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~Halaman Ini Sengaja Dikosongkan~

LAMPIRAN A

Listing Program *ESP32*

```
#define BLYNK_TEMPLATE_ID "TMPLUs8YQIh1"
#define BLYNK_DEVICE_NAME "Robot Humanoid"
#define BLYNK_AUTH_TOKEN "H
PPLGfXceQ7GpThToATbIQtUAUDFsbs"
#include <FS.h>
#include <WiFi.h>
#include <WiFiClient.h>
#include <BlynkSimpleEsp32.h>
#include <WiFiManager.h> // https://github.com/tzapu/WiFiManager
#include "SPIFFS.h" //serial peripheral interface flash file system
#include <SPI.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>

char auth[] = BLYNK_AUTH_TOKEN;
char blynk_token[34] = "YOUR_BLYNK_TOKEN";
//flag for saving data
bool shouldSaveConfig = false;
int LED_BUILTIN = 2;
#define buzzer 32

BlynkTimer timer;
#define SCREEN_WIDTH 128 // OLED display width, in pixels
#define SCREEN_HEIGHT 64 // OLED display height, in pixels
#define OLED_RESET -1
#define SCREEN_ADDRESS 0x3C
Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT,
&Wire, OLED_RESET);
#define NUMFLAKES 10
#define LOGO_HEIGHT 16
#define LOGO_WIDTH 16
```

```

int logic = 0;
bool firstforward = true;
bool firstback = true;
bool firstleft = true;
bool firstright = true;
bool endforward = false;
bool endback = false;
bool endleft = false;
bool endright = false;
bool carrierforward = false;
bool carrierback = false;
bool carrierleft = false;
bool carrierright = false;
bool carrierboot = true;

void setup()
{
  Serial2.begin(9600);
  oledsetup();
  pinMode(LED_BUILTIN, OUTPUT);
  pinMode(buzzer, OUTPUT);
  initialize();
  Blynk.begin(auth, WiFi.SSID().c_str(), WiFi.psk().c_str());
  timer.setInterval(1000L, myTimerEvent);
}

void loop()
{
  Blynk.run();
  timer.run();
  if (logic == 0) { //berhenti
    buzzeroff();
    stops();
  }
  else if (logic == 1) { //maju
  // buzzertip();
  if (carrierback == true || carrierleft == true || carrierright == true) {
    stops();
  }
}

```

```

    }
    forward();
}
else if ( logic == 2) { //mundur
    if (carrierforward == true || carrierleft == true || carrierright == true) {
        stops();
    }
    back();
}
else if ( logic == 3) { //kanan
    if (carrierforward == true || carrierback == true || carrierleft == true) {
        stops();
    }
    right();
}
else if ( logic == 4) { //kiri
    if (carrierforward == true || carrierback == true || carrierright == true) {
        stops();
    }
    left();
}
else {
    logic = 0;
}
}

```

```

void saveConfigCallback () {
    Serial.println(F("Should save config"));
    shouldSaveConfig = true;
}

```

```

void initSPIFFS() {
    //read token from FS
    Serial.println(F("mounting FS..."));
    if (SPIFFS.begin()) {
        Serial.println(F("mounted file system"));
        if (SPIFFS.exists("/token.txt")) {
            //file exists, reading and loading

```

```

Serial.println(F("reading config file"));
File configFile = SPIFFS.open("/token.txt", "r");
if (configFile) {
  Serial.print(F("opened config file"));
  while (configFile.available())
  {
    //read line by line from the file
    String line = configFile.readStringUntil('\n');
    strcpy(blynk_token, line.c_str());
    Serial.println(F(" success"));
  }
} else {
  Serial.println(F("failed to load token"));
}
configFile.close();
}
}
else {
  Serial.println(F("failed to mount FS"));
}
}

void saveToken() {
  Serial.println("saving config");
  File configFile = SPIFFS.open("/token.txt", "w");
  if (!configFile)
  {
    Serial.println("file creation failed");
  } else {
    Serial.println("File Created!");
    configFile.println(blynk_token);
  }
  configFile.close();
}

void initialize() {
  Serial.begin(9600);
  Serial.println();
}

```



```

initSPIFFS();
WiFiManagerParameter custom_blynk_token("blynk", "blynk token",
blynk_token, 34);
WiFiManager wifiManager;
wifiManager.setSaveConfigCallback(saveConfigCallback);
wifiManager.addParameter(&custom_blynk_token);
if (!wifiManager.autoConnect("Robot Humanoid", "Robot123*")) {
  Serial.println("failed to connect and hit timeout");
  digitalWrite(buzzer, HIGH);
  delay(3000);
  digitalWrite(buzzer, LOW);
  ESP.restart();
  delay(5000); }
Serial.println("Alhamdulillah terkoneksi");
strcpy(blynk_token, custom_blynk_token.getValue());
displayconnected();
digitalWrite(buzzer, HIGH);
delay(100);
digitalWrite(buzzer, LOW);
digitalWrite(LED_BUILTIN, HIGH);
delay(100);
digitalWrite(buzzer, HIGH);
delay(100);
digitalWrite(buzzer, LOW);
if (shouldSaveConfig) {
  saveToken();
}
}

void oledsetup() {
  if (!display.begin(SSD1306_SWITCHCAPVCC,
SCREEN_ADDRESS)) {
    Serial.println(F("SSD1306 allocation failed"));
    for (;;)
  }
  display.display();
  delay(2000); // Pause for 2 seconds
  display.clearDisplay();
}

```

```
display.drawPixel(10, 10, SSD1306_WHITE);
display.display();
delay(2000);
displayconnecting();
}
```

```
void displayconnected() {
display.clearDisplay();
display.setTextSize(1);
display.setTextColor(SSD1306_WHITE);
display.setCursor(23, 4);
display.println("HUMANOID ROBOT");
display.println("_____");
display.setCursor(3, 22);
display.setTextSize(1);
display.setTextColor(SSD1306_WHITE);
display.print("Wifi Connected !");
display.display();
}
```

```
void displayready() {
display.clearDisplay();
display.setTextSize(1);
display.setTextColor(SSD1306_WHITE);
display.setCursor(23, 4);
display.println("HUMANOID ROBOT");
display.println("_____");
display.setCursor(3, 22);
display.setTextSize(1);
display.setTextColor(SSD1306_WHITE);
display.print("Wifi Connected !");
display.display();
display.setCursor(29, 38);
display.setTextSize(2);
display.setTextColor(SSD1306_WHITE);
display.print("Ready !");
display.display();
}
```

```

void displayconnecting() {
    display.clearDisplay();
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.setCursor(23, 4);
    display.println("HUMANOID ROBOT");
    display.println("_____");
    display.setCursor(3, 22);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.println("WIFI: Robot Humanoid");
    display.setCursor(3, 30);
    display.println("Pswd: Robot123*");
    display.setCursor(3, 40);
    display.println("IP : 192.168.4.1");
    display.display();
    display.setCursor(30, 50);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.println("Connecting....");
    display.display();
}

```

```

void displayconnecteds() {
    display.clearDisplay();
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.setCursor(23, 4);
    display.println("HUMANOID ROBOT");
    display.println("_____");
    display.setCursor(3, 22);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.print("Wifi Connected !");
    display.display();
}

```

```

void displayleft() {
    display.clearDisplay();
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.setCursor(23, 4);
    display.println("HUMANOID ROBOT");
    display.println("_____");
    display.setCursor(3, 22);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.print("Wifi Connected !");
    display.display();
    display.setCursor(30, 38);
    display.setTextSize(2);
    display.setTextColor(SSD1306_WHITE);
    display.print("KIRI !");
    display.display();
}

```

```

void displayback() {
    display.clearDisplay();
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.setCursor(23, 4);
    display.println("HUMANOID ROBOT");
    display.println("_____");
    display.setCursor(3, 22);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.print("Wifi Connected !");
    display.display();
    display.setCursor(25, 38);
    display.setTextSize(2);
    display.setTextColor(SSD1306_WHITE);
    display.print("MUNDUR !");
    display.display();
}

```

```

void displayright() {
    display.clearDisplay();
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.setCursor(23, 4);
    display.println("HUMANOID ROBOT");
    display.println("_____");
    display.setCursor(3, 22);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.print("Wifi Connected !");
    display.display();
    display.setCursor(26, 38);
    display.setTextSize(2);
    display.setTextColor(SSD1306_WHITE);
    display.print("KANAN !");
    display.display();
}

```

```

void displaystop() {
    display.clearDisplay();
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.setCursor(23, 4);
    display.println("HUMANOID ROBOT");
    display.println("_____");
    display.setCursor(3, 22);
    display.setTextSize(1);
    display.setTextColor(SSD1306_WHITE);
    display.print("Wifi Connected !");
    display.display();
    display.setCursor(30, 38);
    display.setTextSize(2);
    display.setTextColor(SSD1306_WHITE);
    display.print("STOP !");
    display.display();
}

```

```

void displayforward() {
  display.clearDisplay();
  display.setTextSize(1);
  display.setTextColor(SSD1306_WHITE);
  display.setCursor(23, 4);
  display.println("HUMANOID ROBOT");
  display.println("_____");
  display.setCursor(3, 22);
  display.setTextSize(1);
  display.setTextColor(SSD1306_WHITE);
  display.print("Wifi Connected !");
  display.display();
  display.setCursor(30, 38);
  display.setTextSize(2);
  display.setTextColor(SSD1306_WHITE);
  display.print("MAJU !");
  display.display();
}

```

```

BLYNK_WRITE(V0) //Maju
{
  int value = param.asInt();
  if (value == 1) {
    Blynk.virtualWrite(V1, 0);
    Blynk.virtualWrite(V2, 0);
    Blynk.virtualWrite(V3, 0);
    Blynk.virtualWrite(V4, 0);
    Blynk.virtualWrite(V5, 0);
    buzzertip();
    displayforward();
    logic = 1;
    firstforward = true;
    carrierforward = true;
  }
  else if (value == 0) {
    Blynk.virtualWrite(V5, 1);
  }
}

```

```

BLYNK_WRITE(V1) //Mundur
{
  int value = param.asInt();
  if (value == 1) {
    Blynk.virtualWrite(V0, 0);
    Blynk.virtualWrite(V2, 0);
    Blynk.virtualWrite(V3, 0);
    Blynk.virtualWrite(V4, 0);
    Blynk.virtualWrite(V5, 0);
    buzzertip();
    displayback();
    firstback = true;
    carrierback = true;
    logic = 2;
  }
  else if (value == 0) {
    Blynk.virtualWrite(V5, 1);
  }
}

```

```

BLYNK_WRITE(V2) //Kanan
{
  int value = param.asInt();
  digitalWrite(5, LOW);
  if (value == 1) {
    Blynk.virtualWrite(V0, 0);
    Blynk.virtualWrite(V1, 0);
    Blynk.virtualWrite(V3, 0);
    Blynk.virtualWrite(V4, 0);
    Blynk.virtualWrite(V5, 0);
    buzzertip();
    displayright();
    firstright = true;
    carrierright = true;
    logic = 3;
  }
  else if (value == 0) {
    Blynk.virtualWrite(V5, 1); }}

```

```

BLYNK_WRITE(V3) //Kiri
{
  int value = param.asInt();
  digitalWrite(5, LOW);
  if (value == 1) {
    Blynk.virtualWrite(V0, 0);
    Blynk.virtualWrite(V1, 0);
    Blynk.virtualWrite(V2, 0);
    Blynk.virtualWrite(V4, 0);
    Blynk.virtualWrite(V5, 0);
    buzzertip();
    displayleft();
    firstleft = true;
    carrierleft = true;
    logic = 4;
  }
  else if (value == 0) {
    Blynk.virtualWrite(V5, 1);
  }
}

```

```

BLYNK_WRITE(V5) //Stop
{
  int value = param.asInt();

  if (value == 1) {
    Blynk.virtualWrite(V0, 0);
    Blynk.virtualWrite(V1, 0);
    Blynk.virtualWrite(V2, 0);
    Blynk.virtualWrite(V3, 0);
    Blynk.virtualWrite(V4, 0);
    buzzertip();
    displaystop();
    logic = 0;
  }
}

```



```
void buzzertip() {  
    digitalWrite(buzzer, HIGH);  
    delay(100);  
    digitalWrite(buzzer, LOW);  
}
```

```
void buzzeroff() {  
    digitalWrite(buzzer, LOW);  
}
```

```
void buzzertipready() {  
    digitalWrite(buzzer, HIGH);  
    delay(100);  
    digitalWrite(buzzer, LOW);  
    delay(100);  
    digitalWrite(buzzer, HIGH);  
    delay(100);  
    digitalWrite(buzzer, LOW);  
    delay(100);  
    digitalWrite(buzzer, HIGH);  
    delay(100);  
    digitalWrite(buzzer, LOW);  
}
```

```
void forward() { //Gerak Maju Pembuka  
    if (firstforward == true) {  
        //first forward  
        Serial2.print("#1P1400#2P800#3P1650#12P1500#13P1300#14P1450  
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#  
29P1544#30P1650#31P2400#32P1500T1300\r\n"); delay(1650);  
        Serial2.print("#1P1400#2P900#3P1550#12P1600#13P1300#14P1450  
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1600#28P1250#  
29P1520#30P1650#31P2300#32P1500T1300\r\n"); delay(1650);  
        Serial2.print("#1P1400#2P900#3P1750#12P1600#13P1300#14P1450  
#15P1456#17P1480#18P1850#19P1550#20P1220#21P1500#28P1250#  
29P1520#30P1650#31P2300#32P1500T1300\r\n"); delay(1650);  
    }  
}
```

```

Serial2.print("#1P1400#2P900#3P1750#12P1500#13P1100#14P1350
#15P1636#17P1450#18P1650#19P1450#20P1220#21P1500#28P1250#
29P1520#30P1650#31P2300#32P1500T1300\r\n"); delay(1650);
firstforward = false;
}

```

```

else if (firstforward == false) { //Gerak Maju Berulang

```

```

// looping forward

```

```

Serial2.print("#1P1400#2P900#3P1750#12P1400#13P1100#14P1350
#15P1536#17P1500#18P1650#19P1450#20P1220#21P1400#28P1250#
29P1520#30P1750#31P2300#32P1500T1300\r\n"); delay(1650);

```

```

Serial2.print("#1P1400#2P900#3P1650#12P1400#13P1600#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1300#21P1350#28P1220#
29P1520#30P1450#31P2300#32P1411T1300\r\n"); delay(1650);

```

```

Serial2.print("#1P1400#2P800#3P1550#12P1400#13P1600#14P1450
#15P1236#17P1450#18P1650#19P1550#20P1320#21P1350#28P1220#
29P1520#30P1450#31P2300#32P1500T1300\r\n"); delay(1650);

```

```

Serial2.print("#1P1400#2P800#3P1550#12P1500#13P1400#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1450#28P1250#
29P1520#30P1450#31P2300#32P1500T1300\r\n"); delay(1650);

```

```

Serial2.print("#1P1400#2P850#3P1550#12P1500#13P1400#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1550#28P1250#
29P1520#30P1450#31P2300#32P1500T1300\r\n"); delay(1650);

```

```

Serial2.print("#1P1400#2P850#3P1550#12P1600#13P1400#14P1450
#15P1336#17P1450#18P1750#19P1550#20P1220#21P1550#28P1250#
29P1520#30P1650#31P2400#32P1500T1300\r\n"); delay(1650);

```

```

Serial2.print("#1P1400#2P900#3P1700#12P1600#13P1380#14P1450
#15P1336#17P1480#18P1850#19P1650#20P1220#21P1550#28P1250#
29P1520#30P1811#31P2233#32P1500T1300\r\n"); delay(1650);
}
}

```

```

void back() {

```

```

if (firstback == true) {

```

```

//first back

```

```

Serial2.print("#1P1400#2P800#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1520#30P1650#31P2400#32P1500T1200\r\n"); delay(1500);

```

```

Serial2.print("#1P1400#2P800#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1211#30P1650#31P2400#32P1500T1200\r\n"); delay(1500);
Serial2.print("#1P1400#2P800#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1833#30P1650#31P2400#32P1500T1200\r\n"); delay(1500);
Serial2.print("#1P1400#2P900#3P1550#12P1600#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1600#28P1200#29
P1720#30P1650#31P2200#32P1500T1200\r\n"); delay(1500);
Serial2.print("#1P1400#2P800#3P1350#12P1600#13P1350#14P1450#1
5P1380#17P1500#18P1550#19P1550#20P1520#21P1500#28P1250#29
P1720#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
Serial2.print("#1P1400#2P800#3P1350#12P1600#13P1300#14P1450#1
5P1436#17P1450#18P1450#19P1550#20P1420#21P1500#28P1250#29
P1720#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
    firstback = false;
}

```

```

else if (firstback == false) { //Gerak Mundur Pembuka
    //looping back

```

```

Serial2.print("#1P1400#2P800#3P1350#12P1500#13P1400#14P1450#1
5P1436#17P1500#18P1550#19P1550#20P1420#21P1500#28P1250#29
P1478#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
Serial2.print("#1P1400#2P800#3P1350#12P1400#13P1400#14P1450#1
5P1336#17P1450#18P1650#19P1550#20P1320#21P1400#28P1250#29
P1478#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
Serial2.print("#1P1400#2P900#3P1722#12P1450#13P1200#14P1450#1
5P1636#17P1450#18P1680#19P1550#20P1320#21P1360#28P1200#29
P1720#30P1856#31P2300#32P1500T1200\r\n"); delay(1500);
Serial2.print

```

```

void right() { //Gerak Geser Kanan

```

```

Serial2.print("#1P1400#2P878#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1256#30P1650#31P2400#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P967#3P1550#12P1400#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1380#28P1250#29
P1167#30P1650#31P2322#32P1500T800\r\n"); delay(1000);

```

```

Serial2.print("#1P1400#2P967#3P1550#12P1400#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1380#28P1150#29
P1520#30P1650#31P2389#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P789#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1520#30P1650#31P2389#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P856#3P1550#12P1600#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1600#28P1250#29
P1767#30P1650#31P2189#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P856#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1589#30P1650#31P2189#32P1500T800\r\n"); delay(1000);
}

```

```

void left() { //Gerak Geser Kiri

```

```

Serial2.print("#1P1233#2P900#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1520#30P1650#31P2256#32P1544T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P900#3P1550#12P1600#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1600#28P1250#29
P1967#30P1650#31P2233#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1544#2P878#3P1550#12P1600#13P1300#14P1450#1
5P1436#17P1550#18P1650#19P1550#20P1320#21P1600#28P1250#29
P1520#30P1650#31P2300#32P1389T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P833#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1550#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1520#30P1650#31P2322#32P1344T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P856#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1150#29
P1520#30P1650#31P2400#32P1344T800\r\n"); delay(1000);
Serial2.print("#1P1400#2P944#3P1550#12P1400#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1400#28P1150#29
P1189#30P1650#31P2233#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1633#2P922#3P1550#12P1400#13P1300#14P1450#1
5P1436#17P1500#18P1650#19P1550#20P1330#21P1400#28P1250#29
P1520#30P1650#31P2300#32P1233T800\r\n"); delay(1000);

```

```

Serial2.print("#1P1400#2P878#3P1550#12P1400#13P1300#14P1450#1
5P1436#17P1400#18P1650#19P1550#20P1320#21P1400#28P1250#29
P1520#30P1650#31P2233#32P1500T800\r\n"); delay(1000);
Serial2.print("#1P1278#2P900#3P1550#12P1500#13P1300#14P1450#1
5P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#29
P1520#30P1650#31P2278#32P1500T800\r\n"); delay(1000);
}

```

```

void stops() { //berhenti
  if (carrierboot == true) { //Posisi Standby
    Serial2.print("#1P1400#2P800#3P1650#12P1500#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#
29P1033#30P1650#31P2400#32P1500T900\r\n"); delay(2000);
    carrierboot = false;
    displayready();
    buzzertipready();
  }
}

```

```

else if (carrierforward == true) { //Persiapan Berhenti Gerak Maju
  Serial2.print("#1P1400#2P800#3P1350#12P1400#13P1450#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1370#28P1200#
29P1478#30P1350#31P2300#32P1500T1300\r\n"); delay(1650);
  Serial2.print("#1P1400#2P800#3P1350#12P1400#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1370#28P1250#
29P1478#30P1350#31P2300#32P1500T1300\r\n"); delay(1650);
  Serial2.print("#1P1400#2P800#3P1350#12P1500#13P1400#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1400#28P1250#
29P1478#30P1350#31P2300#32P1500T1300\r\n"); delay(1650);
  Serial2.print("#1P1400#2P800#3P1656#12P1500#13P1400#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1400#28P1250#
29P1478#30P1656#31P2300#32P1500T1300\r\n"); delay(1650);
  Serial2.print("#1P1400#2P800#3P1650#12P1500#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#
29P1033#30P1650#31P2400#32P1500T1300\r\n"); delay(1650);
  carrierforward = false;
}
}

```

```

else if (carrierback == true) { //Persiapan Berhenti Gerak Mundur
    //end back steps
    Serial2.print("#1P1400#2P800#3P1350#12P1500#13P1400#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#
29P1478#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
    Serial2.print("#1P1400#2P800#3P1350#12P1400#13P1450#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1370#28P1200#
29P1478#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
    Serial2.print("#1P1400#2P800#3P1350#12P1400#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1370#28P1250#
29P1478#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
    Serial2.print("#1P1400#2P800#3P1350#12P1500#13P1400#14P1450
#15P1336#17P1450#18P1650#19P1550#20P1320#21P1400#28P1250#
29P1478#30P1350#31P2300#32P1500T1200\r\n"); delay(1500);
    Serial2.print("#1P1400#2P800#3P1650#12P1500#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#
29P1033#30P1650#31P2400#32P1500T1200\r\n"); delay(1500);
    carrierback = false;
}
else if (carrierright == true) { //Berhenti Gerak Geser Kanan
    Serial2.print("#1P1400#2P800#3P1650#12P1500#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#
29P1033#30P1650#31P2400#32P1500T900\r\n"); delay(1100);
    carrierright = false;
}
else if (carrierleft == true) { //Berhenti Gerak Geser Kiri
    Serial2.print("#1P1400#2P800#3P1650#12P1500#13P1300#14P1450
#15P1436#17P1450#18P1650#19P1550#20P1320#21P1500#28P1250#
29P1033#30P1650#31P2400#32P1500T900\r\n"); delay(1100);
    carrierleft = false;
}
}
}

```

LAMPIRAN B

Program Aplikasi Android (*MIT APP Inventor*)

```
initialize global server to " http://sgp1.blynk.cloud/external/api "
initialize global tokenupdate to " /update?token=H-PPLGfXceQ7GpThToATbIQtUAUDFsbS "
initialize global updateV0 to " &v0= "
initialize global updateV1 to " &v1= "
initialize global updateV2 to " &v2= "
initialize global updateV3 to " &v3= "
initialize global updateV5 to " &v5= "

when Maju .Click
do
  set BlynkV0 . Url to join
  get global server
  get global tokenupdate
  get global updateV0
  " 1 "
  call BlynkV0 .Get

when Mundur .Click
do
  set BlynkV1 . Url to join
  get global server
  get global tokenupdate
  get global updateV1
  " 1 "
  call BlynkV1 .Get

when Kiri .Click
do
  set BlynkV3 . Url to join
  get global server
  get global tokenupdate
  get global updateV3
  " 1 "
  call BlynkV3 .Get
```

```

when Kanan .Click
do
  set BlynkV2 . Url to
  join
  get global server
  get global tokenupdate
  get global updateV2
  " 1 "
  call BlynkV2 .Get

```

```

when Berhenti .Click
do
  set BlynkV5 . Url to
  join
  get global server
  get global tokenupdate
  get global updateV5
  " 1 "
  call BlynkV5 .Get

```

```

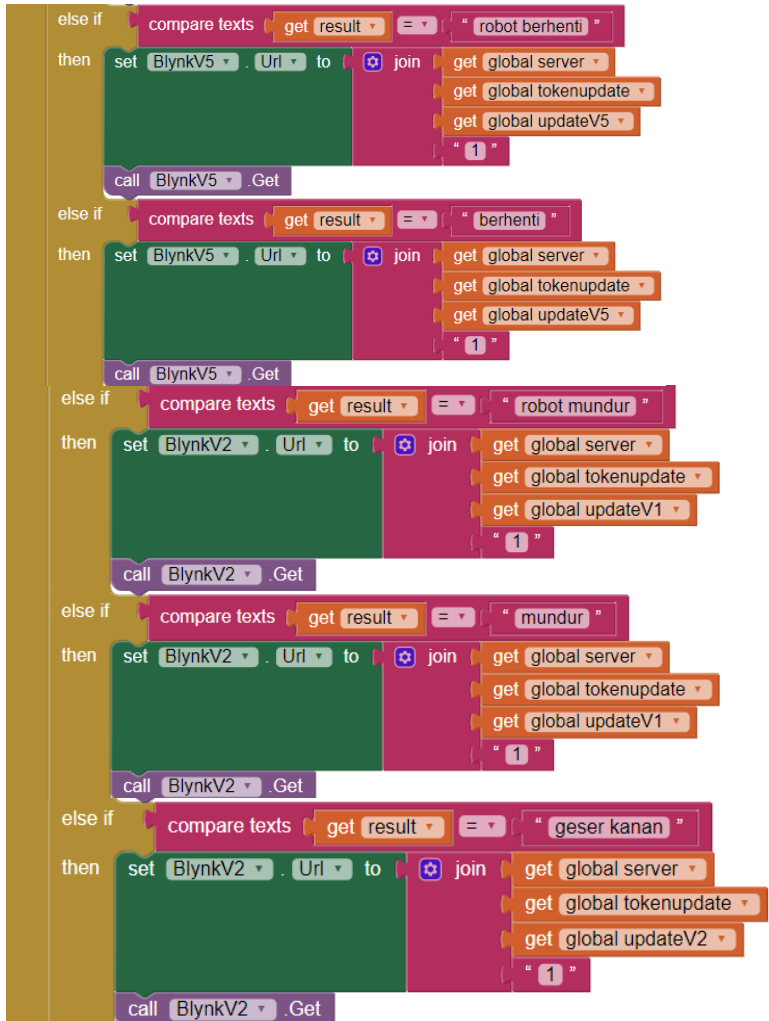
when Voice .Click
do
  call SpeechRecognizer1 .GetText

```

```

when SpeechRecognizer1 .AfterGettingText
result partial
do
  if
  compare texts
  get result
  =
  " robot maju "
  then
  set BlynkV0 . Url to
  join
  get global server
  get global tokenupdate
  get global updateV0
  " 1 "
  call BlynkV0 .Get
  else if
  compare texts
  get result
  =
  " maju "
  then
  set BlynkV0 . Url to
  join
  get global server
  get global tokenupdate
  get global updateV0
  " 1 "
  call BlynkV0 .Get

```

```
else if compare texts [get result] = "robot geser kanan"
then set BlynkV2 . Url to [join [get global server] [get global tokenupdate] [get global updateV2] "1"]]
call BlynkV2 .Get

else if compare texts [get result] = "kiri"
then set BlynkV3 . Url to [join [get global server] [get global tokenupdate] [get global updateV3] "1"]]
call BlynkV3 .Get

else if compare texts [get result] = "robot geser kiri"
then set BlynkV3 . Url to [join [get global server] [get global tokenupdate] [get global updateV3] "1"]]
call BlynkV3 .Get
```

BIODATA PENULIS



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Riwayat Pendidikan :

- SDN 01 Majakerta Tahun 2007-2013
- SMPN 1 Watukumpul Tahun 2013-2016
- SMAN 1 Belik Tahun 2016-2019
- Politeknik Negeri Cilacap Tahun 2019-2022

Penulis telah mengikuti seminar Tugas Akhir pada tanggal 18 Agustus 2022, sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md).