn-sm"
data-toggle="modal"

```

```

data-target="#blokir_<?php
echo $d['id'] ?>">Blokir</button>
<button type="button" class="btn
btn-primary btn-sm"
data-toggle="modal"
data-target="#buka_blokir_<?php
echo $d['id'] ?>">
Buka Blokir</button>
<!-- modal buka blokir -->
<div class="modal fade"
id="buka_blokir_<?php
echo $d['id'] ?>"
tabindex="-1"role="dialog"
labelledby="exampleModalLabel"
aria-hidden="true">
<div class="modal-dialog"
role="document">
<div class="modal-content">
<div class="modal-header">
<h4
class="modal-title"
id="exampleModalLabel">
Peringatan!</h4>
<button type="button"
class="close"
data-dismiss="modal"
aria-label="Close">
<span aria-hidden="true">
&times;</span>
</button>
</div>
<div class="modal-body">
<p>Yakin ingin membuka blokir
pelanggan ini ?</p>
</div>
</div>
<div class="modal-footer">
<button type="button"
class="btn btn-secondary"
data-dismiss="modal">Tutup</button>
<a href="buka_blokir.php?id=<?php
echo $d['id'] ?>"
class="btn btn-primary">Buka Blokir</a>
</div>
</div>
</div>
<!-- modal hapus -->
<div class="modal fade"
id="blokir_<?php
echo$d['id']?>"tabindex="-1"
role="dialog"
aria-labelledby="exampleModalLabel"
aria-hidden="true">
<div class="modal-dialog"
role="document">
<div class="modal-content">
<div class="modal-header">
<h4
class="modal-title"
id="exampleModalLabel">
Peringatan!</h4>
<button type="button"
class="close"
data-dismiss="modal"
aria-label="Close">
<span aria-hidden="true">&
times;</span>

```

```

</button>
</div>
<div class="modal-body">
<p>Yakin ingin blokir
pelanggan ini ?</p>
</div>
<div class="modal-footer">
<button type="button"
class="btn
btn-secondary"
data-dismiss="modal">
Tutup</button>
<a href="blokir.php?id=<?php
echo $d['id'] ?>"
class="btn btn-primary">
Blokir</a>
</div>
</div>
</div>
</div>
<form action="bayar.php"
method="post">
<div class="modal fade"
id="bayar_<?php
echo $d['id'] ?>"
tabindex="-1"
role="dialog"
aria-labelledby="
exampleModalLabel"
aria-hidden="true">
<div class="modal-dialog"
role="document">
<div class="modal-content">

```

```

<div class="modal-header">
<h4
class="modal-title"
id="exampleModalLabel">Pembayaran</h4>
<button type="button" class="close"
data-dismiss="modal" aria-label="Close">
<span aria-hidden="true">&times;</span>
</button>
</div>
<div class="modal-body">
<div class="form-group"
style="width:100%;margin-bottom:20px">
<label>Tanggal</label>
<input type="hidden" name="id"
value="<?php echo $d['id'] ?>">
<input type="text"
style="width:100%"
name="tanggal"
required="required"
class="form-control
datepicker2"
value="<?php
echo $d['tanggal'] ?>"
autocomplete="off" required>
</div>
<div class="form-group"
style="width:100%;margin-bottom:20px">
<label>No. Pelanggan</label>
<input type="text" style="width:100%"
name="no_pelanggan"
required="required"
class="form-control"
value="<?php echo $d['no_pelanggan'] ?>"

```

```

readonly>
</div>
<div class="form-group"
style="width:100%;
margin-bottom:20px">
<label>Nama Pelanggan</label>
<input
type="text"
style="width:100%"
required="required"
class="form-control"
value="<?php
echo $d['nama_pelanggan'] ?>"
readonly>
</div>
<div class="form-group"
style="width:100%;
margin-bottom:20px">
<label>Alamat</label>
<input type="text"
style="width:100%"
name="alamat"
required="required"
class="form-control"
value="<?php
echo $d['alamat'] ?>" readonly>
</div>
<div class="form-group"
style="width:100%;
margin-bottom:20px">
<label>No. HP</label>
<input type="number"
style="width:100%"
name="no_hp"
required="required"
class="form-control"
value="<?php echo $d['no_hp'] ?>"
readonly>
</div>
<div class="form-group"
style="width:100%;margin-bottom:20px">
<label>Jumlah Pemakaian (Cm3)</label>
<input type="text" name="jumlah" style="width:100%"
required="required"
class="form-control" value="<?php
echo $jumlah;
?>" readonly>
</div>
<input type="hidden" name="kubik"
value="<?php echo $kubik; ?>">
<div class="form-group"
style="width:100%;margin-bottom:20px">
<label>Jumlah Bayar (Rp)</label>
<input type="text"
style="width:100%"
="harga" required="required"
class="form-control"
value="<?php
echo "Rp. ".number_format($harga).
" ,-"; ?>" readonly>
</div>
<div class="modal-footer">
<button type="button"
class="btn
btn-secondary"
data-dismiss="modal">
Tutup</button>
<button

```


KARTU MONITORING BIMBINGAN
 MAHASISWA PROGRAM STUDI TEKNIK INFORMATIKA
 FAKULTAS TEKNIK
 UNIVERSITAS MUHAMMADIYAH PAREPARE

PROPOSAL

Mahasiswa : Munahil	Pembimbing I : Muhammad Basri, S.T., M.T.
NIM : 217280062	Pembimbing II : Ir. Untung Suwardoyo, S.Kom., M.T., I.P.P.
Judul Skripsi : Prototype Sistem Monitoring Biaya Penggunaan Air Bor pada Perumahan Citra Buana Mas berbasis Internet of Things	

ARAHAN PEMBIMBING I	HARI/TGL & PARAF PEMBIMBING	ARAHAN PEMBIMBING II	HARI/TGL & PARAF PEMBIMBING
Konsultasi 1		Konsultasi 1 Metode pembayaran, Penulisan, judul , Daftar Pustaka.	
Konsultasi 2		Konsultasi 2	
Konsultasi 3		Konsultasi 3 Perbaiki tabel, Blok diagram, judul yg relevan terkait kore unila.	
Konsultasi 4		Konsultasi 4 Perbaiki Latar belakang => tampilan aplikasi	
Konsultasi 5		Konsultasi 5 ubah bagan manual Tampilan aplikasi dan placeholder akan lebih	12-6-24 

Lanjut ke halaman sebelah.

Petunjuk :

1. Mahasiswa wajib konsultasi minimal 5 kali.
2. Kartu ini wajib dibawa oleh mahasiswa disetiap konsultasi dan diisi oleh Pembimbing.
3. Kartu ini wajib dilampirkan pada laporan skripsi dan menjadi salah satu persyaratan untuk ikut seminar proposal/ujian skripsi.
4. Kartu ini dicetak di atas kertas karton berwarna hijau muda dan dicetak timbal balik.

ARAHAN PEMBIMBING I	HARI/TGL & PARAF PEMBIMBING	ARAHAN PEMBIMBING II	HARI/TGL & PARAF PEMBIMBING
Konsultasi 6		Konsultasi 6 → Cetak worksheet dan tabel → Kende tabel → Flowchart aplikasi → Daftar pustaka.	
Konsultasi 7		Konsultasi 7 Acelays Pen 1	
Konsultasi 8		Konsultasi 8	
Konsultasi 9		Konsultasi 9	
Konsultasi 10		Konsultasi 10	

Parepare,

Mengetahui
Ketua Program Studi

Mahasiswa

Martina, S.Kom., M.Kom.
NIM. 1162 680Munahil
NIM. 217280062

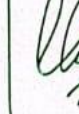
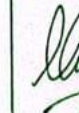
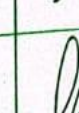
Perhatian:

Mahasiswa wajib konsultasi minimal 5 kali
 Konsultasi wajib dibawa oleh mahasiswa disetiap konsultasi dan diisi oleh Pembimbing
 Konsultasi wajib dilampirkan pada laporan skripsi dan menjadi salah satu persyaratan untuk ikut seminar proposal/ujian skripsi
 Konsultasi wajib dicetak di atas kertas karton berwarna hijau muda dan dicetak timbal balik

KARTU MONITORING BIMBINGAN
 MAHASISWA PROGRAM STUDI TEKNIK INFORMATIKA
 FAKULTAS TEKNIK
 UNIVERSITAS MUHAMMADIYAH PAREPARE

HASIL

MAHASISWA : MUNAHIL	Pembimbing I : Muhammad Basri, S.T., M.T.
NO : 217280062	Pembimbing II : Ir. Untung Suwardoyo, S.Kom., MT.IPP
Judul Skripsi : PROTOTYPE SISTEM MONITORING BIAYA PENGGUNAAN AIR BOR PADA PERUMAHAN CITRA BUANA MAS BERBASIS INTERNET OF THINGS	

ARAHAN PEMBIMBING I	HARI/TGL & PARAF PEMBIMBING	ARAHAN PEMBIMBING II	HARI/TGL & PARAF PEMBIMBING
Konsultasi 1 bab. IV Hasil perhitungan Volume air		Konsultasi 1	
Konsultasi 2 Re pengayasan		Konsultasi 2	
Konsultasi 3 draft $Q = V \cdot A$		Konsultasi 3	
Konsultasi 4		Konsultasi 4	
Konsultasi 5		Konsultasi 5 see lamp 1.	

Lanjut ke halaman sebelah...

Perhatian :
 Mahasiswa wajib konsultasi minimal 5 kali
 Kartu ini wajib dibawa oleh mahasiswa disetiap konsultasi dan diisi oleh Pembimbing
 Kartu ini wajib dilampirkan pada laporan skripsi dan menjadi salah satu persyaratan untuk ikut seminar proposal/ujian skripsi
 Kartu ini dicetak di atas kertas karton berwarna hijau muda dan dicetak timbal balik