

LAMPIRAN A

Program Arduini IDE

```
///  
//pw Antono123  
  
#include "Var_Waterflow.h"  
#include "FS.h"  
#include "SPIFFS.h"  
#include <WiFiClientSecure.h>  
  
#define BLYNK_PRINT Serial  
#define BLYNK_TEMPLATE_ID "TMPL6raCn6NMm"  
#define BLYNK_TEMPLATE_NAME "WaterFlow"  
#define BLYNK_AUTH_TOKEN  
"agz3BMTW0GT_YmXYHwcBRJvdHC6jvi_Pl"  
  
#include <WiFi.h>  
#include <WiFiClient.h>  
#include <BlynkSimpleEsp32.h>  
  
char auth[] = BLYNK_AUTH_TOKEN;  
char ssid[] = "Nokia";  
char pass[] = "12345678";  
  
WidgetLCD lcd1(V7);  
WidgetLCD lcd2(V8);  
WidgetLCD lcd3(V9);  
  
BLYNK_WRITE(V1) {  
  if (param.asInt() == HIGH) {  
    update_google_sheet();  
    sensor1.liter = 0;  
    sensor1.Harga = 0;  
    String Liter = "0";  
    writeFile(SPIFFS, "/liter.txt", Liter.c_str());  
  }  
}
```

```

#include <LiquidCrystal_I2C.h>

LiquidCrystal_I2C lcd(0x27, 16, 2);

void setup() {
  Serial.begin(9600);
  setup_spiffs();
  bacaLiter();
  lcd.init();
  lcd.backlight();
  lcd.setCursor(0, 0);
  lcd.print("Connecting");
  setup_sensor();
  Blynk.begin(auth, ssid, pass);
}

void loop() {
  loop_flow1();
  lcdBlynk();
  Blynk.run();
}

unsigned long waktu_lcd;
void lcdBlynk() {
  if (millis() > waktu_lcd) {
    waktu_lcd = millis() + 500;
    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("V: ");
    lcd.print(sensor1.volumesend);
    lcd.print(" L");
    lcd.setCursor(0, 1);
    lcd.print("Rp.");
    lcd.print(sensor1.Harga);

    lcd1.print(0, 0, "Flowrate: (L/M)");
    lcd1.print(0, 1, String(sensor1.debitsend,3));

    lcd2.print(0, 0, "Volume: (L)");

```

```

    lcd2.print(0, 1, String(sensor1.volumesend,3));

    lcd2.print(0, 0, "Volume: (L)");
    lcd2.print(0, 1, String(sensor1.volumesend,3));

    lcd3.print(0, 0, "Harga : Rp.");
    lcd3.print(0, 1, String(sensor1.Harga,2));
}
}

void bacaLiter() {
    sensor1.liter = readFile(SPIFFS, "/liter.txt").toFloat();
    sensor1.Harga = sensor1.liter / 1000 * 5000;
}

void simpanLiter() {
    String Liter = String(sensor1.liter);
    writeFile(SPIFFS, "/liter.txt", Liter.c_str());
}

String readFile(fs::FS &fs, const char * path) {
    File file = fs.open(path, "r");
    if (!file || file.isDirectory())
    {
        return String();
    }
    String fileContent;
    while (file.available())
    {
        fileContent += String((char)file.read());
    }
    return fileContent;
}

void writeFile(fs::FS &fs, const char * path, const char * message)
{
    File file = fs.open(path, "w");
    if (!file)
    {

```

```

    return;
}
file.print(message);
}

```

```

void setup_spiffs() {
  if (!SPIFFS.begin(true)) {
    Serial.println("SPIFFS ERROR");
  }
}

```

PROGRAM SPREADSHEET

```

void update_google_sheet()
{
  WiFiClientSecure client;
  const int httpPort = 443;
  client.setInsecure();
  if (!client.connect(host, httpPort)) { //works!
    Serial.println("connection failed");
  }

  String url = "/macros/s/" + GAS_ID + "/exec?value1=";
  url += String(sensor1.volumesend);
  url += "&value2=";
  url += String(sensor1.Harga);
  Serial.print("Requesting URL: ");
  Serial.println(url);
  client.print(String("GET ") + url + " HTTP/1.1\r\n" +
    "Host: " + host + "\r\n" +
    "Connection: close\r\n\r\n");
  Serial.println();
  Serial.println("closing connection");
}

```

```

#define sensorAktif 1
#define intervalSensor 1000

```

```

bool state_setup_sensor = false;

```

```

struct datasensor {
    bool aktif;
    int pin;

    float flowRate; // data murni perhitungan
    float liter; // volume satuan L
    float Harga;

    float debitsend, volumesend; // hasil setelah dikonversi satuanya
    float regresSensor;

    volatile unsigned long xpulseCount;
    float xpulse1Sec;
    unsigned long pulsenow;
    float pulse1Sec;
    unsigned long xprevmillis;
};

datasensor sensor1 = {1, 4};
void IRAM_ATTR pulseCounter();

String GAS_ID =
"AKfycbzf6zGX9WgVT6rOZuutJXDe9myXRPnUNqBKiTp_vz4Wxu
D1uBWfECy61M4aA1sFbsM";
const char* host = "script.google.com";

void loop_flow1() {
    unsigned long current = millis();
    if (current - sensor1.xprevmillis > intervalSensor) {
        sensor1.pulsenow = sensor1.xpulseCount;

        int time = current - sensor1.xprevmillis;
        if (sensor1.pulsenow > 1) {
            sensor1.xpulse1Sec = sensor1.pulsenow * intervalSensor / time;
            sensor1.xprevmillis = current;
            sensor1.regresSensor = (float)regress_3_4(sensor1.xpulse1Sec);
            sensor1.flowRate = (float)sensor1.xpulse1Sec / sensor1.regresSensor
* (float)time / 1000;

```

```

    sensor1.liter += sensor1.flowRate;
    sensor1.pulsenow = 0; //Senso
    sensor1.xpulseCount = 0;
    simpanLiter();
}
else {
    sensor1.xprevmillis = current;
    sensor1.flowRate = 0;
    sensor1.xpulse1Sec = 0;
    sensor1.xpulseCount = 0;
    sensor1.debitsend = 0;
}
}
}
sensor1.debitsend = sensor1.flowRate * 60;
sensor1.volumesend = sensor1.liter;
sensor1.Harga = sensor1.liter / 1000 * 5000;
}

void setup_sensor() {
    pinMode(sensor1.pin, INPUT_PULLUP);
    attachInterrupt(digitalPinToInterrupt(sensor1.pin), pulseCounter,
    RISING);
}
void IRAM_ATTR pulseCounter() {
    sensor1.xpulseCount++;
}
double regress_3_4(double x) { // regres sensor 3/4 gabungan 1 2
    double terms[] = {
        5.6506932191052947e+001,
        2.9039849851773990e+001,
        - 1.0773508039445008e+000,
        1.8222901809149476e-002,
        - 1.1372561868499577e-004
    };

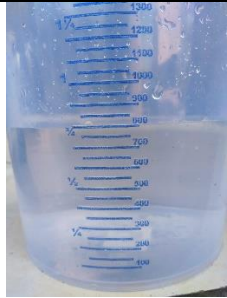

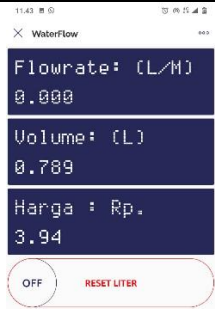
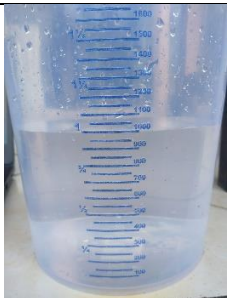

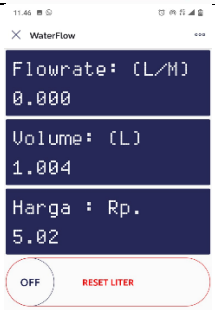


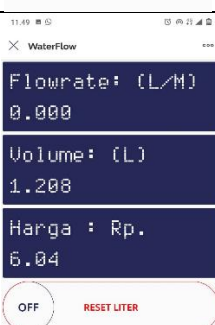
    double t = 1;
    double rx = 0;
    for (double c : terms) {
        rx += c * t;
    }
}

```



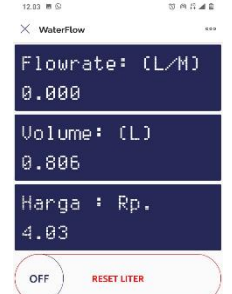
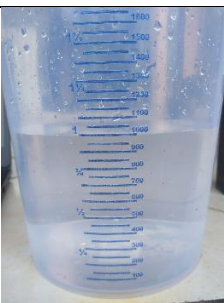




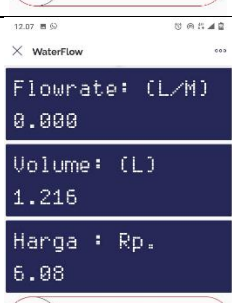
```
    t *= x;  
  }  
  return rx;  
}
```

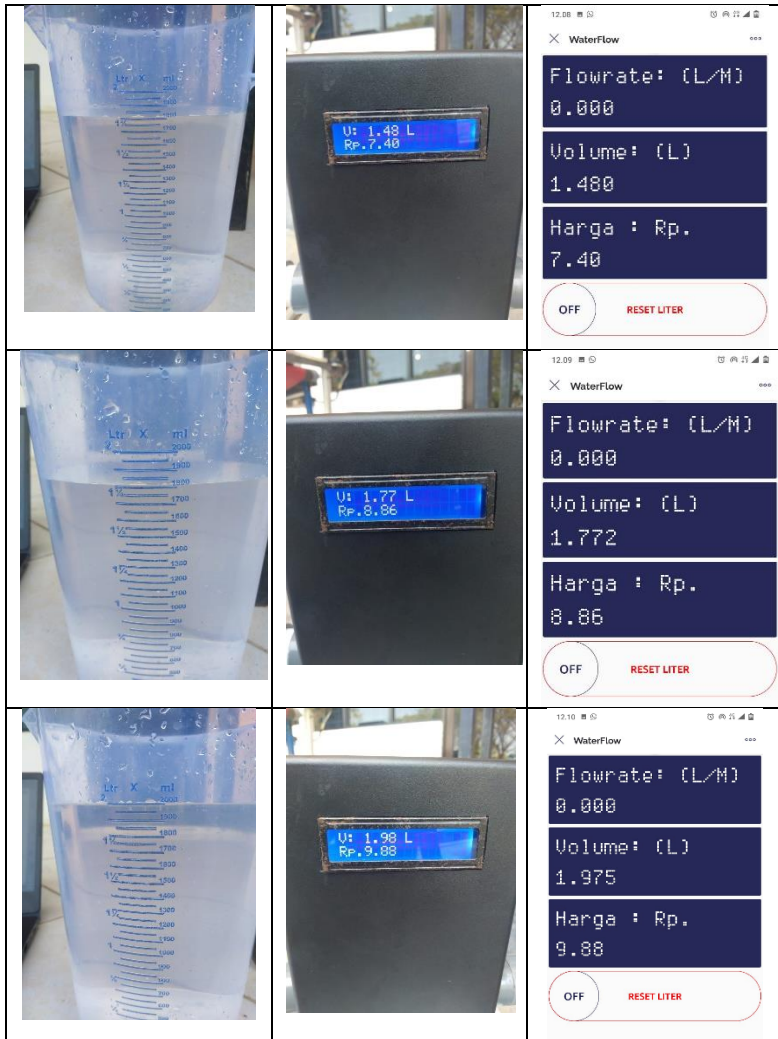

LAMPIRAN B

Dokumentasi Hasil Pengujian

Gelas ukur (liter)	Hasil sensor water flow (liter)	Tampilan blynk
Bukaan kran 50%		
		
		
		



Gelas ukur (liter)	Hasil sensor water flow (liter)	Tampilan blynk
Bukaan kran 100%		
		
		
		



BIODATA PENULIS



Nama : Antono Lisbiantoro
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Riwayat Pendidikan

SD Negeri Karangandri 3 : Tahun 2008 – 2014
SMP Negeri 7 Cilacap : Tahun 2014 – 2017
SMK Negeri 2 Cilacap : Tahun 2017 – 2020
Jurusan Teknik Pembangkit Tenaga Listrik
Politeknik Negeri Cilacap : Tahun 2020 – 2023
Prodi D3 Teknik Elektronika

Penulis telah melaksanakan tugas akhir pada tanggal 18 Agustus 2023 sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md).