Listing Program Arduino Ide

```
#include <Arduino.h>
#if defined(ESP32)
#include <WiFi.h>
#elif defined(ESP8266)
#include <ESP8266WiFi.h>
#endif
#include <Firebase_ESP_Client.h>
#include <Adafruit_INA219.h>
#include <LiquidCrystal_I2C.h>
#include <RTClib.h>
#include <Wire.h>
#include <Servo.h>
#include <NewPing.h>
#include "addons/TokenHelper.h"
#include "addons/RTDBHelper.h"
#define WIFI_SSID "bayu"
#define WIFI_PASSWORD "123456789"
#define API_KEY
"AIzaSyBqZmn26WYz6AQCY27CdvcLJ4VcPbw6Ugo"
#define DATABASE_URL "https://kandang-burung-
iot-add76-default-rtdb.firebaseio.com/"

FirebaseData firebaseData;
FirebaseAuth auth;
FirebaseConfig config;

bool signupOK = false;
bool statusServo = false;
bool statusPompa = false;
bool statusKeamanan = false;
#define doorSwitchPin 3
#define buzzerPin 1
#define relay1 0
#define relay2 2
#define trig  14
#define echo  12
#define trig1 13
#define echo1 15
```

```
#define servo 16
RTC_DS3231 rtc;
String startHour, startMinute, stopHour,
stopMinute, currentHour, currentMinute,
currentDay, pesanpakan, pesanminum;
Servo myservo;
float jarak, jarak1; durasi;
int doorState;
String doorStatus;
float busVoltage = 0;
float current = 0; // Measure in milli amps
float power = 0;
//const int beripakan = 9;
bool adapakan = false;
Adafruit_INA219 sensor219;
LiquidCrystal_I2C lcd(0x27, 16, 2);
int jam, menit, detik;
String waktukonveyor;

unsigned long previousMillis = 0;
const long interval = 259200000; // 3 hari dalam
milidetik
const int conveyorRunTime = 10 * 60 * 1000; //
10 menit dalam milidetik
unsigned long currentMillis ;

void setup()
{
  Serial.begin(115200);
  lcd.init();
  sensor219.begin();
pinMode(echo, INPUT);
  pinMode(trig, OUTPUT);
  pinMode(echo1, INPUT);
  pinMode(trig1, OUTPUT);
  pinMode (relay1, OUTPUT);
  pinMode (relay2, OUTPUT);
  pinMode(doorSwitchPin, INPUT_PULLUP);
  pinMode(buzzerPin, OUTPUT);
  myservo.attach(servo);
```

```
  digitalWrite(relay1, LOW);
  digitalWrite(relay2, LOW);
  digitalWrite(buzzerPin, LOW);

  WiFi.begin(WIFI_SSID, WIFI_PASSWORD);
  Serial.print("Connecting to Wi-Fi");
  while (WiFi.status() != WL_CONNECTED) {
    Serial.print(".");
    delay(300);
  }
  Serial.println();
  Serial.print("Connected with IP: ");
  Serial.println(WiFi.localIP());
  String ipAddress = WiFi.localIP().toString();
  Serial.println(ipAddress);

  config.api_key = API_KEY;
  config.database_url = DATABASE_URL;
  config.token_status_callback =
tokenStatusCallback;

  if (Firebase.signUp(&config, &auth, "", "")) {
    Serial.println("ok");
    signupOK = true;
  }
  else {
    Serial.printf("%s\n",
config.signer.signupError.message.c_str());
  }

  Firebase.begin(&config, &auth);
  Firebase.reconnectWiFi(true);

  if (!rtc.begin()) {
    Serial.println("Couldn't find RTC");
    while (1);
  }
  if (rtc.lostPower()) {
    Serial.println("RTC lost power, let's set
the time!");
```

```
    rtc.adjust(DateTime(F(__DATE__),
F(__TIME__)));
  }
  //  Firebase.RTDB.setString(&firebaseData,
"Nama_WiFi", WIFI_SSID);
  //  Firebase.RTDB.setString(&firebaseData,
"IP_Address", ipAddress);
}

void loop () {
  currentMillis = millis();

  digitalWrite(trig, LOW);
  delayMicroseconds(8);
  digitalWrite(trig, HIGH);
  delayMicroseconds(8);
  digitalWrite(trig, LOW);
  delayMicroseconds(8);
  durasi = pulseIn(echo, HIGH);
  jarak = (durasi / 2) / 29.1;
  Serial.println(jarak);
  digitalWrite(trig1, LOW);
  delayMicroseconds(8);
  digitalWrite(trig1, HIGH);
  delayMicroseconds(8);
  digitalWrite(trig1, LOW);
  delayMicroseconds(8);
  durasi = pulseIn(echo1, HIGH);
  jarak = (durasi / 2) / 29.1;
  Serial.println(jarak1);

  busVoltage = sensor219.getBusVoltage_V();
  current = sensor219.getCurrent_mA();
  power = busVoltage * (current / 1000);
  Serial.println(current);
  Serial.println(busVoltage);

  DateTime now = rtc.now() + TimeSpan (0, 0, 0,
29);
  jam = now.hour();
```

```
  menit = now.minute();
  waktukonveyor = now.timestamp();
  //    detik = now.second();
  // currentDay = String(weekday());//Hari dalam
minggu (1 = Minggu, 2 = Senin, dst.)
  currentHour = String(now.hour());
  currentMinute = String(now.minute());
  Serial.print(now.hour());       //Menampilkan
Jam
  Serial.print(":");
  Serial.print(now.minute());     //Menampilkan
Menit
  Serial.print(":");
  Serial.print(now.second());     //Menampilkan
Detik
  Serial.println();
  // program minum
  if (jarak >= 0 && jarak <= 3) {
    pesanpakan = "Penuh";
  } else if (jarak >= 4 && jarak <= 6) {
    pesanpakan = "Masih Ada";
  } else if (jarak >= 7) {
    pesanpakan = "Kosong";
  }
  if (jarak1 >= 0 && jarak1 <= 3) {
    pesanminum = "Penuh";
  } else if (jarak1 >= 4 && jarak1 <= 6) {
    pesanminum = "Masih Ada";
  } else if (jarak1 >= 7) {
    pesanminum = "Kosong";
  }
  Firebase.RTDB.setString(&firebaseData,
"Jarak_Pakan", jarak);
  Firebase.RTDB.setString(&firebaseData,
"Jarak_Minum", jarak1);
  Firebase.RTDB.setFloat(&firebaseData,
"Tegangan", busVoltage);
  Firebase.RTDB.setFloat(&firebaseData, "Arus",
current);
```

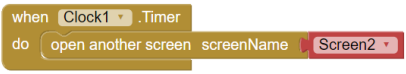
```
  Firebase.RTDB.setString(&firebaseData,
"Sisa_Minum", pesanminum);
  Firebase.RTDB.setString(&firebaseData,
"Sisa_Pakan", pesanpakan);
  Firebase.RTDB.setString(&firebaseData,
"konveyor",  waktukonveyor);

  //doorStatus = doorState == HIGH ? "Terbuka" :
"Tertutup";
  doorState = digitalRead(doorSwitchPin);

  magnet();
  mangan();
  ngelak();
  tampilan();
  pembersih();
}

void mangan() {
  if (Firebase.RTDB.getString(&firebaseData,
"servoStatus")) {
    String kontrolservo =
firebaseData.stringData();
    if (kontrolservo == "1") {
      if ((jam == 6 || jam == 21) && menit == 0)
{
        if (jarak >= 7) {
          myservo.write (30);
        } else if (jarak >= 0 && jarak <= 4) {
          myservo.write(8);
        }
        //myservo.write(30);
      }
      statusServo = true;
    } else if (kontrolservo == "0") {
      myservo.write(8);
      statusServo = false;
    }
  }
}
```

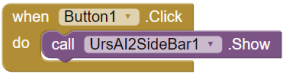
```
void pembersih (){
   if (currentMillis - previousMillis >=
interval) {
    previousMillis = currentMillis;

    // Turn on the conveyor
    digitalWrite(relay2, HIGH);
    delay(conveyorRunTime); // Run conveyor for
10 minutes
    digitalWrite(relay2, LOW);

    // Update Firebase with the new run time
    Firebase.RTDB.setString(&firebaseData,
"konveyor",  waktukonveyor);
  }
}

void magnet(){
    if (doorState == HIGH) {
    Firebase.RTDB.setString(&firebaseData,
"doorStatus", "Terbuka");
  } else {
    Firebase.RTDB.setString(&firebaseData,
"doorStatus", "Tertutup");
  }

  if (Firebase.RTDB.getString(&firebaseData,
"buzzerStatus")) {
    String kontrolkeamanan =
firebaseData.stringData();
    if (kontrolkeamanan == "1") {
      if (doorState == HIGH) {
        if (statusKeamanan) {
          digitalWrite(buzzerPin, HIGH);
        }
      } else {
        digitalWrite(buzzerPin, LOW);
      }
      statusKeamanan = true;
    } else if (kontrolkeamanan == "0") {
```

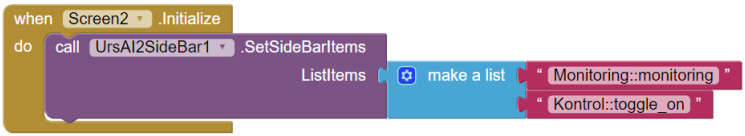
```
      statusKeamanan = false;
      digitalWrite(buzzerPin, LOW);
    }
  }
}

void tampilan() {
  lcd.backlight();
  lcd.setCursor(0, 0);
  lcd.print("V:");
  lcd.setCursor(2, 0);
  lcd.print(busVoltage);
  lcd.setCursor(7, 0);
  lcd.print("V");
  lcd.setCursor(4, 1);
  lcd.print("I:");
  lcd.setCursor(6, 1);
  lcd.print(current);
  lcd.setCursor(12, 1);
  lcd.print("mA");
  lcd.setCursor(9, 0);
  lcd.print("P:");
  lcd.setCursor(11, 0);
  lcd.print(power);
  lcd.setCursor(15, 0);
  lcd.print("W");
}

void ngelak() {
  if (Firebase.RTDB.getString(&firebaseData,
"motorStatus")) {
    String kontrolpompa =
firebaseData.stringData();
    if (kontrolpompa == "1") {
      if ((jam == 6 || jam == 21) && menit == 0)
{
        if (jarak1 >= 7) {
          digitalWrite(relay1, HIGH);
          //delay(2000);
          //digitalWrite(relay1, LOW);
```

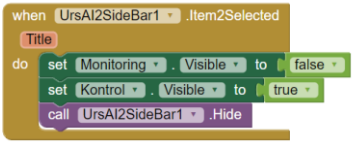
```
      } else if (jarak1 >= 1 && jarak <= 4) {
        digitalWrite(relay1, LOW);
      }
    }
    statusPompa = true;
  } else if (kontrolpompa == "0") {
    digitalWrite (relay1, LOW);
    statusPompa = false;
  }
}
```

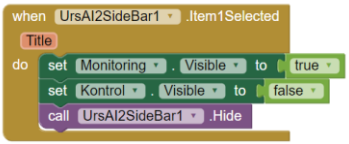
Listing Program MIT App Inventor

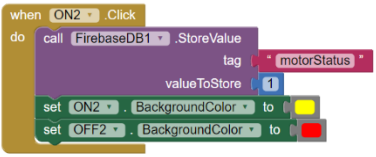


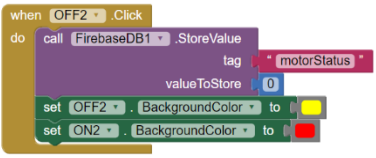


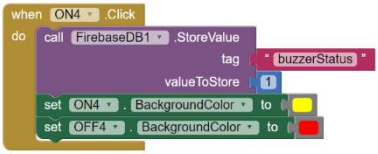


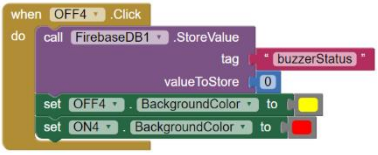


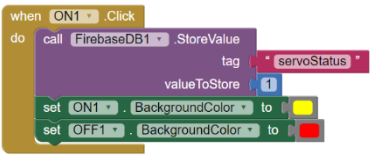


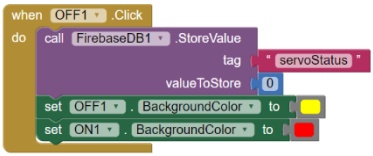


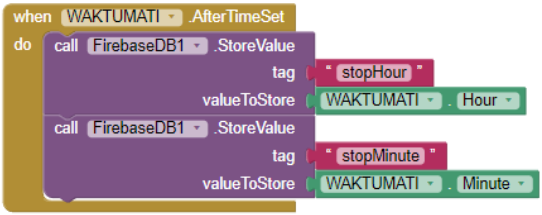


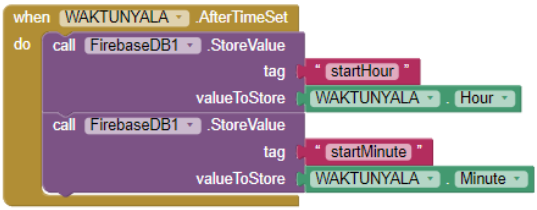


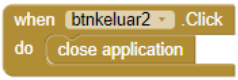


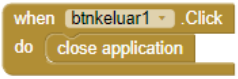


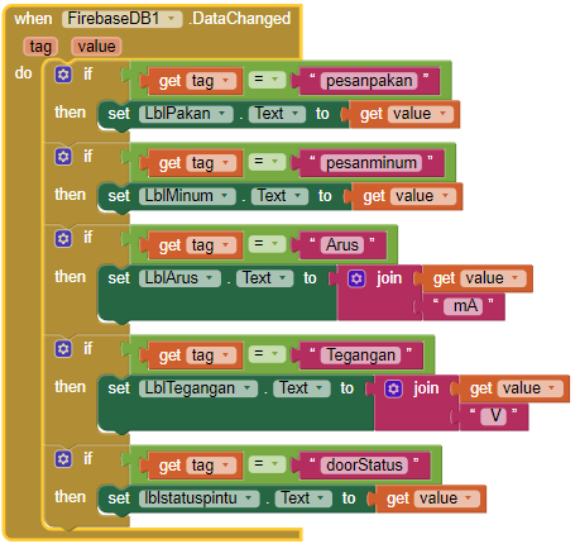



when WAKTUMATI .AfterTimeSet
do call FirebaseDB1 .StoreValue
tag " stopHour "
valueToStore WAKTUMATI . Hour
call FirebaseDB1 .StoreValue
tag " stopMinute "
valueToStore WAKTUMATI . Minute


when WAKTUNYALA .AfterTimeSet
do call FirebaseDB1 .StoreValue
tag " startHour "
valueToStore WAKTUNYALA . Hour
call FirebaseDB1 .StoreValue
tag " startMinute "
valueToStore WAKTUNYALA . Minute


when btnkeluar2 .Click
do close application


when btnkeluar1 .Click
do close application


when FirebaseDB1 .DataChanged
tag value
do if get tag = " pesanpakan "
then set LblPakan . Text to get value
if get tag = " pesanminum "
then set LblMinum . Text to get value
if get tag = " Arus "
then set LblArus . Text to join get value " mA "
if get tag = " Tegangan "
then set LblTegangan . Text to join get value " V "
if get tag = " doorStatus "
then set lblstatuspintu . Text to get value

BIODATA

Nama	:	Bayu Setyawan
Tempat, Tanggal Lahir	:	Cilacap, 28 Mei 2003
Alamat	:	Jalan Pakuran Desa Bulupayung, Kec. Kesugihan, Kab. Cilacap, Prov. Jawa Tengah.
Email	:	setyawannbayu@gmail.com
No. Telepon	:	0895358664687
Motto	:	Ngko Tulih Rampung (Nanti Juga Selesai)
Hobi	:	Paling Sering Rebahan

Riwayat Pendidikan :

1.	SD Negeri 02 Bulupayung	Tahun 2009-2015
2.	SMP Negeri 01 Kesugihan	Tahun 2015-2018
3.	SMK Boedi Oetomo 1 Cilacap Teknik Instalasi Tenaga Listrik	Tahun 2018-2021
4.	Politeknik Negeri Cilacap Program Studi D3 Teknik Elektronika	Tahun 2021-2024

Penulis telah mengikuti seminar hasil Tugas Akhir pada tanggal 9 Agustus 2024 sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya(A.Md).