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Script Arduino

```
#include <Firebase.h>
#include <FirebaseESP32.h>
#include <FirebaseFS.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>
#include <Arduino.h>
#include <WiFi.h>

// Insert your network credentials
#define WIFI_SSID "Redmi Note 12 Pro 5G"
#define WIFI_PASSWORD "difa1234"

#define API_KEY "AIzaSyBM3e-O0zmfvnqH7khMZE263qY3aSI6V54"
#define DATABASE_URL "https://kekeruhan-64b07-default-rtdb.asia-southeast1.firebasedatabase.app"

FirebaseData firebaseData;
FirebaseAuth auth;
FirebaseConfig config;

// Timer for sending data
unsigned long startTime;
unsigned long sendDataPrevMillis = 0;
bool signupOK = false;
char waktuStr[9];

const int pHSensorPin = 35;
#define pHSensorPin 35
int sensorValue = 0;

const float pH4Voltage = 1.56;  // Tegangan yang diukur pada larutan pH 4.00
const float pH7Voltage = 1.44;  // Tegangan yang diukur pada larutan pH 7.00

float kekeruhan;
float teg;

int pompa = 13;
int valve =23;
String status1, status2;

// Deklarasi ukuran layar OLED
#define SCREEN_WIDTH 128
#define SCREEN_HEIGHT 64

// Deklarasi objek OLED
Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT, &Wire, -1);

// Logo bintang 64x64 piksel (contoh)
const unsigned char PROGMEM logo_bintang_keren[] = {
```

```
  0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00,

  0x00, 0x00, 0x7F, 0xF0, 0x1F, 0xFC,
0x00, 0x00,

  0x00, 0x01, 0xFF, 0xFC, 0x7F, 0xFF,
0x80, 0x00,

  0x00, 0x07, 0xE0, 0x3F, 0xF0, 0x07,
0xE0, 0x00,

  0x00, 0x1F, 0x00, 0x07, 0xC0, 0x00,
0xF8, 0x00,

  0x00, 0x3C, 0x00, 0x01, 0x80, 0x00,
0x3C, 0x00,

  0x00, 0x78, 0x00, 0x00, 0x00, 0x00,
0x1E, 0x00,

  0x00, 0xF0, 0x00, 0x00, 0x00, 0x00,
0x0F, 0x00,

  0x00, 0xE0, 0x00, 0x00, 0x00, 0x00,
0x07, 0x00,

  0x01, 0xE0, 0x00, 0x07, 0xC0, 0x00,
0x07, 0x80,

  0x01, 0xC0, 0x00, 0x1F, 0xF0, 0x00,
0x03, 0x80,

  0x03, 0xC0, 0x00, 0x3C, 0x3C, 0x00,
0x03, 0xC0,

  0x03, 0x80, 0x00, 0x70, 0x0E, 0x00,
0x01, 0xC0,

  0x07, 0x80, 0x00, 0x60, 0x06, 0x00,
0x01, 0xE0,

  0x07, 0x80, 0x00, 0x60, 0x06, 0x00,
0x01, 0xE0,

  0x0F, 0x00, 0x00, 0x70, 0x0E, 0x00,
0x00, 0xF0,

  0x0F, 0x00, 0x00, 0x3C, 0x3C, 0x00,
0x00, 0xF0,

  0x1E, 0x00, 0x00, 0x1F, 0xF8, 0x00,
0x00, 0x78,

  0x1E, 0x00, 0x00, 0x07, 0xE0, 0x00,
0x00, 0x78,

  0x3C, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x3C,

  0x3C, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x3C,

  0x78, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x1E,

  0x78, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x1E,

  0xF0, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x0F,

  0xF0, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x0F,

  0xF0, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x0F,

  0xF0, 0x00, 0x01, 0xC0, 0x03, 0x00,
0x00, 0x0F,

  0xF0, 0x00, 0x03, 0xE0, 0x07, 0x80,
0x00, 0x0F,

  0x78, 0x00, 0x03, 0xF0, 0x0F, 0xC0,
0x00, 0x1E,

  0x78, 0x00, 0x01, 0xF0, 0x0F, 0xC0,
0x00, 0x1E,

  0x3C, 0x00, 0x00, 0xF0, 0x0F, 0xC0,
0x00, 0x3C,

  0x3C, 0x00, 0x00, 0x60, 0x06, 0x00,
0x00, 0x3C,

  0x1E, 0x00, 0x00, 0x60, 0x06, 0x00,
0x00, 0x78,

  0x1E, 0x00, 0x00, 0x60, 0x06, 0x00,
0x00, 0x78,
```

```
  0x0F, 0x00, 0x00, 0x60, 0x06, 0x00,
0x00, 0xF0,
  0x0F, 0x80, 0x00, 0xE0, 0x0E, 0x00,
0x01, 0xF0,
  0x07, 0xC0, 0x00, 0xF8, 0x1F, 0x00,
0x03, 0xE0,
  0x03, 0xF0, 0x03, 0xFE, 0x7F, 0x80,
0x0F, 0xC0,
  0x01, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0x80,
  0x00, 0x3F, 0xFF, 0xFE, 0x7F, 0xFF,
0xFC, 0x00,
  0x00, 0x00, 0x3F, 0xF0, 0x0F, 0xFE,
0x00, 0x00,
  0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00
};

void setup() {
  Serial.begin(115200);
  startTime = millis(); // Catat waktu awal

  // Initialize Wi-Fi
  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());
  Serial.println();

  // Initialize Firebase
  config.api_key = API_KEY;
  config.database_url =
DATABASE_URL;

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

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

 // Memulai layar OLED

if(!display.begin(SSD1306_SWITCHCAP
VCC, 0x3C)) {
   Serial.println(F("Gagal memulai
SSD1306"));
  for(;;);
 }
```

```
  display.clearDisplay();

  // Menampilkan logo bintang sebagai splash screen
  display.drawBitmap(
    (SCREEN_WIDTH - 64) / 2, (SCREEN_HEIGHT - 64) / 2,
    logo_bintang_keren, 64, 64, SSD1306_WHITE
    );

  display.display();

  delay(4000);

  // Hapus layar
  display.clearDisplay();
  display.display();

  // Tampilkan pesan selanjutnya atau lanjutkan ke bagian program lain
  display.setTextSize(1.3);
  display.setTextColor(SSD1306_WHITE);
  display.setCursor(35, 10);
  display.println(F("APLIKASI"));
  display.setCursor(30, 20);
  display.println(F("MONITORING"));
  display.setCursor(40, 50);
  display.println(F("By 219280051"));
  display.display();
  delay(4000);
  display.display();

  // Hapus layar
  pinMode(pompa, OUTPUT);
  pinMode(valve, OUTPUT);
  digitalWrite(pompa, HIGH);
  digitalWrite(valve, HIGH);
  Serial.println("kodisi pompa dan valve mati");
  }

void loop() {
// Path penyimpanan data dengan ID tetap
  String deviceID = "device_001"; // ID tetap
  String path = "/sensor_data/" + deviceID;
  unsigned long waktuMillis = millis(); // Waktu dalam milidetik

// Konversi ke detik, menit, dan jam
  unsigned long detik = (waktuMillis / 1000) % 60;
  unsigned long menit = (waktuMillis / (1000 * 60)) % 60;
  unsigned long jam = (waktuMillis / (1000 * 60 * 60)) % 24;
  sprintf(waktuStr, "%02d:%02d:%02d", jam, menit, detik);
```

```
  sensorValue =
analogRead(pHSensorPin);
  float voltage = sensorValue * (3.3 /
4095.0);
  float pHValue = (7.0 - 4.0) / (pH7Voltage
- pH4Voltage) * (voltage - pH4Voltage) +
4.0 ;
  Serial.print("pH Value: ");
  Serial.println(pHValue);
  delay(4000);

  int val = analogRead(34);
  teg = val*(3.3 / 4095.0);
  kekeruhan = 100.00 - (teg / 1.44)*100.00;
  Serial.print(teg);
  Serial.print("       ");
  Serial.print("Nilai Adc = ");
  Serial.print(val);
  Serial.print("       ");
  Serial.print("Nilai kekeruhan = ");
  Serial.print(kekeruhan);
  Serial.print("NTU");
  Serial.print(" [ ");
  Serial.print("Waktu: ");
  Serial.print(jam);
  Serial.print(":");
  Serial.print(menit);
  Serial.print(":");
  Serial.print(detik);
  Serial.print(" ] ");
  delay(4000);
  Serial.println();


  display.clearDisplay();
  display.display();
  display.setCursor(0, 0);
  display.print("NILAI KEKERUHAN:");
  display.setCursor(0, 10);
  display.print(kekeruhan);
  display.setCursor(0, 20);
  display.print("NILAI PH: ");
  display.print(pHValue, 2);
  display.setCursor(0, 30);
  display.print("TEG:");
  display.print(teg);
  display.setCursor(0, 50);
  display.print("[ ");
  display.print("Waktu: ");
  display.print(jam);
  display.print(":");
  display.print(menit);
  display.print(":");
  display.print(detik);
  display.print(" ]");
  delay(4000);
  display.display();

  if (kekeruhan <= 5.0 && pHValue <=8.0)
{
```

```
    digitalWrite(pompa, HIGH);
    digitalWrite(valve, LOW);
    display.setCursor(0, 40);
    status1="AIR JERNIH & PH
RENDAH";
    status2="pompa OFF dan valve 0N";
    display.print("AIR JERNIH & PH
RENDAH");
    Serial.println("pompa OFF dan valve
0N");
    delay(4000);
  }
  else if (kekeruhan > 5.0 && pHValue
<=8.0) {
    digitalWrite(pompa,LOW);
    digitalWrite(valve, HIGH);
    display.setCursor(0, 40);
    status1="AIR KERUH & PH
RENDAH";
    status2="pompa ON dan valve OFF";
    display.print("AIR KERUH & PH
RENDAH");
    Serial.println("pompa ON dan valve
OFF");
    delay(4000);

  }else if (kekeruhan > 5.0 &&
pHValue >8.0) {
    digitalWrite(pompa,LOW);
    digitalWrite(valve, HIGH);
    display.setCursor(0, 40);
    status1="AIR KERUH & PH TINGGI";
    status2="pompa ON dan valve OFF";
    display.print("AIR KERUH & PH
TINGGI");
    Serial.println("pompa ON dan valve
OFF");
    delay(4000);
  }else {
    digitalWrite(pompa, LOW);
    digitalWrite(valve, HIGH);
    display.setCursor(0, 40);
    status1="AIR JERNIH & PH TINGGI";
    status2="pompa ON dan valve OFF";
    display.print("AIR JERNIH & PH
TINGGI");
    Serial.println("pompa ON dan valve
OFF");
    delay(4000);
  }
    display.display();

    Firebase.pushInt(firebaseData, path +
"/PH", pHValue);
    Firebase.pushInt(firebaseData, path +
"/turbidity", kekeruhan);
    Firebase.pushString(firebaseData, path
+ "/status_air", status1);
    Firebase.pushString(firebaseData, path
+ "/status_alat", status2);
    Firebase.pushString(firebaseData, path
+ "/waktu", waktuStr);
    Serial.println("Data berhasil
ditambahkan!");
```

```
   delay(4000);  // Delay 1 detik sebelum pembacaan berikutnya
}
```

Script Arduino servo

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

Servo myservo;  // create servo object to control a servo
// twelve servo objects can be created on most boards

// GPIO the servo is attached to
static const int servoPin = 13;

// Replace with your network credentials
const char* ssid     = "Redmi Note 12 Pro 5G";
const char* password = "difa1234";

// Set web server port number to 80
WiFiServer server(80);

// Variable to store the HTTP request
String header;

// Decode HTTP GET value
String valueString = String(5);
int pos1 = 0;
int pos2 = 0;

// Current time
unsigned long currentTime = millis();
// Previous time
unsigned long previousTime = 0;
// Define timeout time in milliseconds (example: 2000ms = 2s)
const long timeoutTime = 2000;

void setup() {
  Serial.begin(115200);

  myservo.attach(servoPin);  // attaches the servo on the servoPin to the servo object

  // Connect to Wi-Fi network with SSID and password
  Serial.print("Connecting to ");
  Serial.println(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  // Print local IP address and start web server
  Serial.println("");
  Serial.println("WiFi connected.");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
```

```
  server.begin();
}

void loop(){
  WiFiClient client = server.available();   // Listen for incoming clients

  if (client) {                             // If a new client connects,
    currentTime = millis();
    previousTime = currentTime;
    Serial.println("New Client.");          // print a message out in the serial port
    String currentLine = "";                // make a String to hold incoming data from the client
    while (client.connected() && currentTime - previousTime <= timeoutTime) { // loop while the client's connected
      currentTime = millis();
      if (client.available()) {             // if there's bytes to read from the client,
        char c = client.read();             // read a byte, then
        Serial.write(c);                    // print it out the serial monitor
        header += c;
        if (c == '\n') {                    // if the byte is a newline character
          // if the current line is blank, you got two newline characters in a row.
          // that's the end of the client HTTP request, so send a response:
          if (currentLine.length() == 0) {
            // HTTP headers always start with a response code (e.g. HTTP/1.1 200 OK)
            // and a content-type so the client knows what's coming, then a blank line:
            client.println("HTTP/1.1 200 OK");
            client.println("Content-type:text/html");
            client.println("Connection: close");
            client.println();

            // Display the HTML web page
            client.println("<!DOCTYPE html><html lang='en'>");
            client.println("<head><meta charset='UTF-8'>");
            client.println("<meta name='viewport' content='width=device-width, initial-scale=1.0'>");
            client.println("<title>Kontrol Servo 360°</title>");
            client.println("<link rel='icon' href='data:,'>");
            client.println("<style>");
            client.println("body {margin:0;padding:0;background:#ecf0f3;font-family:'Segoe UI',sans-serif;display:flex;justify-content:center;align-items:center;height:100vh;}");
            client.println(".card {background:#ecf0f3;padding:40px;border-radius:20px;box-shadow:9px 9px 16px
```

```
#d1d9e6,-9px -9px 16px #ffffff;text-
align:center;width:320px;}");

        client.println("h1 {font-
size:1.8em;color:#333;margin-
bottom:30px;}");

        client.println(".slider {-webkit-
appearance:none;width:100%;height:15px;
border-
radius:10px;background:#d1d9e6;outline:n
one;box-shadow:inset 6px 6px 8px
#c3cad5,inset -6px -6px 8px #ffffff;}");

        client.println(".slider::-webkit-
slider-thumb {-webkit-
appearance:none;appearance:none;width:3
0px;height:30px;border-
radius:50%;background:#4f46e5;cursor:po
inter;box-shadow:0 2px 6px
rgba(0,0,0,0.2);transition:background
0.3s;}");

        client.println(".position {margin-
top:20px;font-size:2em;color:#4f46e5;}");

        client.println("#servoStatus {font-
size:0.8em;color:#666;}");

        client.println("</style>");

        client.println("<script
src='https://ajax.googleapis.com/ajax/libs/j
query/3.6.0/jquery.min.js'></script>");

        client.println("</head><body>");

        client.println("<div class='card'>");

        client.println("<h1>Kontrol Servo
360°</h1>");

        client.println("<input type='range'
min='0' max='180' class='slider'
id='servoSlider' value='" + valueString + "'
oninput='updateServo(this.value)'>");

        client.println("<div
class='position'><span id='servoPos'>" +
valueString + "</span>°<br><span
id='servoStatus'>Berhenti</span></div>");

        client.println("</div>");

        client.println("<script>");

        client.println("function
updateServo(val) {");


client.println("document.getElementById('
servoPos').innerHTML = val;");

        client.println("val = parseInt(val);");

        client.println("if (val < 88)
{ document.getElementById('servoStatus')
.innerHTML = 'Putar ke Kiri'; }");

        client.println("else if (val > 92)
{ document.getElementById('servoStatus')
.innerHTML = 'Putar ke Kanan'; }");

        client.println("else
{ document.getElementById('servoStatus')
.innerHTML = 'Berhenti'; }");

        client.println("$.get('/?value=' + val
+ '&');");

        client.println("}");


client.println("</script></body></html>");




         //GET /?value=180& HTTP/1.1

         if(header.indexOf("GET
/?value=")>=0) {

           pos1 = header.indexOf('=');

           pos2 = header.indexOf('&');

           valueString =
header.substring(pos1+1, pos2);
```

```
            //Rotate the servo

myservo.write(valueString.toInt());
            Serial.println(valueString);
          }
          // The HTTP response ends with another blank line
          client.println();
          // Break out of the while loop
          break;
        } else { // if you got a newline, then clear currentLine
          currentLine = "";
        }
      } else if (c != '\r') {  // if you got anything else but a carriage return character,
        currentLine += c;      // add it to the end of the currentLine
      }
    }
  }
  // Clear the header variable
  header = "";
  // Close the connection
  client.stop();
  Serial.println("Client disconnected.");
  Serial.println("");
 }
}
```

Scrip Aplikasi

```
<!DOCTYPE html>
<html lang="en">
<head>
 <meta name="viewport" content="width=device-width, initial-scale=1.0">
 <meta http-equiv="X-UA-Compatible" content="ie=edge">
 <title>Water Turbidity Monitoring</title>

 <!-- Bootstrap CSS -->

 <!-- Custom CSS -->
 <style>
  body {
   background-color: #000000;
   margin: 0;
   align-items: center;
   display: flex;
   flex-direction: column;
   max-width: 100%;
   height: auto;
  }

  .card {
   width: 230px;
   border-radius: 10px;
```

```
    box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
    background-color: beige;
  }

  .card1 {
    width: 400px;
    border-radius: 10px;
    box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
    background-color: beige;
  }

  .card-header {
    background: radial-gradient(circle, #05b0ff,#1d7fff, #0717fa); /* Warna gradien */
    color: rgb(255, 255, 255);
    font-size: 1.5rem;
    text-align: center;
    font-family: 'Overseer';
  }

  .gradient-text {
      font-size: 4rem; /* Ukuran font */
      background: linear-gradient(to right, #ff7e5f, #feb47b); /* Warna gradien */
      background-clip: text; /* Memotong latar belakang agar sesuai dengan teks */
      -webkit-background-clip: text; /* Mendukung browser webkit (Chrome, Safari) */
      color: transparent; /* Membuat warna teks transparan */
    }

  .card-body {
    padding: 20px;
    text-align: center;
  }

  .value-display {
    font-size: 1.5rem;
    font-family: 'Varsity';
    background: linear-gradient(to right, #08ceff, #8f00b3); /* Warna gradien */
    background-clip: text; /* Memotong latar belakang agar sesuai dengan teks */
    -webkit-background-clip: text; /* Mendukung browser webkit (Chrome, Safari) */
    color: transparent; /* Membuat warna teks transparan */
  }

  .status-display {
    margin-top: 10px;
    font-size: 1.2rem;
  }

  .top-section {
```

```
    display: flex;
    justify-content: center; /* Menempatkan dua card dengan jarak seimbang */
    padding-top: 10px;
  }

  .bottom-section {
    display: flex;
    justify-content: center; /* Posisikan card di tengah horizontal */
    padding: 0px;
    margin-top:20px; /* Pindahkan card ke bagian bawah */
  }
  .fancy-button {
  background: linear-gradient(135deg, #6601d9, #0095c3);
  color: white;
  border: none;
  padding: 14px 28px;
  font-size: 16px;
  font-family: 'Segoe UI', sans-serif;
  border-radius: 8px;
  box-shadow: 0 4px 8px rgba(0,0,0,0.2);
  transition: 0.3s ease;
  cursor: pointer;
 }

 .fancy-button:hover {
  background: linear-gradient(135deg, #013baf, #1500ff);
  transform: scale(1.05);
  box-shadow: 0 6px 12px rgba(0,0,0,0.3);
 }

 .fancy-button:active {
  transform: scale(0.98);
  box-shadow: 0 2px 5px rgba(0,0,0,0.2);
 }
  .img {
  max-width: 50%;
  height: auto;
}

 </style>
</head>
<body>
 <img src="stiker monitoring.jpg" alt="Deskripsi Gambar" class="img">
 <button class="fancy-button" onclick="goToLogPage()">Lihat Tabel</button>

<script>
 function goToLogPage() {
  window.location.href = "table.html"; // arahkan ke halaman log
 }
</script>
```

```
 <div class="top-section">
  <div class="card">
   <div class="card-header">Turbidity Monitoring</div>
   <div class="card-body">
    <div class="value-display" id="turbidityValue">Loading...</div>
    <div class="status-display" id="status">Fetching status...</div>
   </div>
  </div>

  <div class="card">
   <div class="card-header">PH Monitoring</div>
   <div class="card-body">
    <div class="value-display" id="phValue">Loading...</div>
    <div class="status-display" id="status2">Fetching status...</div>
   </div>
  </div>
 </div>

 <div class="bottom-section">
  <div class="card1">
   <div class="card-header">Keterangan</div>
   <div class="card-body">
    <div class="value-display" id="status_alatValue">Loading...</div>
    <div class="status-display" id="status-card-3">Status Alat</div>
   </div>
  </div>
 </div>



 <!-- Firebase SDK -->
 <script src="https://www.gstatic.com/firebasejs/9.22.0/firebase-app-compat.js"></script>
 <script src="https://www.gstatic.com/firebasejs/9.22.0/firebase-database-compat.js"></script>

 <!-- Bootstrap JS -->
 <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/js/bootstrap.bundle.min.js"></script>

 <script>

 // Firebase Configuration
 const firebaseConfig = {
 apiKey: "AIzaSyBM3e-O0zmfvnqH7khMZE263qY3aSI6V54",
 authDomain: "kekeruhan-64b07.firebaseapp.com",
 databaseURL: "https://kekeruhan-64b07-default-rtdb.asia-southeast1.firebasedatabase.app",
```

```
  projectId: "kekeruhan-64b07",
  storageBucket: "kekeruhan-64b07.firebasestorage.app",
  messagingSenderId: "204889505942",
  appId: "1:204889505942:web:2f42ab70de26a4fe1082b7"
};
    // Initialize Firebase
    firebase.initializeApp(firebaseConfig);
    const db = firebase.database();


    // Reference to the turbidity value in the database
    const turbidityRef = db.ref("sensor_data/device_001/turbidity").limitToLast(1);
    const phRef = db.ref("sensor_data/device_001/PH").limitToLast(1);
    const status_alatRef = db.ref("sensor_data/device_001/status_alat").limitToLast(1);


    // Listen for value changes
    turbidityRef.on("value", (snapshot) => {
      snapshot.forEach((childSnapshot) => {
        const turbidityValue = childSnapshot.val();
        console.log("Turbidity:", turbidityValue);

document.getElementById("turbidityValue").innerText = ${turbidityValue};
      });
});


      phRef.on("value", (snapshot) => {
      snapshot.forEach((childSnapshot) => {
        const phValue = childSnapshot.val();
        console.log("PH:", phValue);

document.getElementById("phValue").innerText = ${phValue};
      });
});


      status_alatRef.on("value", (snapshot) => {
      snapshot.forEach((childSnapshot) => {
        const status_alatValue = childSnapshot.val();
        console.log("status_alat", status_alatValue);

document.getElementById("status_alatValue").innerText = ${status_alatValue};
      });
});
      // Status: Good, Moderate, or Poor
      let status = "Unknown";
      if (turbidityValue <= 5) {
        status = "Air jernih";

document.getElementById('status').classList.add("text-success");
```

```
    } else {
      status = "Air Keruh";

document.getElementById('status').classList.add("text-danger");
    }

    let status2 = "Unknown";
    if (phValue <= 8) {
      status2 = "PH Rendah";

document.getElementById('status2').classList.add("text-success");
    } else {
      status2 = "PH Tinggi";

document.getElementById('status2').classList.add("text-danger");
    }

document.getElementById('status').innerText = Status: ${status};

document.getElementById('status2').innerText = Status: ${status2};
  </script>

</body>
</html>
```

Script Tabel Aplikasi

```
<!DOCTYPE html>
<html>
<head>

  <style>
    table {
      width: 80%;
      border-collapse: collapse;
      margin: 30px auto;
      font-family: Arial, sans-serif;
      box-shadow: 0 0 10px rgba(0,0,0,0.1);
    }

    th, td {
      padding: 12px 20px;
      text-align: center;
      border: 1px solid #d9cccc;
    }

    thead {
      background-color: #4CAF50;
      color: white;
    }

    tr:nth-child(even) {
      background-color: #e3d9d9;
    }

    tr:hover {
```

```
    background-color: #ffffff;
   }

   h2 {
    text-align: center;
    font-family: Arial, sans-serif;
    margin-top: 40px;
   }

   button {
    display: block;
    margin: 20px auto;
    padding: 10px 20px;
    background-color: #4CAF50;
    color: white;
    border: none;
    border-radius: 6px;
    font-size: 16px;
    cursor: pointer;
   }

   button:hover {
    background-color: #45a049;
   }
  </style>

<title>Riwayat</title>
<!-- Firebase SDK (compat version) -->
 <script src="https://www.gstatic.com/firebasejs/9.22.0/firebase-app-compat.js"></script>
 <script src="https://www.gstatic.com/firebasejs/9.22.0/firebase-database-compat.js"></script>
</head>
<body>
 <h2>Tabel Monitoring</h2>
 <button onclick="goBack()">⬅ Kembali</button>

 <table border="1">
  <thead>
   <tr>
    <th>Waktu</th>
    <th>Nilai Kekeruhan</th>
    <th>Nilai pH</th>
   </tr>
  </thead>
  <tbody id="dataTableBody"></tbody>
 </table>

 <script>
  function goBack() {
   window.location.href = "index.html"; // kembali ke halaman utama
  }
```

```
// Konfigurasi Firebase
  const firebaseConfig = {
  apiKey: "AIzaSyBM3e-O0zmfvnqH7khMZE263qY3aSI6V54",
  authDomain: "kekeruhan-64b07.firebaseapp.com",
  databaseURL: "https://kekeruhan-64b07-default-rtdb.asia-southeast1.firebasedatabase.app",
  projectId: "kekeruhan-64b07",
  storageBucket: "kekeruhan-64b07.firebasestorage.app",
  messagingSenderId: "204889505942",
  appId: "1:204889505942:web:2f42ab70de26a4fe1082b7"
};

    // Inisialisasi Firebase
    firebase.initializeApp(firebaseConfig);
    const db = firebase.database();

  const waktuRef = db.ref("sensor_data/device_001/waktu");
  const turbidityRef = db.ref("sensor_data/device_001/turbidity");
  const phRef = db.ref("sensor_data/device_001/PH");

  // Ambil kedua data (turbidity & ph) lalu gabungkan berdasarkan urutan
  Promise.all([
    waktuRef.once("value"),
    turbidityRef.once("value"),
    phRef.once("value")

  ]).then(([waktuSnap, turbiditySnap, phSnap]) => {
    const waktuData = [];
    const turbidityData = [];
    const phData = [];

    waktuSnap.forEach(child => {
      waktuData.push(child.val());
    });

    turbiditySnap.forEach(child => {
      turbidityData.push(child.val());
    });

    phSnap.forEach(child => {
      phData.push(child.val());
    });

    const rowCount = Math.min(waktuData.length, turbidityData.length, phData.length); // Biar aman

    const tableBody = document.getElementById("dataTableBody");
    tableBody.innerHTML = "";
```

```
    for (let i = 0; i < rowCount; i++) {
      const row =
document.createElement("tr");

      const waktuCell =
document.createElement("td");
      waktuCell.textContent = waktuData[i];

      const turbidityCell =
document.createElement("td");
      turbidityCell.textContent =
turbidityData[i];

      const phCell =
document.createElement("td");
      phCell.textContent = phData[i];

      row.appendChild(waktuCell);
      row.appendChild(turbidityCell);
      row.appendChild(phCell);
      tableBody.appendChild(row);
    }
  });
</script>
</body>
</html>
```

Script Aplikasi Servo

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport"
content="width=device-width, initial-
scale=1.0" />
  <title>Kontrol Servo 360°</title>
  <link rel="icon" href="data:,">
  <style>
    body {
      margin: 0;
      padding: 0;
      background: #ecf0f3;
      font-family: 'Segoe UI', sans-serif;
      display: flex;
      justify-content: center;
      align-items: center;
      height: 100vh;
    }
    .card {
      background: #ecf0f3;
      padding: 40px;
      border-radius: 20px;
      box-shadow: 9px 9px 16px #d1d9e6, -
9px -9px 16px #ffffff;
      text-align: center;
      width: 320px;
    }
    h1 {
      font-size: 1.8em;
      color: #333;
      margin-bottom: 30px;
```

```
    }
    .slider {
      -webkit-appearance: none;
      width: 100%;
      height: 15px;
      border-radius: 10px;
      background: #d1d9e6;
      outline: none;
      box-shadow: inset 6px 6px 8px
#c3cad5, inset -6px -6px 8px #ffffff;
    }
    .slider::-webkit-slider-thumb {
      -webkit-appearance: none;
      appearance: none;
      width: 30px;
      height: 30px;
      border-radius: 50%;
      background: #4f46e5;
      cursor: pointer;
      box-shadow: 0 2px 6px
rgba(0,0,0,0.2);
      transition: background 0.3s;
    }
    .position {
      margin-top: 20px;
      font-size: 2em;
      color: #4f46e5;
    }
    #servoStatus {
      font-size: 0.8em;
      color: #666;
    }
  </style>
  <script
src="https://ajax.googleapis.com/ajax/libs/
jquery/3.6.0/jquery.min.js"></script>
</head>
<body>
  <div class="card">
    <h1>Kontrol Servo 360°</h1>
    <input type="range" min="0"
max="180" class="slider"
id="servoSlider" value="90"
oninput="updateServo(this.value)">
    <div class="position">
      <span id="servoPos">90</span>°<br>
      <span
id="servoStatus">Berhenti</span>
    </div>
  </div>

  <script>
    function updateServo(val) {

document.getElementById("servoPos").in
nerHTML = val;
      val = parseInt(val);
      if (val < 88) {

document.getElementById("servoStatus").
innerHTML = "Putar ke Kiri";
      } else if (val > 92) {
```

```
document.getElementById("servoStatus").
innerHTML = "Putar ke Kanan";
    } else {

document.getElementById("servoStatus").
innerHTML = "Berhenti";
    }
    $.get("/?value=" + val + "&");
  }
 </script>
</body>
</html>
```

Lampiran Kartu Monitoring Proposal

KARTU MONITORING BIMBINGAN
MAHASISWA PROGRAM STUDI TEKNIK INFORMATIKA
FAKULTAS TEKNIK
UNIVERSITAS MUHAMMADIYAH PAREPARE

Proposal

Mahasiswa : ANDI FATRI	**Pembimbing I : Muhammad Basri, S.T.,MT.**
NIM : NIM. 219280051	**Pembimbing II : Ir. Untung Suwardoyo, S.Kom.,M.T.**
Judul Skripsi : *PENGEMBANGAN EVIDENCE MONITORING TINGKAT PH DAN KEKERUHAN AIR UNTUK MENENTUKAN KELAYAKAN KONSUMSI AIR DI PDAM KOTA PAREPARE*	

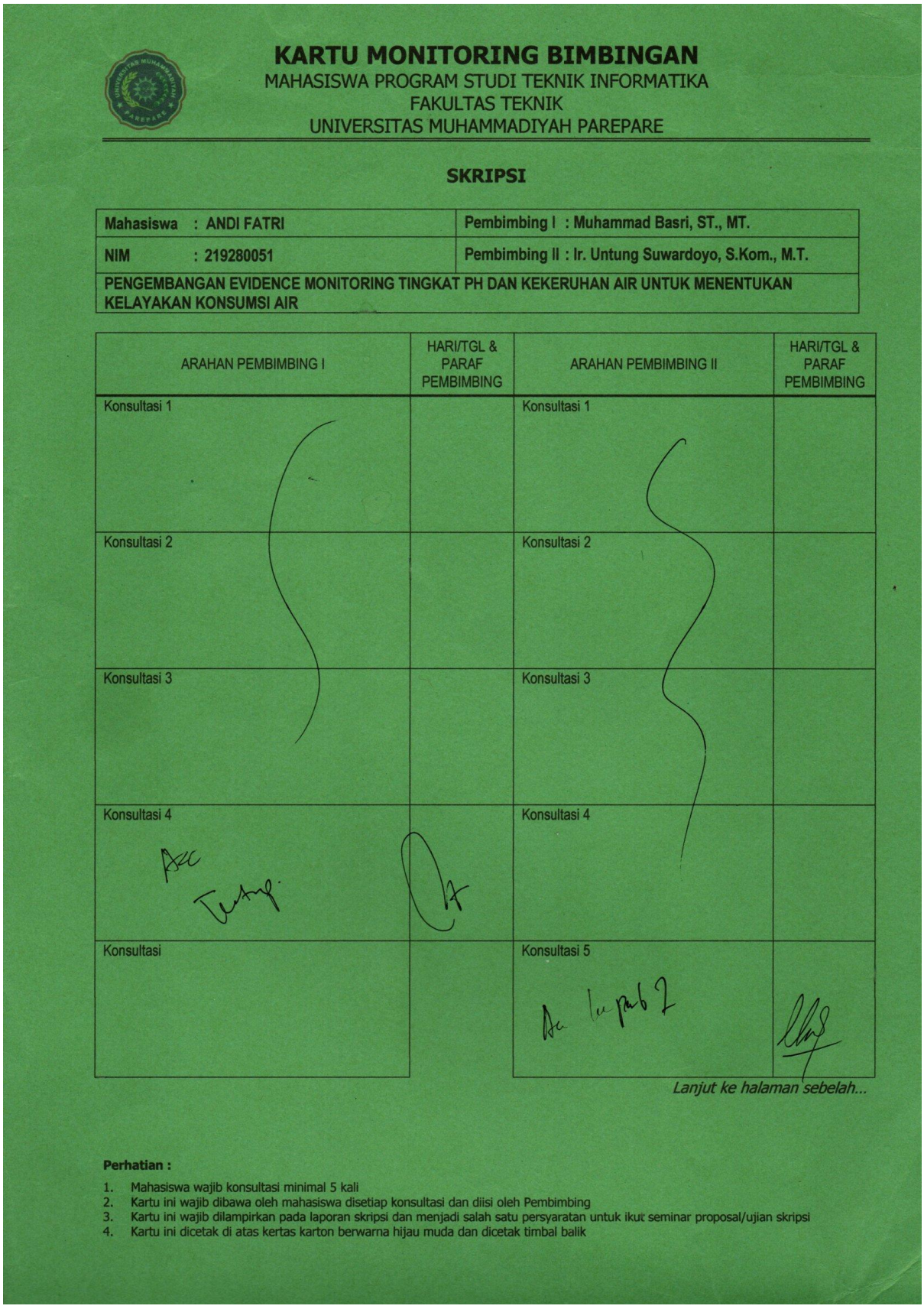
ARAHAN PEMBIMBING I	HARI/TGL & PARAF PEMBIMBING	ARAHAN PEMBIMBING II	HARI/TGL & PARAF PEMBIMBING
Konsultasi 1 rancangan GUI terkait monitoring		Konsultasi 1 Perbaiki sesuai arahan flowchart dan penjelasan Rancangan sistem Rancangan interface	
Konsultasi 2 ganti. minichar slide		Konsultasi 2 Tambahkan latar belakang yang memuat PDAM. Urai teori sistematika penulisan dan tabel. Flowchart.	
Konsultasi 3 Acc		Konsultasi 3 Tambahan kajian Teori	
Konsultasi 4		Konsultasi 4 Flowchart	
Konsultasi 5		Konsultasi 5 - Daftar Isi - Daftar gambar - Daftar tabel - Daftar Pustaka.	

Lanjut ke halaman sebelah...

Perhatian :

1. Mahasiswa wajib konsultasi minimal 5 kali
2. Kartu ini wajib dibawa oleh mahasiswa disetiap konsultasi dan diisi oleh Pembimbing
3. Kartu ini wajib dilampirkan pada laporan skripsi dan menjadi salah satu persyaratan untuk ikut seminar proposal/ujian skripsi
4. Kartu ini dicetak di atas kertas karton berwarna hijau muda dan dicetak timbal balik

Lampiran Kartu monitoring Skripsi



KARTU MONITORING BIMBINGAN
MAHASISWA PROGRAM STUDI TEKNIK INFORMATIKA
FAKULTAS TEKNIK
UNIVERSITAS MUHAMMADIYAH PAREPARE

SKRIPSI

Mahasiswa : ANDI FATRI	**Pembimbing I : Muhammad Basri, ST., MT.**
NIM : 219280051	**Pembimbing II : Ir. Untung Suwardoyo, S.Kom., M.T.**
PENGEMBANGAN EVIDENCE MONITORING TINGKAT PH DAN KEKERUHAN AIR UNTUK MENENTUKAN KELAYAKAN KONSUMSI AIR	

ARAHAN PEMBIMBING I	HARI/TGL & PARAF PEMBIMBING	ARAHAN PEMBIMBING II	HARI/TGL & PARAF PEMBIMBING
Konsultasi 1		Konsultasi 1	
Konsultasi 2		Konsultasi 2	
Konsultasi 3		Konsultasi 3	
Konsultasi 4		Konsultasi 4	
Konsultasi		Konsultasi 5	

Lanjut ke halaman sebelah...

Perhatian :

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3. Kartu ini wajib dilampirkan pada laporan skripsi dan menjadi salah satu persyaratan untuk ikut seminar proposal/ujian skripsi
4. Kartu ini dicetak di atas kertas karton berwarna hijau muda dan dicetak timbal balik

Lampiran Sertifikat Lab Halaman Depan



SERTIFIKAT

Nomor :464/PRK/LB-TI/II.3.AU/D/2023

diberikan kepada :

Andi Fatri

NIM.219280051

telah menyelesaikan

PRAKTIKUM V

Laboratorium Teknik Informatika
Program Studi Teknik Informatika Fakultas Teknik
Universitas Muhammadiyah Parepare

Pada tanggal 16 Januari 2023 - 29 Maret 2023

Parepare, 4/12/2023

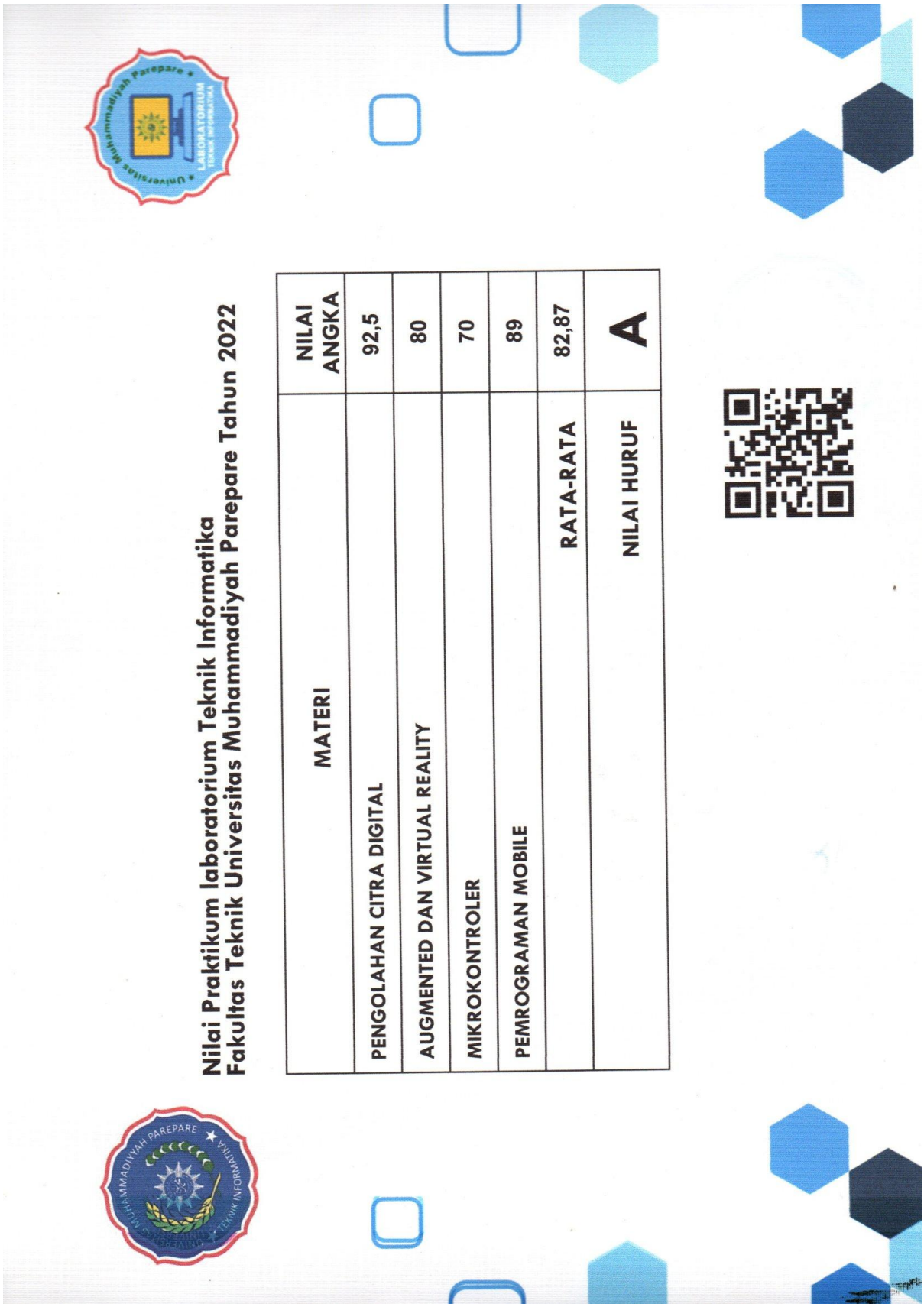
KEPALA
LABORATORIUM

Ir. UNTUNG SUWARDOYO, S.Kom., MT.,IPP.

KETUA PRODI
TEKNIK INFORMATIKA

MARLINA. S.Kom., M.Kom

Lampiran Sertifikat Lab Halaman Belakang



Nilai Praktikum laboratorium Teknik Informatika
Fakultas Teknik Universitas Muhammadiyah Parepare Tahun 2022

MATERI	NILAI ANGKA
PENGOLAHAN CITRA DIGITAL	92,5
AUGMENTED DAN VIRTUAL REALITY	80
MIKROKONTROLER	70
PEMROGRAMAN MOBILE	89
RATA-RATA	82,87
NILAI HURUF	A