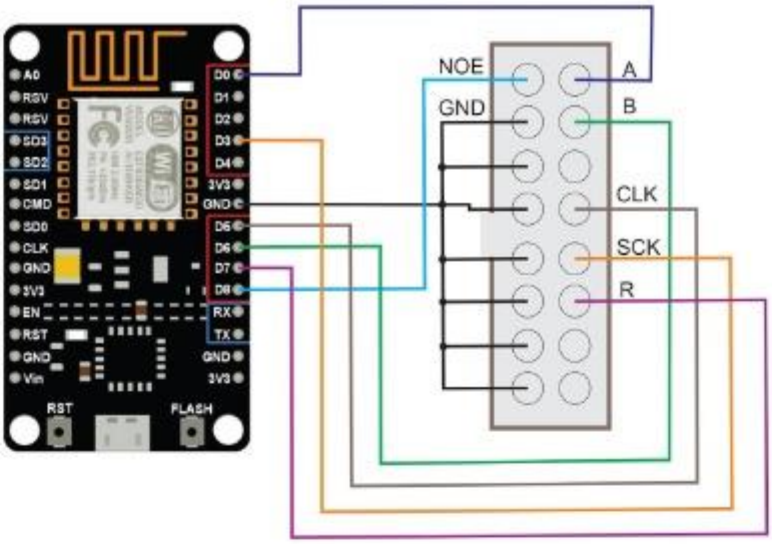
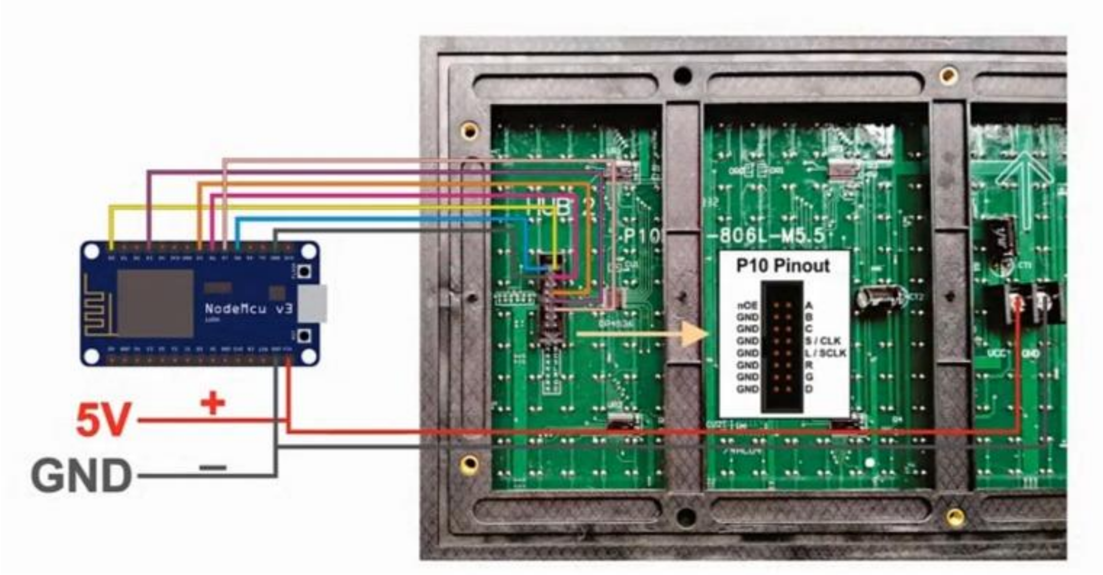
LAMPIRAN

Gambar Rangkaian

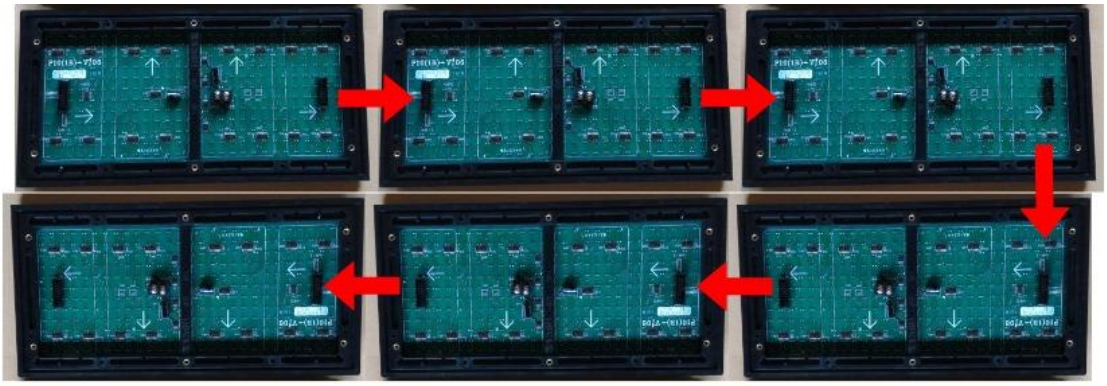


Koneksi Nodemcu ke Pin Panel P10

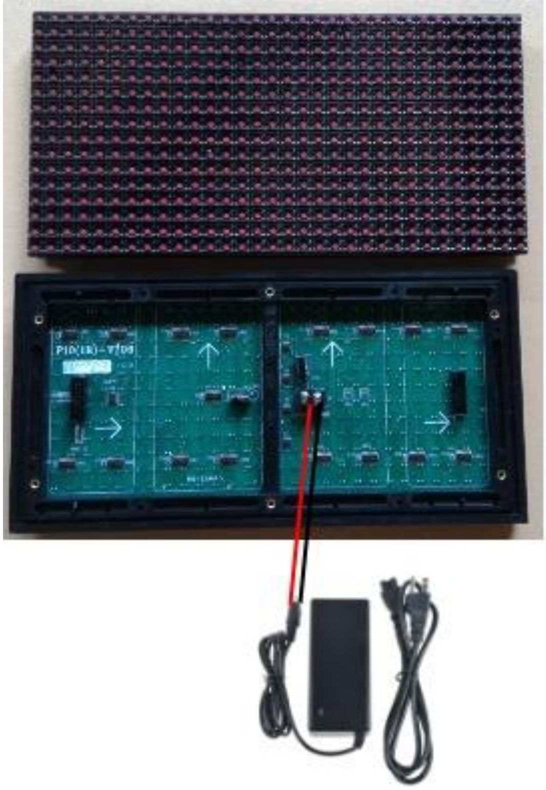
Table		
No	NODEMCU	P10
1	D0	A
2	D3	SCK
3	GND	GND
4	D6	CLK
5	D7	R
6	D8	NOE
7	VIN	5VDC



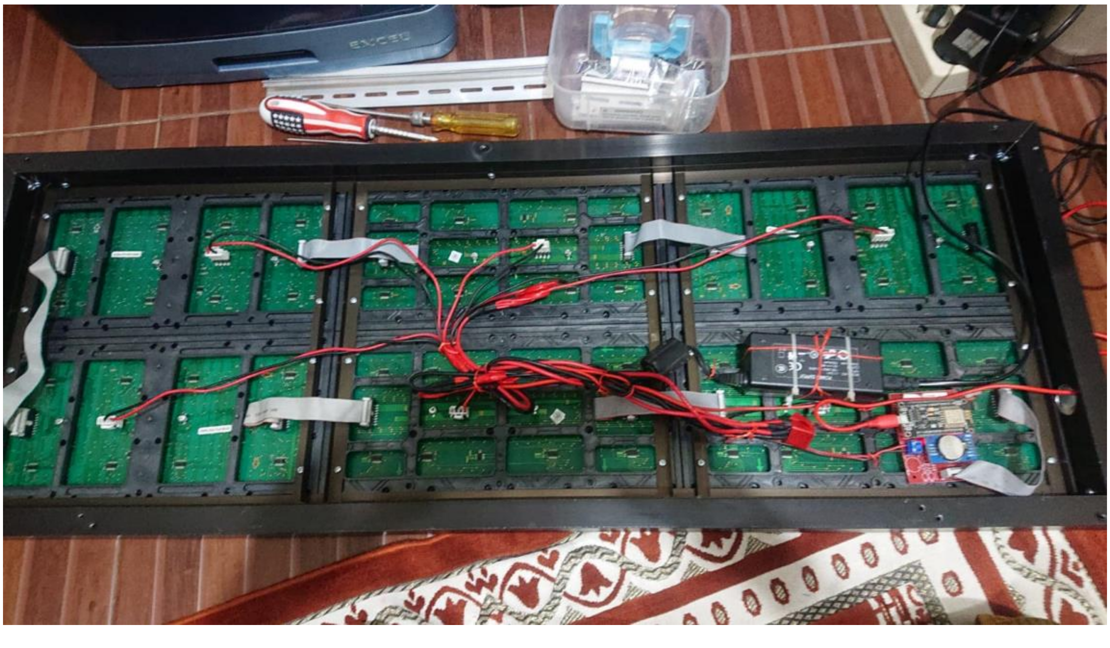
Koneksi Nodemcu ke
Pin Panel P10



Koneksi Kabel Data
antar Panel P10



Koneksi Adaptor 5V ke Panel P10



Kode Program Alat

```
/*  2022-12-20
 *  versi 1.0
 *  https = done
 *  parsing data = done
 *  wifi manager = done
 *
 *  versi 1.1
 *  display =  done
 *  susunan final 3x2 = done
 *  atasi jika putus wifi = done
 *  atasi jika putus internet =
 *
 *  versi 1.2
 *  rtc / ntp ? = ntp aja biar tidak ada kendala batery & selisih waktu = done
 *  ubah lagi ke panel 2x3 = done
 *
 *  versi 1.3
 *  rapih2 & beri keterangan = done
 *
 *  verso 1.4
 *  tambah margin =
 *
*/
//-------------------------------------
#include <ESP8266WiFi.h>                //sertakan library wifi
#include <ESP8266HTTPClient.h>          //panggil library http client

const char * host = "naftalie.site";    //tentukan nama server yang dituju
const char * path = "";                 //tentukan jika ada subdirectory
const uint16_t port = 443;              //tentukan port server yang dituju, untuk https menggunakan port 443

//-------------------------------------
#include <WiFiManager.h>                //panggil & gunakan library wifimanager agar mudah mengganti access point
WiFiManager wifiManager;                //tentukan object wifimanager
                                        //defaulkan akan jadi AP & ip 192.168.4.1
```

```
unsigned long previousMillis = 0;       //siapkan variabel dengan tipe data unsigned long
int i=0,detik=0, kelipatan=5;              //siapkan variable dengan tipe data integer
String payload,data, data1,data2,data3,data4,data5,data6,data7,data8,data9,data10,data11,data12;         // siapkan variable dengan tipe data String

//-------------------------------------
//Susunan pin panel P10 dan Nodemcu ESP8266
// p10        //esp8266
// A          // D0
// B          // D6
// CLK        // D5
// SCLK       // D3
// R          // D7
// NOE        // D8
// GND        // GND
//-----------------------------------------
// OE: Output Enable untuk on/off semua LED
// A,  B : memilih kolom yg aktif.
// CLK: SPI clock
//SCLK: Latch data register
//Data:  SERIAL DATA SPI
//-----------------------------------------
#include <DMDESP.h>         //panggil library untuk P10
#define DISPLAYS_WIDE 3 //tentukan banyak kolom Panel yang digunakan
#define DISPLAYS_HIGH 2 //tentukan banyal Baris Panel
DMDESP Disp(DISPLAYS_WIDE, DISPLAYS_HIGH);


//siapkan font yang akan digunakan
//#include <fonts/SystemFont5x7.h>
//#include <fonts/Arial_Black_16.h>
//#include <fonts/angka6x13.h> //ini cocok, rampingtebal & tinggi
//#include <fonts/Font4x6.h> //kurang jelas
//#include <fonts/Mono5x7.h> //sama dengan su=ystemfint5x7
//#include <fonts/ElektronMart6x8.h> //tebal
#include <fonts/Font4x5.h>
//#include <fonts/Font3x5.h>
```

```
//#define Font1  SystemFont5x7
//#define Font2  angka6x13
//#define Font3  Font4x6
//#define Font4  ElektronMart6x8
//#define Font5  Mono5x7
#define Font6 Font4x5                        //definikan nama
 lain untuk font
//#define Font6 Font3x5

//------------------------------------------
#include <NTPClient.h>                       //siapkan librar
y NTPClient.h
#include <WiFiUdp.h>                         //siapkan librar
y WIFIUdp.h
#include <time.h>                            //siapkan librar
y time.h
WiFiUDP ntpUDP;                              //buat instance
ntpUPD dari object WIFIUDP
NTPClient timeClient(ntpUDP, "pool.ntp.org"); //siapkan websit
e ntp server yang dituju

int currentHour, currentMinute, currentSecond;  //siapkan vari
abel dengan tipe data integer
String SHari,SHours,SMinutes,SSeconds,Sday,Smonth,Syear;   //s
iapkan variabel dengan tipe data String
bool dot;                                    //siapkan variab
el dengan tipe data boolean
String formattedTime;

//float margin1 = 0.25;
//float margin2 = 0.5;
//float margin3 = 0.75;
//float margin4 = 1.00;
float margin;
float margin_jual;
String string_akhir;
String string_akhir_jual;
float float_akhir;
float float_akhir_jual;



//---------------------------------------
void setup() {
  //1. Serial port communication
  Serial.begin(115200);                          //tentukan bau
drate untuk serial
  delay(200);                                    //beri delay s
ebentar
  Serial.println("1. Start setup......");        //tampilkan pa
da serial
  pinMode(LED_BUILTIN, OUTPUT);                  //pin jadikan
output
  digitalWrite(LED_BUILTIN, HIGH);               //kondikan log
ic HIGH

  //2. setup wifi manager:
  wifiManager.autoConnect("Wifi Ipip");

  Serial.println("");                            //lewati 1 bar
is
  Serial.println("2. Connecting to Wifi");       //tampilkan pa
da serial
  Serial.print("Connected");
  Serial.print("IP address: ");
  Serial.println(WiFi.localIP());                //print alamat
 IP yang didapatkan nodemcu

  delay(1000);                                   //beri delay s
ebentar
  https_post_data();                             //panggil fung
si ambil data
  parsing_data();                                //panggil fung
si parsing data

  //3. NTP begin
  timeClient.begin();                            //aktifkan ntp
 client
  timeClient.setTimeOffset(3600 * 7);            //pool.ntp.org
 seting timezone = +7
  delay(500);                                    //beri delay s
ebentar
  timeClient.update();                           //update ntp-
nya
  delay(500);                                    //beri delay s
ebentar
  datetime();                                    //panggil fung
si datetime
```

```
  //4. DMDESP Setup
  Serial.println("3. Display Start");           //tampilkan pa
da serial
  Disp.setBrightness(5);                        //set keceraha
n display
  Disp.start();                                 //aktifkan dis
play
  tampilan_display();                           //panggil fung
si tampilan display
  delay(500);                                   //beri delay s
ebentar

}

//---------------------------------------
void loop() {
  Disp.loop();                                 //panggil fungs
i disp.loop

  if (millis() - previousMillis > 1000) {     //siapkan fungsi
 millis dengan periode 1000 ms atau 1 detik
    previousMillis = millis();                //isi ulang nila
i previosMillis dengan nilai milles terbaru

    tampilan_display();                       //panggil fungsi
 tampilan display

    detik++;                                  //naik 1 variabl
e detik
  if (detik > 59 && WiFi.status() == WL_CONNECTED){ //cek apak
ah detik sudah lebih besar dari 59
      detik=0;                                //nolkan lagi va
rible detik
      Disp.clear();                           //bersihkan tamp
ilan display
      digitalWrite(D8,LOW);                   //matikan displa
y agar tidak tampil flicker selama ambil data
      datetime();                             //panggil fungsi
 datetime
      kedip_led_1x();                         //panggil fungsi
 kedip led 1x
      https_post_data();                      //panggil fungsi
 untuk ambil data
      parsing_data();                         //panggil fungsi
 untuk parsing data
      digitalWrite(D8,HIGH);                  //nyalakan lagi
displaynya
      }
  }
}

//-------------------------------------
void https_post_data() {                      //fungsi untuk a
mbil data ke https
  BearSSL::WiFiClientSecure client;           //siapkan wifice
litn secure sebagai client
  client.setInsecure();                       //set insecure (
tanpa https fingerprint )
  HTTPClient https;                           //siapkan HTTPCl
ient sebagai https

  Serial.print("");
  Serial.print("connecting to server: ");     //tampilkan ke s
erial
  Serial.println(String(host) + String(path));

  if (https.begin(client, host, port, path)) { //mulai akses k
e https dengan nama domain server & port nya
    https.addHeader("Content-
Type", "application/json");    //tambah beberapa header
    https.addHeader("User-Agent", "ESP8266");
    https.addHeader("Host", String(String(host) + ":" + port))
;

    //int httpsCode = https.POST(body);       //method post
    auto httpsCode = https.GET();             //gunakan method
 get untuk ambil data ke server

    if (httpsCode > 0) {                      //cek apakaha re
sponcode > 0
      Serial.print("https code : ");
      Serial.println(httpsCode);
      if (httpsCode == HTTP_CODE_OK) {        //jika  sukses m
aka
        payload = https.getString();          //ambil respon d
atanya & simpan ke variable payload
        Serial.print("Payload: ");
        Serial.println("Success");
        Serial.println("");
      }
      else {
        Serial.println("Response code not OK");
        Serial.println("");
        kedip_led_2x();
        }
    } else {
      Serial.println("failed to POST");
      Serial.println("");
      kedip_led_2x();
    }
  } else {
    Serial.println("failed to connect to server");
    Serial.println("");
    kedip_led_2x();
  }

  https.end();                                //akhiri koneksi
 ke https
}

void parsing_data(){                          //fungsi parsing
 data
  data1 = payload.substring(102,102+3);       //ambil data USD
  data2 = payload.substring(183,183+9);       //ambil data buy
  data3 = payload.substring(255,255+9);       //ambil data sel
l
  data4 = payload.substring(400,400+3);       //ambil data SDG
  data5 = payload.substring(481,481+9);       //ambil data buy
  data6 = payload.substring(553,553+9);       //ambil data sel
l
  data7 = payload.substring(698,698+3);       //ambil data EUR
  data8 = payload.substring(779,779+9);       //ambil data buy
  data9 = payload.substring(851,851+9);       //ambil data sel
l
  data10 = payload.substring(996,996+3);      //ambil data AUD
  data11 = payload.substring(1079,1079+9);    //ambil data buy
  data12 = payload.substring(1150,1150+9);    //ambil data sel
l

  //tampilkan hasil parsing ke serial
  Serial.println("Parsing data: ");
  Serial.println("data1=" + data1);
  Serial.println("data2=" + data2);
  Serial.println("data3=" + data3);

  Serial.println("data4=" + data4);
  Serial.println("data5=" + data5);
  Serial.println("data6=" + data6);

  Serial.println("data7=" + data7);
  Serial.println("data8=" + data8);
  Serial.println("data9=" + data9);

  Serial.println("data10=" + data10);
  Serial.println("data11=" + data11);
  Serial.println("data12=" + data12);
  Serial.println("");
  }

void kedip_led_1x(){
  //digitalWrite(LED_BUILTIN, !digitalRead(LED_BUILTIN)); //nyala-matikan led sesuai periode millis
  digitalWrite(LED_BUILTIN, LOW);       //nyalakan led
  delay(50);                            //beri delay sebentar
  digitalWrite(LED_BUILTIN, HIGH);      //matikan led
  }

void kedip_led_2x(){
      digitalWrite(LED_BUILTIN, LOW);
      delay(50);
      digitalWrite(LED_BUILTIN, HIGH);
      delay(50);
      digitalWrite(LED_BUILTIN, LOW);
      delay(50);
      digitalWrite(LED_BUILTIN, HIGH);
      delay(50);
      digitalWrite(LED_BUILTIN, LOW);
      delay(50);
  }

void kedip_led_5x(){
  for (int i = 0; i < 5; i++) {
      digitalWrite(LED_BUILTIN, LOW);
      delay(50);
      digitalWrite(LED_BUILTIN, HIGH);
      delay(50);
```

```
    }
  }

void datetime(){                                        //fung
si datetime ntp client
  timeClient.update();                                  //upda
te nilai ntp
  delay(200);                                           //beri
 delay sebentar

  time_t epochTime = timeClient.getEpochTime();         //baca
 waktu
  Serial.print("Epoch Time: ");
  Serial.println(epochTime);

  formattedTime = timeClient.getFormattedTime(); //baca waktu
yang telah diformat
  Serial.print("Formatted Time: ");
  Serial.println(formattedTime);

  int currentHour = timeClient.getHours();              //baca
 jam
  Serial.print("Hour: ");
  Serial.println(currentHour);
  if (currentHour<10) SHours =  "0" + String(currentHour); //j
ika kurang dari 10 maka beri angka 0 didepannya
  else SHours =  String(currentHour);

  int currentMinute = timeClient.getMinutes();          //baca
 menit
  Serial.print("Minutes: ");
  Serial.println(currentMinute);
  if (currentMinute<10 )SMinutes = "0" + String(currentMinute)
; //jika dari dari 10 maka beri angka 0 didepannya
  else SMinutes = String(currentMinute);

  int currentSecond = timeClient.getSeconds();          //baca
 detik
  Serial.print("Seconds: ");
  Serial.println(currentSecond);

  Sday = String(timeClient.getDay());                   //baca
 hari
```

```
  struct tm *ptm = gmtime ((time_t *)&epochTime);       //Get
a time structure

  int monthDay = ptm-
>tm_mday;                          //baca tanggal
  Serial.print("Month day: ");
  Serial.println(monthDay);
  if (monthDay<10) Sday = "0" + String(monthDay);
  else Sday = String(monthDay);

  int currentMonth = ptm-
>tm_mon+1;                     //baca bulan
  Serial.print("Month: ");
  Serial.println(currentMonth);
  if (currentMonth<10) Smonth = "0" + String(currentMonth);
  else Smonth = String(currentMonth);

  int currentYear = ptm-
>tm_year+1900;                  //baca tahun
  Serial.print("Year: ");
  Serial.println(currentYear);
  Syear = String(currentYear);

  //Print complete date:
  String currentDate = String(currentYear) + "-
" + String(currentMonth) + "-" + String(monthDay);
  Serial.print("Current date: ");
  Serial.println(currentDate);
  Serial.println("");
  }
```