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## LAMPIRAN A

```
#include <Wire.h>
```

```
#include <LiquidCrystal_I2C.h>
```

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

```
#define sensor1 4
```

```
#define sensor2 A0
```

```
#define sensor3 A1
```

```
#define sensor4 6
```

```
#define motor1 8
```

```
#define motor2 9
```

```
#define sirine 10
```

```
#define pin_tegangan A3
```

```
#define pin_arus A2
```

```
#define relay 2
```

```
#define pin_saklar 7
```

```
long jeda = 1000;
```

```
bool en_aksi, state, saklar;  
String data, status, aksi;  
float tegangan, arus;  
long proveus, proveus1, proveus2;  
byte flag;  
int en, en1;  
  
LiquidCrystal_I2C lcd(0x27, 16, 2);  
SoftwareSerial serial(5, 3);  
  
void setup() {  
  Serial.begin(9600);  
  pinMode(relay, OUTPUT);  
  digitalWrite(relay, HIGH);  
  Serial.println("1");  
  serial.begin(57600);  
  lcd.init();  
  lcd.backlight();  
  Serial.println("2");  
  pinMode(sensor2, INPUT);
```

```
pinMode(sensor3, INPUT);  
pinMode(sensor4, INPUT);  
pinMode(sensor1, INPUT);  
pinMode(pin_saklar, INPUT_PULLUP);  
pinMode(motor1, OUTPUT);  
pinMode(motor1, OUTPUT);  
pinMode(sirine, OUTPUT);  
Serial.println("3");  
}
```

```
void loop() {  
    saklar = digitalRead(pin_saklar);  
  
    if (saklar != en1) {  
        en1 = saklar;  
        state = !state;  
        delay(500);  
    }  
}
```

```
if (serial.available()) {  
    data = serial.readStringUntil('\n');  
}
```

```
if (data.toInt() != en) {  
    en = data.toInt();  
    state = !state;  
}
```

```
if (state == true) {  
    digitalWrite(motor1, LOW);  
    digitalWrite(motor2, LOW);  
    digitalWrite(relay, HIGH);  
    en_aksi = 0;  
    lcd.init();  
    lcd.noBacklight();  
}
```

```
else if (state == false) {  
    lcd.init();  
    lcd.backlight();  
}
```

```
digitalWrite(relay, LOW);
}
else {
digitalWrite(motor1, LOW);
digitalWrite(motor2, LOW);
en_aksi = 0;
lcd.init();
lcd.noBacklight();
digitalWrite(relay, HIGH);
}

if (millis() - proveus1 > 1000) {
tegangan = analogRead(pin_tegangan);
arus = analogRead(pin_arus);
proveus1 = millis();
}

if (digitalRead(sensor1) == HIGH) {
status = "Detect";
```



```
aksi = "ON";  
en_aksi = 1;  
}
```

```
if (digitalRead(sensor2) == HIGH) {  
    status = "Detect";  
    aksi = "ON";  
    en_aksi = 1;  
}
```

```
if (digitalRead(sensor3) == HIGH) {  
    status = "Detect";  
    aksi = "ON";  
    en_aksi = 1;  
}
```

```
if (digitalRead(sensor4) == HIGH) {  
    status = "Detect";  
    aksi = "ON";
```

```
en_aksi = 1;  
}
```

```
if (digitalRead(sensor1) == LOW && digitalRead(sensor2) ==  
LOW && digitalRead(sensor3) == LOW && digitalRead(sensor4)  
== LOW) {  
    status = "No Detect";  
    aksi = "OFF";  
    en_aksi = 0;  
}
```

```
if (en_aksi == 1) {  
    digitalWrite(motor1, HIGH);  
    digitalWrite(motor2, LOW);  
    digitalWrite(sirine, HIGH);  
    delay(jeda);  
    digitalWrite(motor1, LOW);  
    digitalWrite(motor2, LOW);  
    digitalWrite(sirine, HIGH);  
    delay(jeda);  
}
```

```
digitalWrite(motor1, LOW);
digitalWrite(motor2, HIGH);
digitalWrite(sirine, LOW);
delay(jeda);
}
else {
    digitalWrite(motor1, HIGH);
    digitalWrite(motor2, HIGH);
    digitalWrite(sirine, LOW);
}

if (millis() - proveus > 3000) {
    lcd.clear();
    flag++;
    proveus = millis();
}

if (flag == 0) {
    lcd.setCursor(0, 0);
```

```

    lcd.print("Status: " + status + "    ");
    lcd.setCursor(0, 1);
    lcd.print("Aksi: " + aksi + "    ");
}
else if (flag == 1) {
    lcd.setCursor(0, 0);
    lcd.print("Tegangan: " + String(scaling(tegangan, 0, 531, 0,
12.70), 1) + " V ");
    lcd.setCursor(0, 1);
    lcd.print("Arus: " + String(scaling(arus, 0, 447, 0, 3.20), 1) + " A
");
}
else if (flag == 2) {
    lcd.setCursor(0, 0);
    lcd.print("Status: " + status + "    ");
    lcd.setCursor(0, 1);
    lcd.print("Aksi: " + aksi + "    ");
    flag = 0;
}

```

```

if (millis() - proveus2 > 1000) {
    serial.println("{}" + String(scaling(tegangan, 0, 531, 0, 12.70)) +
"/" + String(scaling(arus, 0, 447, 0, 3.20), 1) + "/" + status + "}");
    Serial.println("flag: " + String(flag));
    Serial.println("en: " + String(en));
    Serial.println("state: " + String(state));
    Serial.println("saklar: " + String(saklar));
    Serial.println("data: " + data);
    Serial.println("pir1: " + String(digitalRead(sensor1)));
    Serial.println("pir2: " + String(digitalRead(sensor2)));
    Serial.println("pir3: " + String(digitalRead(sensor3)));
    Serial.println("pir4: " + String(digitalRead(sensor4)));
    Serial.println("tegangan: " + String(tegangan));
    Serial.println("arus: " + String(arus));
    proveus2 = millis();
}
}

```

```

float scaling(float val, float min1, float max1, float min2, float
max2) {
    float y;

```

```
y = (((max2 - min2) / (max1 - min1)) * (val - min1)) + min2;  
return y;  
}
```

## LAMPIRAN B

```
#include "src/OV2640.h"

#include <WiFi.h>

#include <WebServer.h>

#include <WiFiClient.h>

// Select camera model
// #define CAMERA_MODEL_WROVER_KIT
// #define CAMERA_MODEL_ESP_EYE
// #define CAMERA_MODEL_M5STACK_PSRAM
// #define CAMERA_MODEL_M5STACK_WIDE
#define CAMERA_MODEL_AI_THINKER

#include "camera_pins.h"

#define SSID1 "ssid"

#define PWD1 "password"
```

OV2640 cam;

WebServer server(80);

```
const char HEADER[] = "HTTP/1.1 200 OK\r\n" \  
    "Access-Control-Allow-Origin: *\r\n" \  
    "Content-Type: multipart/x-mixed-replace;\br/>boundary=12345678900000000000987654321\r\n";  
const char BOUNDARY[] = "\r\n--  
123456789000000000000987654321\r\n";  
const char CTNTTYPE[] = "Content-Type: image/jpeg\r\nContent-  
Length: ";  
const int hdrLen = strlen(HEADER);  
const int bdrLen = strlen(BOUNDARY);  
const int cntLen = strlen(CTNTTYPE);  
  
void handle_jpg_stream(void)  
{
```



```
char buf[32];

int s;

WiFiClient client = server.client();

client.write(HEADER, hdrLen);
client.write(BOUNDARY, bdrLen);

while (true)
{
  if (!client.connected()) break;

  cam.run();

  s = cam.getSize();

  client.write(CTNTTYPE, cntLen);
  sprintf( buf, "%d\r\n\r\n", s );
  client.write(buf, strlen(buf));
  client.write((char *)cam.getfb(), s);
  client.write(BOUNDARY, bdrLen);
}
}
```

```

const char JHEADER[] = "HTTP/1.1 200 OK\r\n" \
    "Content-disposition: inline;\r\n" \
    "filename=capture.jpg\r\n" \
    "Content-type: image/jpeg\r\n\r\n";
const int jhdLen = strlen(JHEADER);

void handle_jpg(void)
{
    WiFiClient client = server.client();

    cam.run();
    if (!client.connected()) return;

    client.write(JHEADER, jhdLen);
    client.write((char *)cam.getfb(), cam.getSize());
}

void handleNotFound()

```

```
{  
    String message = "Server is running!\n\n";  
    message += "URI: ";  
    message += server.uri();  
    message += "\nMethod: ";  
    message += (server.method() == HTTP_GET) ? "GET" : "POST";  
    message += "\nArguments: ";  
    message += server.args();  
    message += "\n";  
    server.send(200, "text / plain", message);  
}  
  
void setup()  
{
```

```
Serial.begin(115200);  
  
//while (!Serial);      //wait for serial connection.
```

```
camera_config_t config;  
  
config.ledc_channel = LEDC_CHANNEL_0;  
config.ledc_timer = LEDC_TIMER_0;  
  
config.pin_d0 = Y2_GPIO_NUM;  
config.pin_d1 = Y3_GPIO_NUM;  
config.pin_d2 = Y4_GPIO_NUM;  
config.pin_d3 = Y5_GPIO_NUM;  
config.pin_d4 = Y6_GPIO_NUM;  
config.pin_d5 = Y7_GPIO_NUM;  
config.pin_d6 = Y8_GPIO_NUM;  
config.pin_d7 = Y9_GPIO_NUM;  
  
config.pin_xclk = XCLK_GPIO_NUM;  
config.pin_pclk = PCLK_GPIO_NUM;  
config.pin_vsync = VSYNC_GPIO_NUM;  
config.pin_href = HREF_GPIO_NUM;  
config.pin_sscb_sda = SIOD_GPIO_NUM;
```

```
config.pin_sscb_scl = SIOC_GPIO_NUM;
config.pin_pwdn = PWDN_GPIO_NUM;
config.pin_reset = RESET_GPIO_NUM;
config.xclk_freq_hz = 20000000;
config.pixel_format = PIXFORMAT_JPEG;

// Frame parameters
// config.frame_size = FRAMESIZE_UXGA;
config.frame_size = FRAMESIZE_QVGA;
config.jpeg_quality = 12;
config.fb_count = 2;

#if defined(CAMERA_MODEL_ESP_EYE)
  pinMode(13, INPUT_PULLUP);
  pinMode(14, INPUT_PULLUP);
#endif

cam.init(config);
```

```
IPAddress ip;

WiFi.mode(WIFI_STA);
WiFi.begin(SSID1, PWD1);
while (WiFi.status() != WL_CONNECTED)
{
  delay(500);
  Serial.print(F("."));
}
ip = WiFi.localIP();
Serial.println(F("WiFi connected"));
Serial.println("");
Serial.println(ip);
Serial.print("Stream Link: http://");
Serial.print(ip);
Serial.println("/mjpeg/1");
server.on("/mjpeg/1", HTTP_GET, handle_jpg_stream);
server.on("/jpg", HTTP_GET, handle_jpg);
```

```
server.onNotFound(handleNotFound);  
server.begin();  
}
```

```
void loop()  
{  
  server.handleClient();  
}
```

## LAMPIRAN C

```
#if defined(CAMERA_MODEL_WROVER_KIT)

#define PWDN_GPIO_NUM  -1
#define RESET_GPIO_NUM  -1
#define XCLK_GPIO_NUM  21
#define SIOD_GPIO_NUM  26
#define SIOC_GPIO_NUM  27

#define Y9_GPIO_NUM  35
#define Y8_GPIO_NUM  34
#define Y7_GPIO_NUM  39
#define Y6_GPIO_NUM  36
#define Y5_GPIO_NUM  19
#define Y4_GPIO_NUM  18
#define Y3_GPIO_NUM  5
#define Y2_GPIO_NUM  4
#define VSYNC_GPIO_NUM  25
#define HREF_GPIO_NUM  23
```



```
#define PCLK_GPIO_NUM 22

#elif defined(CAMERA_MODEL_ESP_EYE)
#define PWDN_GPIO_NUM -1
#define RESET_GPIO_NUM -1
#define XCLK_GPIO_NUM 4
#define SIOD_GPIO_NUM 18
#define SIOC_GPIO_NUM 23

#define Y9_GPIO_NUM 36
#define Y8_GPIO_NUM 37
#define Y7_GPIO_NUM 38
#define Y6_GPIO_NUM 39
#define Y5_GPIO_NUM 35
#define Y4_GPIO_NUM 14
#define Y3_GPIO_NUM 13
#define Y2_GPIO_NUM 34
#define VSYNC_GPIO_NUM 5
#define HREF_GPIO_NUM 27
```

```
#define PCLK_GPIO_NUM 25

#elif defined(CAMERA_MODEL_M5STACK_PSRAM)
#define PWDN_GPIO_NUM -1
#define RESET_GPIO_NUM 15
#define XCLK_GPIO_NUM 27
#define SIOD_GPIO_NUM 25
#define SIOC_GPIO_NUM 23

#define Y9_GPIO_NUM 19
#define Y8_GPIO_NUM 36
#define Y7_GPIO_NUM 18
#define Y6_GPIO_NUM 39
#define Y5_GPIO_NUM 5
#define Y4_GPIO_NUM 34
#define Y3_GPIO_NUM 35
#define Y2_GPIO_NUM 32
#define VSYNC_GPIO_NUM 22
#define HREF_GPIO_NUM 26
```

```
#define PCLK_GPIO_NUM    21

#elif defined(CAMERA_MODEL_M5STACK_WIDE)

#define PWDN_GPIO_NUM    -1
#define RESET_GPIO_NUM   15
#define XCLK_GPIO_NUM    27
#define SIOD_GPIO_NUM    22
#define SIOC_GPIO_NUM    23

#define Y9_GPIO_NUM      19
#define Y8_GPIO_NUM      36
#define Y7_GPIO_NUM      18
#define Y6_GPIO_NUM      39
#define Y5_GPIO_NUM      5
#define Y4_GPIO_NUM      34
#define Y3_GPIO_NUM      35
#define Y2_GPIO_NUM      32
#define VSYNC_GPIO_NUM   25
#define HREF_GPIO_NUM    26
#define PCLK_GPIO_NUM    21
```

```
#elif defined(CAMERA_MODEL_AI_THINKER)
```

```
#define PWDN_GPIO_NUM 32
```

```
#define RESET_GPIO_NUM -1
```

```
#define XCLK_GPIO_NUM 0
```

```
#define SIOD_GPIO_NUM 26
```

```
#define SIOC_GPIO_NUM 27
```

```
#define Y9_GPIO_NUM 35
```

```
#define Y8_GPIO_NUM 34
```

```
#define Y7_GPIO_NUM 39
```

```
#define Y6_GPIO_NUM 36
```

```
#define Y5_GPIO_NUM 21
```

```
#define Y4_GPIO_NUM 19
```

```
#define Y3_GPIO_NUM 18
```

```
#define Y2_GPIO_NUM 5
```

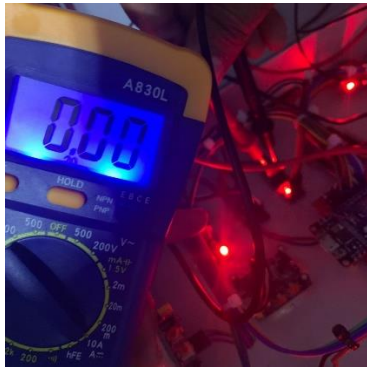
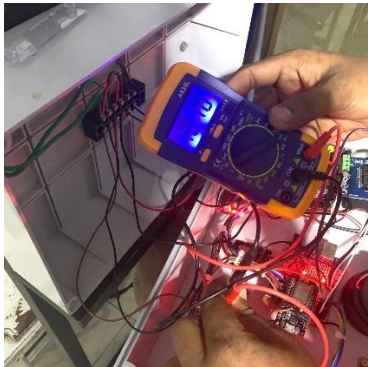
```
#define VSYNC_GPIO_NUM 25
```

```
#define HREF_GPIO_NUM 23
```

```
#define PCLK_GPIO_NUM 22
```

```
#else  
#error "Camera model not selected"  
#endif
```

## LAMPIRAN D





20:33

### Overview

MQTT State:  
**Connected**

ON / OFF

Status: No Detect

Tegangan:	9.64	VDC
Arus:	0.3	A
Power	2.94	W

[92.168.43.143/mjpeg/1](http://92.168.43.143/mjpeg/1)

**On Cam**

## BIODATA



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Riwayat Pendidikan  
• TK Seruni : 2006 – 2007  
• SD Negeri 03 : 2007 – 2013  
KarangKandri  
• SMP Negeri 2 Maos : 2013 – 2016  
• SMA Negeri 2 Cilacap : 2016 – 2019  
• Politeknik Negeri Cilacap : 2019 – 2022