

## DAFTAR PUSTAKA

- [1] Chattopadhyay, D. 1989. *Dasar Elektronika*. Jakarta: UI-PRESS
- [2] Bejo, A., 2008 *C dan AVR Rahasia Kemudahan Bahasa C Dalam Mikrokontroler ATmega 8*, Graha Ilmu, Yogyakarta
- [3] Winoto, A., 2002, *Mikrokontroler AVR ATmega 8 dan pemrogramannya Bahasa C pada Win AVR*, Informatika, Bandung.
- [4] Zuhail, dan Zhanggishan, 2004, *Prinsip Dasar Elektronik*, PT Gramedia Pustaka Utama, Jakarta.
- [5] Eko Putra, Agfianto. 2002, *Belajar Mikrokontroler AT 89C51/52/55 (Teori dan Aplikasi)*, Yogyakarta: PT Gava Media
- [6] Fitzgerald. A.E. 2010. *Dasar-dasar Elektroteknik. Jilid 1*. Jakarta. Erlangga.  
Zemansky.M.W. 1962. *Fisika untuk Universitas 1*. Bandung. Binacipta Michael  
Tuan Pham. 2020 The Smartphone as a Pacifying Technology *Jurnal Teknik Komputer Unikom – Komputika – Volume 3, No.2 – 2014*
- [7] *Jurnal Rekayasa Teknologi Nusa Putra*. Vol. 7, No. 2, Februari 2021: Hal 1- 11  
Atmel. 2001. *8-bit Microcontroller With 2K Bytes Flash AT89C2051*
- [8] Crivelli. F. 2022. *Relay Telephone Switcher*. Clare. 2007. *M-8870 DTMF Receiver*
- [9] Andika Abdullah., Prof. Dr. Ing. Soewarto Hardhienata, Andi Chairunnas, S.Kom, M.Pd”*Model pengaturan suhu dan kelembaban pada ruang jamur tiram menggunakan sensor DHT11 dan mikrokontroler ATMEGA328*”.
- [10] Susanto, H., Pramana, R., & Mujahidin, M. 2013 *Perancangan Sistem Telemetry Wireless Untuk Mengukur Suhu dan Kelembaban Berbasis Arduino Uno R3*
- [11] Suryaningsih, Sri, dkk. 2016. *Rancang Bangun Alat Pemantau Penggunaan Energi Listrik Rumah Tangga Berbasis Internet*. Bandung: Universitas Padjadjaran
- [12] *ATmega328P dan XBee Pro*. Skripsi. Fakultas Teknik. Universitas Maritim Raja Ali Haji. Tanjung Pinang.

- [13] Adriantantri, E. and Irawan, J.D., 2018. Implementasi IoT Pada Remote Monitoring Dan Controlling Green House. Jurnal MNEMONIC



## Lampiran

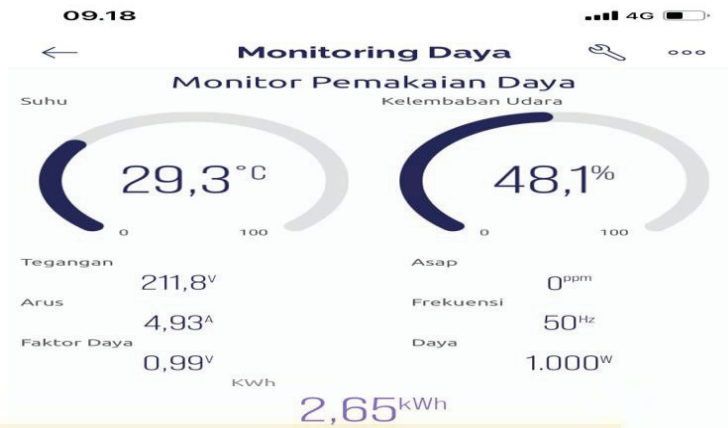
Gambar Alat 2021



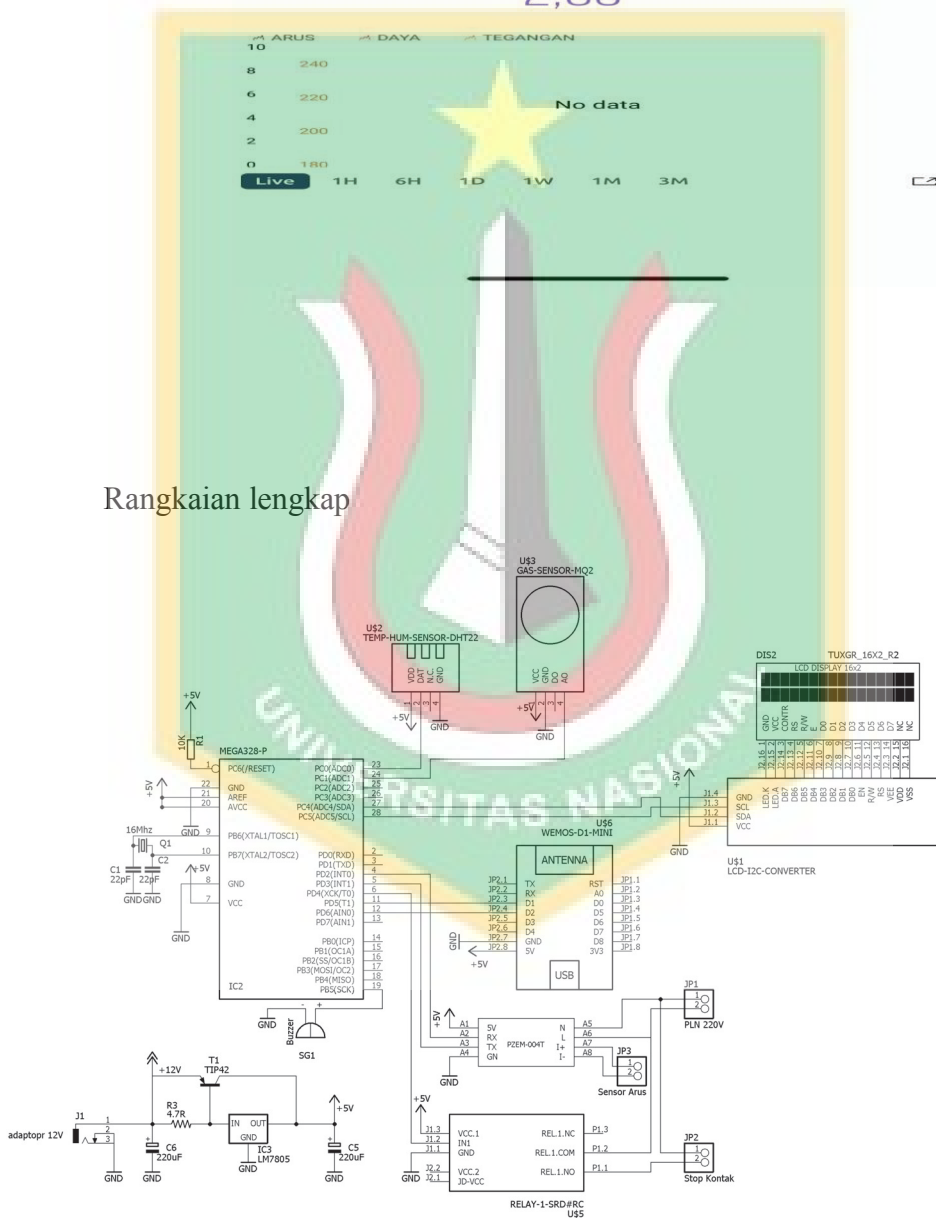
Gambar Alat 2021



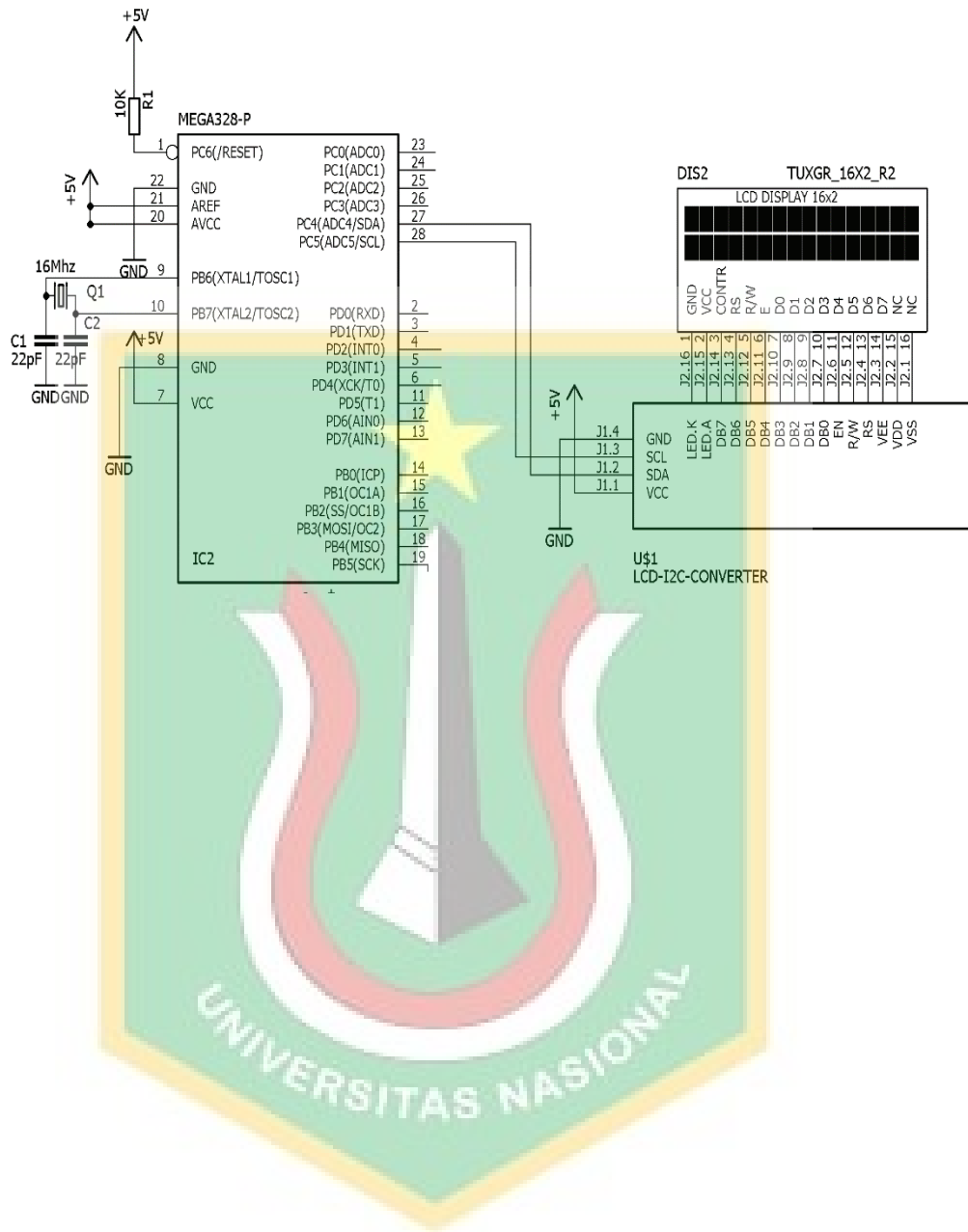
Gambar Pada Smartphone



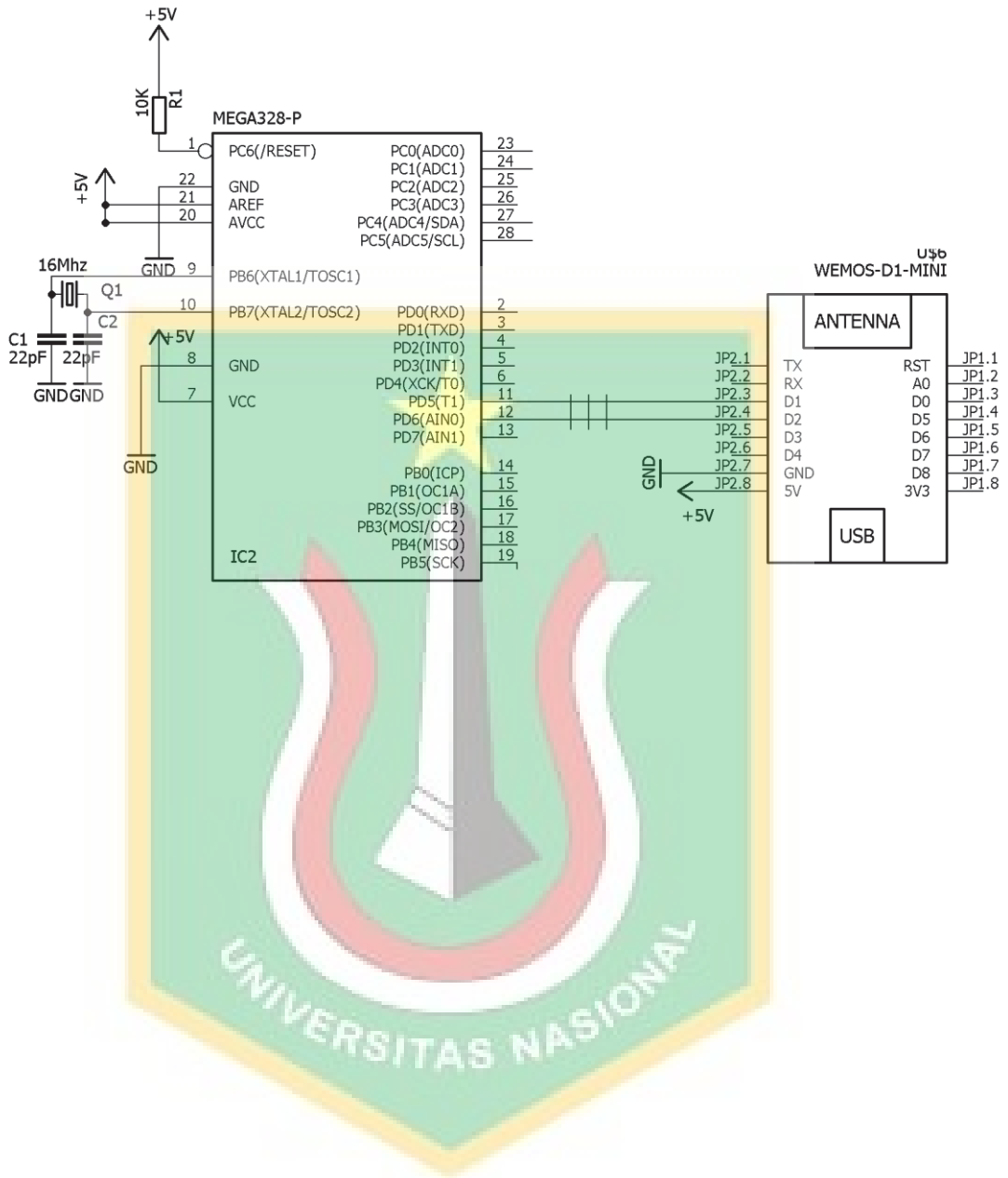
Rangkaian lengkap



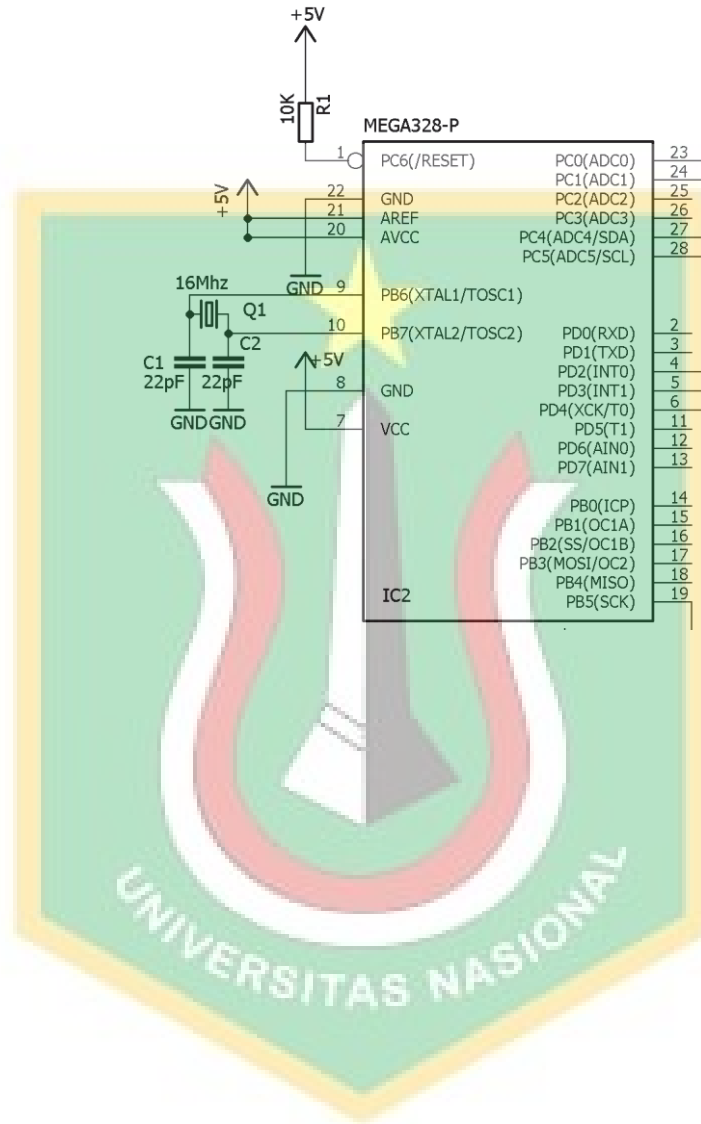
# Rangkaian LCD



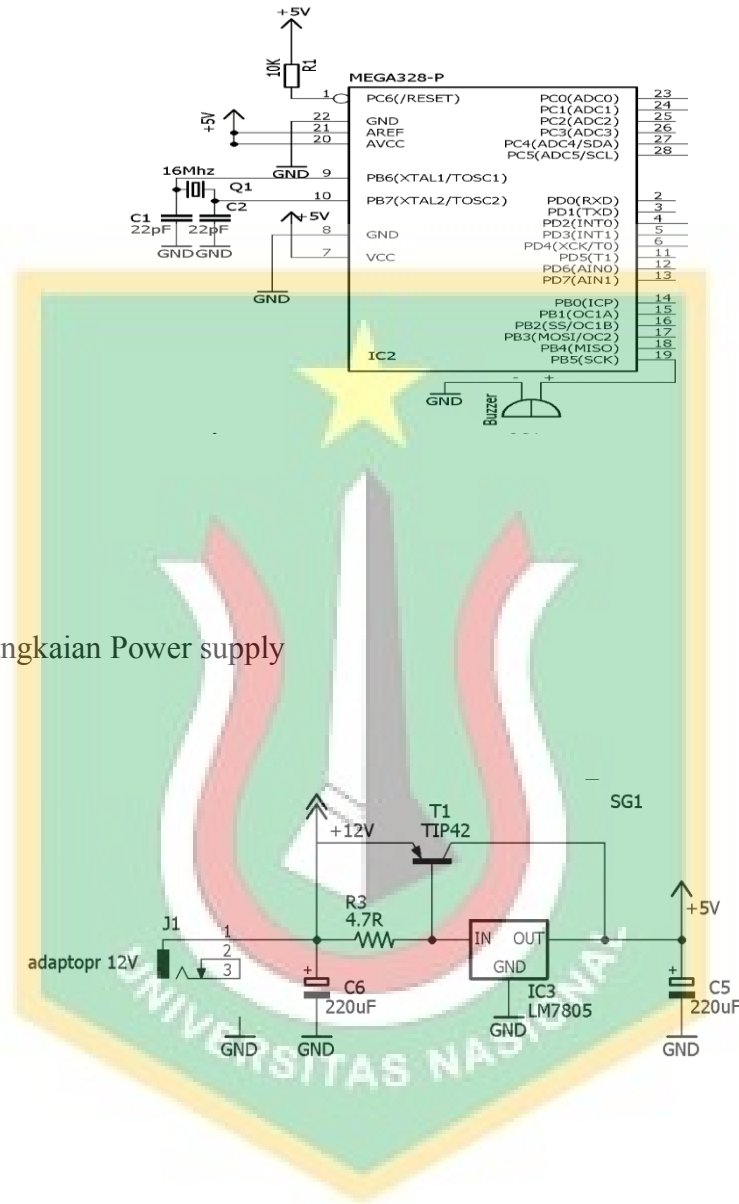
# Rangkaian WIFI



# Rangkaian Mikrokontroler



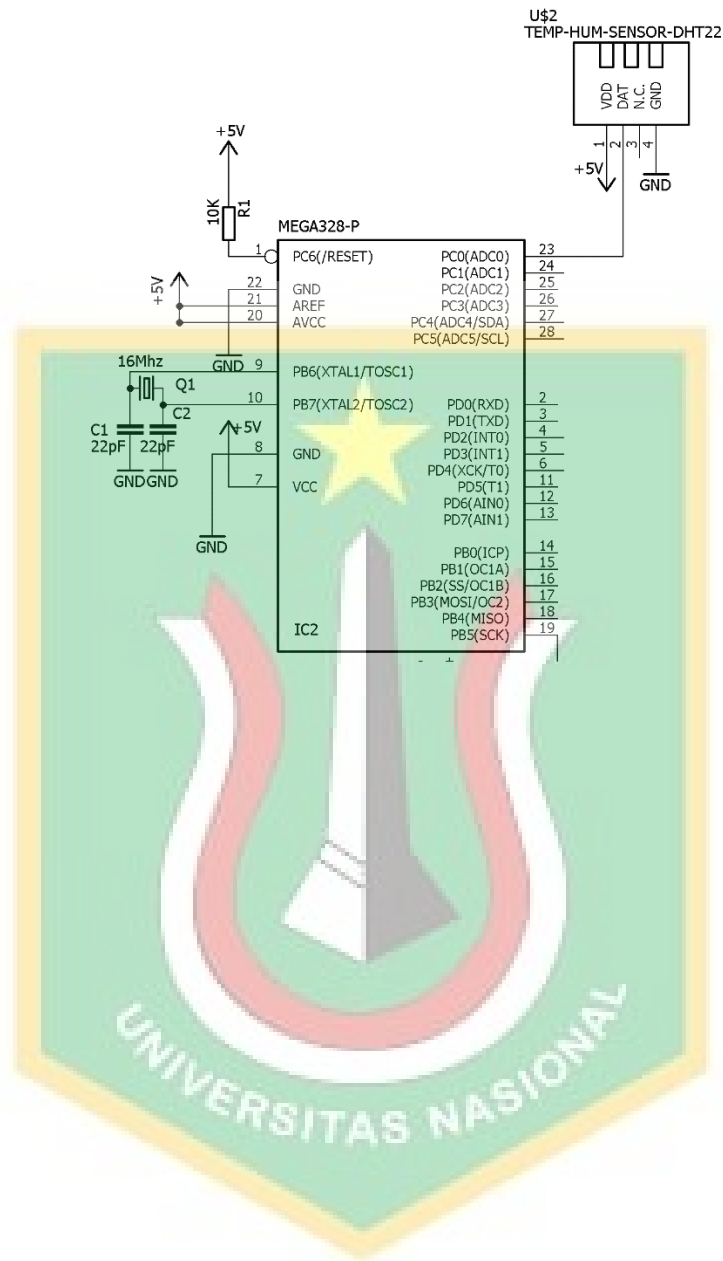
## Rangkaian buzzer



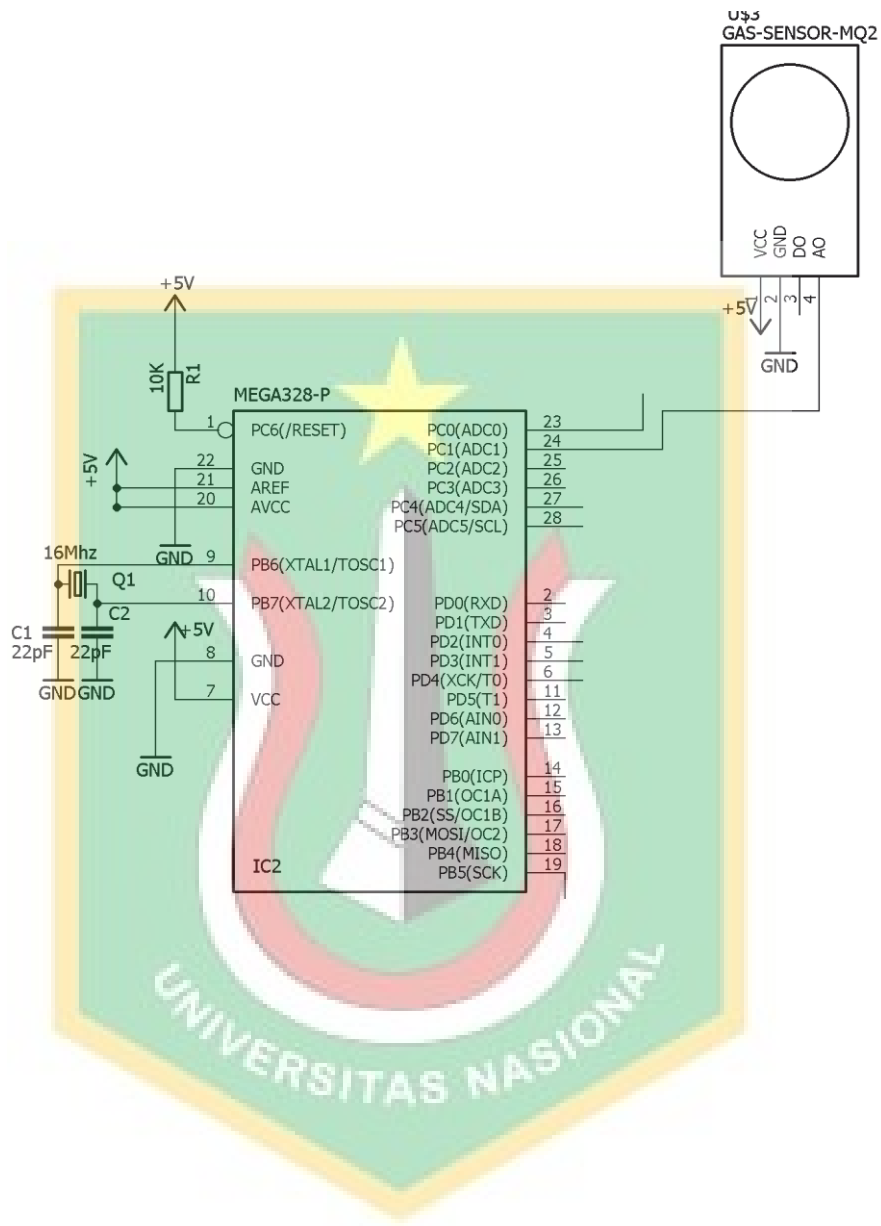
## Rangkaian Power supply



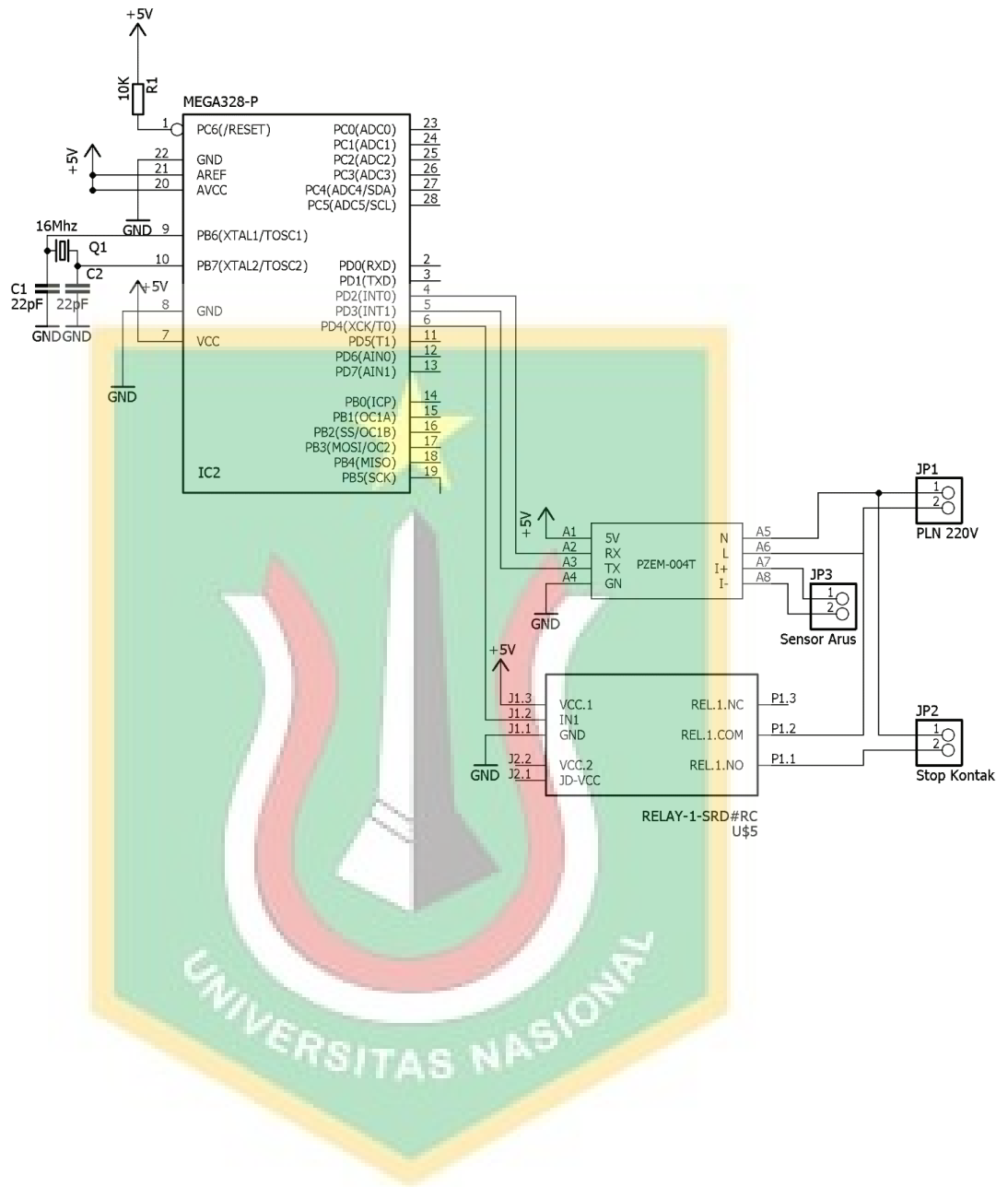
# Rangkaian DHT22



# Rangkaian sensor asap



# Rangkaian sensor dan relay



## Program lengkap

```
float vref = 2;
```

```
float tref = 40;
```

```
#include <Wire.h>
```

```
#include <LiquidCrystal_I2C.h>
```

```
LiquidCrystal_I2C lcd(0x27, 16, 2);
```

```
#define buzzer 13
```

```
#include "DHT.h"
```

```
#define DHTPIN A0
```

```
#define DHTTYPE DHT22
```

```
DHT dht(DHTPIN, DHTTYPE);
```

```
int counter;
```

```
#define relay 5
```

```
#include <PZEM004Tv30.h>
```

```
#include <SoftwareSerial.h>
```

```
#if defined(ESP32)
```

```
    #error "Software Serial is not supported on the ESP32"
```

```
#endif
```

```
#if !defined(PZEM_RX_PIN) && !defined(PZEM_TX_PIN)
```



```
#define PZEM_RX_PIN 2

#define PZEM_TX_PIN 3

#endif

SoftwareSerial pzemSWSerial(PZEM_RX_PIN, PZEM_TX_PIN);

PZEM004Tv30 pzem(pzemSWSerial);
```

```
#include <SoftwareSerial.h>
```

```
SoftwareSerial wifi(5, 6);
```

```
void setup()
```

```
{
```

```
  Serial.begin(9600);
```

```
  wifi.begin(9600);
```

```
  pzemSWSerial.listen();
```

```
    lcd.begin();
```

```
    lcd.backlight();
```

```
  pinMode(buzzer,OUTPUT);
```

```
  dht.begin();
```

```
  beep(3);
```

```
}
```



```

void loop()
{
  counter++;

  float h = dht.readHumidity();

  float t = dht.readTemperature();

  int value = analogRead(A1);

  float gas = value * 0.004887;

  pzemSWSerial.listen();

  float voltage = pzem.voltage();

  float current = pzem.current();

  float power = pzem.power();

  float energy = pzem.energy();

  float frequency = pzem.frequency();

  float pf = pzem.pf();

  if (h >= tref || gas >= vref){

    digitalWrite(relay,HIGH);

  }

  else {

    digitalWrite(relay,LOW);

    beep(1);

  }
}

```



```

if (counter <= 5){
    lcd.setCursor(0,0);
    lcd.print("suhu:");
    lcd.print(t);
    lcd.print("C  ");
    lcd.setCursor(0,1);
    lcd.print("rh  :");
    lcd.print(h);
    lcd.print("%  ");
}
else if (counter > 5 && counter <= 10){
    lcd.setCursor(0,0);
    lcd.print("Volt:");
    lcd.print(voltage);
    lcd.print("V  ");
    lcd.setCursor(0,1);
    lcd.print("I  :");
    lcd.print(current);
    lcd.print("A  ");
}
else if (counter > 10 && counter <= 15){
    lcd.setCursor(0,0);

```



```

lcd.print("P  ");
lcd.print(voltage);
lcd.print("Watt ");
lcd.setCursor(0,1);
lcd.print("E  ");
lcd.print(energy);
lcd.print("Wh  ");
}
else if (counter > 15 && counter <= 20){
lcd.setCursor(0,0);
lcd.print("Freq:");
lcd.print(frequency);
lcd.print("Hz ");
lcd.setCursor(0,1);
lcd.print(pf);
lcd.print("Wh  ");
}
else {counter = 0;}
wifi.print("h");wifi.print(h);    wifi.print(",");
wifi.print("t");wifi.print(t);    wifi.print(",");
wifi.print("v");wifi.print(voltage); wifi.print(",");
wifi.print("c");wifi.print(current); wifi.print(",");
wifi.print("p");wifi.print(power);  wifi.print(",");

```





```
wifi.print("e");wifi.print(energy); wifi.print(",");  
wifi.print("f");wifi.print(frequency);wifi.print(",");  
wifi.print("d");wifi.print(pf);    wifi.println( );  
delay(1000);  
}
```

```
void beep(int y){  
  for (int x = 0; x < y; x++){  
    digitalWrite(buzzer, HIGH);  
    delay(100);  
    digitalWrite(buzzer,LOW);  
    delay(50);  
  }  
}
```



# LAPORAN DIANA\_LAST

## ORIGINALITY REPORT

28%

SIMILARITY INDEX

25%

INTERNET SOURCES

8%

PUBLICATIONS

12%

STUDENT PAPERS

## PRIMARY SOURCES

1	<a href="http://etheses.uin-malang.ac.id">etheses.uin-malang.ac.id</a> Internet Source	4%
2	<a href="http://media.neliti.com">media.neliti.com</a> Internet Source	3%
3	<a href="http://www.scribd.com">www.scribd.com</a> Internet Source	2%
4	Submitted to Universitas Musamus Merauke Student Paper	1%
5	<a href="http://garuda.kemdikbud.go.id">garuda.kemdikbud.go.id</a> Internet Source	1%
6	<a href="http://repository.ar-raniry.ac.id">repository.ar-raniry.ac.id</a> Internet Source	1%
7	<a href="http://123dok.com">123dok.com</a> Internet Source	1%
8	Submitted to Politeknik Negeri Bandung Student Paper	1%
9	Submitted to Universitas Nasional Student Paper	1%