Lampiran

```
1. #define BLYNK_TEMPLATE_ID "TMPLjDDoU4Ks"
2.          #define BLYNK_DEVICE_NAME
"esp8266hidro" 3.
4. #define BLYNK_FIRMWARE_VERSION         "0.1.0"
5.#define BLYNK_PRINT Serial
6. #define APP_DEBUG
7.          #define
USE_NODE_MCU_BOARD 8.
9. #include "BlynkEdgent.h"
10.         #define SOUND_VELOCITY
0.034 11.
12. const int trigPin = 12;//12 D6
13. const int echoPin = 14;//14 D5
14. int pinPompa1 = 13; //D7
15.         int pinPompa2 = 15;
//D8 16.
17. int dataPompa1;
18. int dataPompa2;
19. const int ON = 0;
20.         const int OFF
= 1; 22.
23. long duration;
24.         float
distanceCm; 25.
26. float data_hcsr04;
27. float tinggi_air;
28. float data_kumulatif;
29. float data_rata;
30. int pengambilan;
31. int data_adc;
32. int set_level;
33. int set_ph;
34.         int
pernah,flag; 35.
36. float nilai_hcsr04() {
37.digitalWrite(trigPin, LOW);
38  delayMicroseconds(2);
39          digitalWrite(trigPin,
HIGH); 40
delayMicroseconds(10);
41 digitalWrite(trigPin, LOW);
42
43 duration = pulseIn(echoPin, HIGH);
```

```
44 distanceCm = duration * SOUND_VELOCITY / 2;
45 delay(100);
46 return distanceCm;
47 }
48 // SWITCH Pompa1
49 BLYNK_WRITE(V2) {
50 dataPompa1 = param.asInt();
51         Serial.print("Status Pompa1= ");
Serial.println(dataPompa1); 52 if (dataPompa1 == 1) {
53
//digitalWrite(pinPompa1,ON);
54 } else if (dataPompa1 == 0) {
55 //digitalWrite(pinPompa1,OFF);
 56 }
57 }
58
59 // SWITCH Pompa2
60 BLYNK_WRITE(V3) {
61 dataPompa2 = param.asInt();
62  Serial.print("Status Pompa1= "); Serial.println(dataPompa2);
63   if (dataPompa2 == 1) {
64         digitalWrite(pinPompa2,
ON); 65 } else if (dataPompa2 ==
0) { 66 digitalWrite(pinPompa2,
OFF); 67 }
68 }
69
70 // slide level
71 int data_sl_level;
72 BLYNK_WRITE(V4) {
73 data_sl_level = param.asInt();
74         Serial.print("sl_level= ");
Serial.println(data_sl_level); 75 }
76
77 // slide ph
78 int data_sl_ph;
79 BLYNK_WRITE(V5) {
80 data_sl_ph = param.asInt();
81         Serial.print("sl_ph= ");
Serial.println(data_sl_ph); 82 }
83
84 WidgetLED led1(V6);
85
86 float baca_ph() {
```

```
87 data_kumulatif = 0.0;
```

```
89 data_rata = 0.0;
90 pengambilan = 20;
91        for (int i = 0; i <
pengambilan; i++) 92 {
93  data_adc = analogRead(A0);
94  data_kumulatif = data_kumulatif + data_adc;
95        delay
(10); 96}
97 data_rata = data_kumulatif / pengambilan;
98 return data_rata;
99 }
100
101
102 void kontrol1() {
103 //_____kontrol air V1_____
104       set_level                =
data_sl_level;         105         if
(tinggi_air <= set_level) 106 {
107    digitalWrite(pinPompa1, ON);
108       } else if (tinggi_air >
set_level) 109 {
110    digitalWrite(pinPompa1,
OFF); 111 }
112}
113
114 void kontrol2()
115 {
116  //_____kontrol air V2... _____
117  set_level = data_sl_level;
118  int selisih = 2;
119  int batas_bawah;
120  batas_bawah = set_level - selisih;
121  led1.off();
122       pernah
= 0; 123
124 // --------- kendali level ------------
125 if (tinggi_air >= set_level)
126 {
127   do {
128  BlynkEdgent.run();
129   set_level = data_sl_level;
130   digitalWrite(pinPompa1, OFF);
131      data_hcsr04 = nilai_hcsr04();
132      tinggi_air = 24.0 - data_hcsr04;
```

```
133       batas_bawah = set_level -
selisih; 134
135      Blynk.virtualWrite(V0, tinggi_air);
136       Blynk.virtualWrite(V1,
baca_ph()); 137
138     Serial.print("tinggi_loop="); Serial.println(tinggi_air);
139     Serial.print("sensor ph="); Serial.println(baca_ph());
140      if ( baca_ph() <= data_sl_ph)
141      { Serial.println("kurang");
142        led1.on();
143        if (pernah == 0) {
144       Blynk.logEvent("kirim", String("Sensor pH mendeteksi KURANG
NUTRISI"));
145       pernah
= 1; 146 }
147  }else{
148    pernah = 0;
149       led1.of
f(); 150 }
151 } while (tinggi_air >= batas_bawah);
152 }
153
154 else if (tinggi_air <
set_level) 155 {
156    do {
157     BlynkEdgent.run();
158      set_level = data_sl_level;
159      digitalWrite(pinPompa1, ON);
160     data_hcsr04 = nilai_hcsr04();
161      tinggi_air = 24.0 - data_hcsr04;
162     Blynk.virtualWrite(V0, tinggi_air);
163      Blynk.virtualWrite(V1, baca_ph());
164     Serial.print("tinggi_loop="); Serial.println(tinggi_air);
165     Serial.print("sensor ph="); Serial.println(baca_ph());
166      if ( baca_ph() <= data_sl_ph)
167     { Serial.println("kurang");
168        led1.on();
169        if (pernah == 0) {
170       Blynk.logEvent("kirim", String("Sensor pH mendeteksi KURANG
NUTRISI"));
171         pernah = 1;
172        }
173       else{
174          pernah = 0;
```

```
175          led1.off();
176        }
177      }
178      Serial.print("tinggi_loop="); Serial.println(tinggi_air);
179       } while (tinggi_air <=
set_level); 180 }
181 }
182
183
184 void setup()
185 {
186  Serial.begin(115200);
187   pinMode(trigPin, OUTPUT);
188   pinMode(echoPin, INPUT);
190 pinMode(pinPompa1, OUTPUT);
191 pinMode(pinPompa2, OUTPUT);
192   digitalWrite(pinPompa1, HIGH);
193   digitalWrite(pinPompa2, HIGH);
194   BlynkEdgent.begin();
195
delay(100);
196 }
197
198 void loop() {
199   BlynkEdgent.run();
200  //____________BacaSensor____________________-___
201   data_hcsr04 = nilai_hcsr04();
202   tinggi_air = 24.0 - data_hcsr04;
203       float data_ph =
baca_ph(); 204
205  Serial.print("data hcsr04= "); Serial.println(tinggi_air);
206       Serial.print("data ADC-pH= ");
Serial.println(data_ph); 207 //_____________________
208
209   Blynk.virtualWrite(V0, tinggi_air);
210       Blynk.virtualWrite(V1,
baca_ph()); 211
212 kontrol2();
```