

LAMPIRAN

```
1.  #include <ESP8266WiFi.h>
2.  #include <WiFiUdp.h>
3.  #include <NTPClient.h>

4.  #include <Firebase_ESP_Client.h>
5.  #include <addons/TokenHelper.h>

6.  #include "DHT.h"
7.  #define DHTPIN D6
8.  #define DHTTYPE DHT11

9.  #define SOILSENSOR A0
10. #define RAINSENSOR D2
11. #define relay D7

12. // Insert Firebase project API Key
13. #define API_KEY "AIzaSyDxiaHliiPsi4DpFaIZL27eOSa8dXgsb3o"
14. #define DATABASE_URL "https://monitoring-plant-system-
    default-rtdb.firebaseio.com"

15. // Insert Authorized Email and Corresponding Password
16. #define USER_EMAIL
17. #define USER_PASSWORD

18. const char *ssid = ;
19. const char *password = ;

20. const long utcOffsetInSeconds = 25200;
21. char daysOfTheWeek[7][12] = {"Sunday", "Monday", "Tuesday",
    "Wednesday", "Thursday", "Friday", "Saturday"};

22. WiFiUDP ntpUDP;
```

```

NTPClient timeClient(ntpUDP,
"asia.pool.ntp.org", utcOffsetInSeconds);

23. int value ;
24. String statusHujan;
25. float humidity_1 ;
26. float celcius_1 ;

27.   DHT dht(DHTPIN, DHTTYPE);

28.   //Define Firebase Data objects
29.   FirebaseData fbdo;
30.   FirebaseAuth auth;
31.   FirebaseConfig configF;

32. void initSetup(){
33.   Serial.begin(9600);
34.   pinMode(relay, INPUT);
35.   pinMode(RAINSENSOR, INPUT);

36.   digitalWrite(relay, 1); // relay off

37.   //DHT START
38.   dht.begin();
38.   //NPT START
39.   timeClient.begin();
    }

40. void initWifi(){
41.   WiFi.begin(ssid, password);
42.   while (WiFi.status() != WL_CONNECTED) {
43.     delay(1000);
44.     Serial.println("Connecting to WiFi...");
    }

```

```

45. Serial.println("Connected to WiFi");
    }

46. void initFirebase(){
47.     //Firebase
48.     // Assign the api key
49.     configF.api_key = API_KEY;
50.     /* Assign the RTDB URL (required) */
51.     configF.database_url = DATABASE_URL;
52.     //Assign the user sign in credentials
53.     auth.user.email = USER_EMAIL;
54.     auth.user.password = USER_PASSWORD;
55.     //Assign the callback function for the long running token
    generation task
56.     configF.token_status_callback = tokenStatusCallback; //see
    addons/TokenHelper.h
57.     Firebase.begin(&configF, &auth);
58.     Firebase.reconnectWiFi(true);
    }

59. void setup() {
60.     initSetup();
61.     initWifi();
62.     initFirebase();
    }

63. void relay_on(){
64.     pinMode(relay, OUTPUT);
65.     digitalWrite(relay, 0); //on
    }

66.     // fungsi relay off
67. void relay_off(){
68.     pinMode(relay, INPUT);
69.     digitalWrite(relay, 1); //off
    }

70. void intervalIrrigation(){

```

```

71. timeClient.update();
72. int currentHour = timeClient.getHours();
73. int currentMinute = timeClient.getMinutes();

74. int waktu1a = 0;
75. int waktu1b = 0;
76. int waktu2a = 0;
77. int waktu2b = 0;
78. int waktu3a = 0;
79. int waktu3b = 0;
80. int waktu4a = 0;
81. int waktu4b = 0;
82. int waktu5a = 0;
83. int waktu5b = 0;

84. if (Firebase.RTDB.getString(&fbdo, "/data/waktu_1")) {
85. if (fbdo.dataType() == "string") {
86. String stringValue = fbdo.stringData();
87. int index = stringValue.indexOf(':');
88. waktu1a = stringValue.substring(0, index).toInt();
89. waktu1b = stringValue.substring(index + 1).toInt();
90. }
91. }

90. if (Firebase.RTDB.getString(&fbdo, "/data/waktu_2")) {
91. if (fbdo.dataType() == "string") {
92. String stringValue = fbdo.stringData();
93. int index = stringValue.indexOf(':');
94. waktu2a = stringValue.substring(0, index).toInt();
95. waktu2b = stringValue.substring(index + 1).toInt();
96. }
97. }

96. if (Firebase.RTDB.getString(&fbdo, "/data/waktu_3")) {
97. if (fbdo.dataType() == "string") {
98. String stringValue = fbdo.stringData();

```

```
99. int index = stringValue.indexOf(':');  
100.     waktu3a = stringValue.substring(0, index).toInt();  
101.     waktu3b = stringValue.substring(index + 1).toInt();
```

