LAMPIRAN

ESP32-CAM

```
#include "esp_camera.h"
#include <WiFi.h>
#include <ESP32Servo.h>

Servo myservo;  // Membuat objek dari kelas Servo

const int servoPin = 2; // Pin servo
int pos;
const int relay_pin = 15; //relay pin
const int ir_pin = 12;
int baca_ir;

//millis
unsigned long previousMillis;
unsigned int interval = 500;

//
// WARNING!!! PSRAM IC required for UXGA resolution and high JPEG
quality
//            Ensure ESP32 Wrover Module or other board with PSRAM is
selected
//            Partial images will be transmitted if image exceeds
buffer size
//
//            You must select partition scheme from the board menu that
has at least 3MB APP space.
//            Face Recognition is DISABLED for ESP32 and ESP32-S2,
because it takes up from 15
//            seconds to process single frame. Face Detection is
ENABLED if PSRAM is enabled as well

// ===================
// Select camera model
// ===================
//#define CAMERA_MODEL_WROVER_KIT // Has PSRAM
// #define CAMERA_MODEL_ESP_EYE // Has PSRAM
//#define CAMERA_MODEL_ESP32S3_EYE // Has PSRAM
//#define CAMERA_MODEL_M5STACK_PSRAM // Has PSRAM
//#define CAMERA_MODEL_M5STACK_V2_PSRAM // M5Camera version B Has PSRAM
//#define CAMERA_MODEL_M5STACK_WIDE // Has PSRAM
```

```
//#define CAMERA_MODEL_M5STACK_ESP32CAM // No PSRAM
//#define CAMERA_MODEL_M5STACK_UNITCAM // No PSRAM
#define CAMERA_MODEL_AI_THINKER // Has PSRAM
//#define CAMERA_MODEL_TTGO_T_JOURNAL // No PSRAM
//#define CAMERA_MODEL_XIAO_ESP32S3 // Has PSRAM
// ** Espressif Internal Boards **
//#define CAMERA_MODEL_ESP32_CAM_BOARD
//#define CAMERA_MODEL_ESP32S2_CAM_BOARD
//#define CAMERA_MODEL_ESP32S3_CAM_LCD
//#define CAMERA_MODEL_DFRobot_FireBeetle2_ESP32S3 // Has PSRAM
//#define CAMERA_MODEL_DFRobot_Romeo_ESP32S3 // Has PSRAM
#include "camera_pins.h"

//blynkkkkk datastream
#define BLYNK_TEMPLATE_ID "TMPL6CT46Dkyt"
#define BLYNK_TEMPLATE_NAME "esp32Cam servo dan Ir"
#define BLYNK_AUTH_TOKEN "YKqTPrcQwU0gAeCcDcJhNo8lotFrqjDK"

#define BLYNK_PRINT Serial
#include <WiFi.h>
#include <WiFiClient.h>
#include <BlynkSimpleEsp32.h>
int relay_value = 0;
int servo_value = 90;
// int servo_to_0_value = 0;

// ===========================
// Enter your WiFi credentials
// ===========================
const char* ssid = "admin1234";
const char* password = "admin1234";

void startCameraServer();
void setupLedFlash(int pin);

//FUNGSI BACA NILAI DARI BLYNK
BLYNK_WRITE(V4){
  relay_value = param.asInt(); // assigning incoming value from pin V1
to a variable
}
```

```
BLYNK_WRITE(V7){
  servo_value = param.asInt(); // assigning incoming value from pin V1
to a variable
}

// BLYNK_WRITE(V5){
//   servo_to_0_value = param.asInt(); // assigning incoming value from
pin V1 to a variable
// }


void setup() { Serial.begin(115200);
  Blynk.begin(BLYNK_AUTH_TOKEN, ssid, password);
  Serial.setDebugOutput(true);
  Serial.println();
  pinMode(relay_pin, OUTPUT);
  pinMode(ir_pin, INPUT);

  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_sccb_sda = SIOD_GPIO_NUM;
  config.pin_sccb_scl = SIOC_GPIO_NUM;
  config.pin_pwdn = PWDN_GPIO_NUM;
  config.pin_reset = RESET_GPIO_NUM;
  config.xclk_freq_hz = 20000000;
  config.frame_size = FRAMESIZE_UXGA;
  config.pixel_format = PIXFORMAT_JPEG; // for streaming
```

```
  //config.pixel_format = PIXFORMAT_RGB565; // for face
detection/recognition
  config.grab_mode = CAMERA_GRAB_WHEN_EMPTY;
  config.fb_location = CAMERA_FB_IN_PSRAM;
  config.jpeg_quality = 12;
  config.fb_count = 1;

  // if PSRAM IC present, init with UXGA resolution and higher JPEG
quality
  //                      for larger pre-allocated frame buffer.
  if(config.pixel_format == PIXFORMAT_JPEG){
    if(psramFound()){
      config.jpeg_quality = 10;
      config.fb_count = 2;
      config.grab_mode = CAMERA_GRAB_LATEST;
    } else {
      // Limit the frame size when PSRAM is not available
      config.frame_size = FRAMESIZE_SVGA;
      config.fb_location = CAMERA_FB_IN_DRAM;
    }
  } else {
    // Best option for face detection/recognition
    config.frame_size = FRAMESIZE_240X240;
#if CONFIG_IDF_TARGET_ESP32S3
    config.fb_count = 2;
#endif
  }

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

  // camera init
  esp_err_t err = esp_camera_init(&config);
  if (err != ESP_OK) {
    Serial.printf("Camera init failed with error 0x%x", err);
    return;
  }

  sensor_t * s = esp_camera_sensor_get();
```

```
  // initial sensors are flipped vertically and colors are a bit
saturated
  if (s->id.PID == OV3660_PID) {
    s->set_vflip(s, 1); // flip it back
    s->set_brightness(s, 1); // up the brightness just a bit
    s->set_saturation(s, -2); // lower the saturation
  }
  // drop down frame size for higher initial frame rate
  if(config.pixel_format == PIXFORMAT_JPEG){
    s->set_framesize(s, FRAMESIZE_QVGA);
  }

#if defined(CAMERA_MODEL_M5STACK_WIDE) ||
defined(CAMERA_MODEL_M5STACK_ESP32CAM)
  s->set_vflip(s, 1);
  s->set_hmirror(s, 1);
#endif

#if defined(CAMERA_MODEL_ESP32S3_EYE)
  s->set_vflip(s, 1);
#endif

// Setup LED FLash if LED pin is defined in camera_pins.h
#if defined(LED_GPIO_NUM)
  setupLedFlash(LED_GPIO_NUM);
#endif

  WiFi.begin(ssid, password);
  WiFi.setSleep(false);

  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  } Serial.println("");
  Serial.println("WiFi connected");

  startCameraServer();

  Serial.print("Camera Ready! Use 'http://");
  Serial.print(WiFi.localIP());
```

```
  Serial.println("' to connect");

  // Inisialisasi servo
  myservo.setPeriodHertz(50);  // Atur frekuensi PWM ke 50Hz
  myservo.attach(servoPin, 1000, 2000);  // Karena library ESP32Servo
menggunakan range 1000-2000 untuk posisi servo
}

void loop() {
  // Gerakan servo dari 180 derajat ke 0 derajat

  // unsigned long currentMillis = millis();
  // if (currentMillis - previousMillis >= interval) {
  //   previousMillis = currentMillis;
  //   myservo.write(0);
  //   // digitalWrite(relay_pin, HIGH);
  //   delay(3000);
  //   myservo.write(180);
  //   // digitalWrite(relay_pin, LOW);
  //   delay(3000);
  // }


  Blynk.run();
  Serial.print(servo_value);
  Serial.print("||");
  // Serial.print(servo_to_0_value);
  // Serial.print("||");
  Serial.print(relay_value);
  Serial.print("||");

  baca_ir = digitalRead(ir_pin);
  Serial.println(baca_ir);

  /*
      blynk button ==> 0 = off || 255 == on
      ir ==> 0 --> ketrigger  || 1 --> tidak ketrigger
  */

  if(baca_ir == 0 || relay_value == 255){
    digitalWrite(relay_pin, HIGH);
```

```
    myservo.write(servo_value);
  }else{
    digitalWrite(relay_pin, LOW);
    myservo.write(servo_value);
  }



  // int sudut_Servo;

  // if(servo_to_180_value == 255){
  //   // sudut_Servo = sudut_Servo + 30;
  //   myservo.write(180);
  // }
  // else if(servo_to_0_value == 255){
  //   // sudut_Servo = sudut_Servo - 30;
  //   myservo.write(0);
  // }




  // myservo.write(0);
  // digitalWrite(relay_pin, HIGH);
  // delay(2000);
  // myservo.write(180);
  // digitalWrite(relay_pin, LOW);
  // delay(2000);

  // for (pos = 0; pos <= 180; pos += 1) { // goes from 0 degrees to
180 degrees
  //   // in steps of 1 degree
  //   myservo.write(pos);              // tell servo to go to position
in variable 'pos'
  //   delay(15);                       // waits 15 ms for the servo to
reach the position
  // }
  // for (pos = 180; pos >= 0; pos -= 1) { // goes from 180 degrees to
0 degrees
```

```
  //   myservo.write(pos);              // tell servo to go to position
in variable 'pos'
  //   delay(15);                       // waits 15 ms for the servo to
reach the position
  // }
}

1#define BLYNK_TEMPLATE_ID "TMPL6CT46Dkyt"
#define BLYNK_TEMPLATE_NAME "esp32Cam servo dan Ir"
#define BLYNK_AUTH_TOKEN "YKqTPrcQwU0gAeCcDcJhNo8lotFrqjDK"
/* Comment this out to disable prints and save space */
#define BLYNK_PRINT Serial

#include <Servo.h>

Servo myservo;


#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

// Your WiFi credentials.
// Set password to "" for open networks.
char ssid[] = "admin1234";
char pass[] = "admin1234";

int ir_pin = A0;
int baca_ir;

int relay1_value = 0;
int relay2_value = 0;
int relay3_value = 0;

int pin_relay1 = D5;
int pin_relay2 = D6;
int pin_relay3 = D7;

int x;

int servo_value = 0;
```

```
// This function will be called every time Slider Widget
// in Blynk app writes values to the Virtual Pin V1

BLYNK_WRITE(V4){
  relay1_value = param.asInt(); // assigning incoming value from pin V1
to a variable
}

BLYNK_WRITE(V6){
  relay2_value = param.asInt(); // assigning incoming value from pin V1
to a variable
}

BLYNK_WRITE(V7){
  servo_value = param.asInt(); // assigning incoming value from pin V1
to a variable
}


void setup()
{
  // Debug console
  Serial.begin(115200);

  pinMode(ir_pin, INPUT_PULLUP);

  Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass);
  // You can also specify server:
  //Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass, "blynk.cloud", 80);
  //Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass, IPAddress(192,168,1,100),
8080);

  pinMode(pin_relay1,  OUTPUT);
  pinMode(pin_relay2,  OUTPUT);
  pinMode(pin_relay3, OUTPUT);

  myservo.attach(D4);

}

void loop(){
```

```
// Blynk.run();
for(x = 1; x <= 2; x){
  Blynk.run();

  baca_ir = analogRead(ir_pin);
  if(baca_ir < 1024){
    x++;
  }
  else{
    x = x + 0;
  }
  // Serial.print(baca_ir);
  // Serial.print("||");
  // Serial.println(x);

  Serial.print(baca_ir);
  Serial.print("||");
  Serial.print(relay2_value);
  Serial.print("||");
  Serial.print(servo_value);
  Serial.println(x);

  // Serial.print(relay2_value);
  // Serial.print(baca_ir);
  // Serial.print(baca_ir);


  if((x % 2)==0){
    digitalWrite(pin_relay1, HIGH);
    Serial.println("HIDUP");
    myservo.write(servo_value);
  }else{
    digitalWrite(pin_relay1, LOW);
    Serial.println("MATI");
    myservo.write(servo_value);
  }
  if(relay1_value == 255){
    digitalWrite(pin_relay2, HIGH);
    myservo.write(servo_value);
  }else{
    digitalWrite(pin_relay2, LOW);
```

```
        myservo.write(servo_value);
      }

      if(relay2_value == 255){
        digitalWrite(pin_relay3, HIGH);
        myservo.write(servo_value);
      }else{
        digitalWrite(pin_relay3, LOW);
        myservo.write(servo_value);
      }

      delay(300);
    }
    // delay(100);
}
```

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No	Tanggal	Uraian Bimbingan	Tanda Tangan Pembimbing
1		Acc Bab 1	
2		Acc Bab 2	
3		Acc Bab 3	
4		Acc Bab 4	
5		Tambahan Lampu	
6		Revisi Alat	
7		Tambahan Alat penguji	
8		Acc bab 5	
9		Acc Alat	
10.		Acc Laporan Akhir	

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5		Acc Bab 4	
6		Acc Alat	
7.		Acc Laporan Akhir	

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Mahasiswa tersebut telah memenuhi persyaratan dan dapat mengikuti Ujian Laporan Tugas Akhir (TA) pada Tahun Akademik 2024.

Palembang, Juli 2024

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No	Uraian Revisi	Paraf
1	nanti demokan prog / koding secara Mandiri	[signature]
2.	Mengulang demo ! & menjelaskan proses kerja alat dari Awal.	[signature]
	datala.tkp@gmail.com	[signature]

Palembang, 18 Juli 2024.

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Judul LA/ Skripsi : Rancang Bangun Alat Monitoring Dan Kendali Lampu Ruangan Berbasis IOT

No	Uraian Revisi	Paraf
1	Tambahkan hasil plagiasi hingga < 15 %.	
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Telah melaksanakan revisi terhadap Laporan Tugas Akhir yang diujikan pada hari Senin tanggal 15 bulan 7 tahun 2024 Pelaksanaan revisi terhadap Laporan Tugas Akhir tersebut telah disetujui oleh Dosen Penguji yang memberikan revisi:

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2.	ACC	Ir. Alan Novi Tompunu, ST, MT, IPM.,ASEAN Eng	5/8 2024	
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