1. **Program Arduino**

```
/*

*/

 #include <EEPROM.h>

 #include <TimerOne.h>

 // Set the static IP address to use if the DHCP fails to assign

int detiksiram =5;

bool DEBUG = true;

bool EnClock = true;

bool EnEthernet = true;

char jam[6];

#include "millisekon.h"

#include <SPI.h>

#include <Ethernet.h>


#include <Wire.h>

#include <Time.h>

//#include <DS1307RTC.h>

//#include <MD_DS1307.h>


//#include "DS1307FUDOT.h"

#include "fungsi.h"

#include "bacasensorfudotdotdot.h"

#include "webFuDotDotDot.h"

int LCD_RS_pin = A15;
```

```
int LCD_Enable_pin = A14;

int LCD_D4_pin  = A13;

int LCD_D5_pin = A12;

int LCD_D6_pin = A11;

int LCD_D7_pin  = A10;

int outPin[3]={A5,A6,A7}; // pin out 1 =L1 , OUT 2 = L2 OUT 3 = BUZZER

int btn[5]={14,15,16,17};

/*

LCD R/W pin to ground

LCD VSS pin to ground

LCD VCC pin to 5V

10K resistor:

ends to +5V and ground

wiper to LCD VO pin (pin 3)

*/


#include <LiquidCrystal.h>


char jamLCD[10];


char waktu[20];

// initialize the library with the numbers of the interface pins

LiquidCrystal lcd(LCD_RS_pin,  LCD_Enable_pin, LCD_D4_pin,  LCD_D5_pin,  LCD_D6_pin,  LCD_D7_pin);


#include "tampilLcd.h"
```

```
int pinStatusJaringan = A0; //di ganti mejadi status indikator sedang komunikasi/permintaan dengan webserver

int ledStatusPermintaanKeWebServer=A0;

int pinStatusInternetServer = A1;

int pinStatusInternetResponDatabase = A2;

//state = status kelembapan tanah ( status tanah)

// 1 = lembab 0 = tidak lembab

boolean statusUpdate=false;

int statusTekanTombol=0;

void setup() {


  delay(2000);

  lcd.begin(16, 2);

strcpy(strDataWeb[0],"     ");

strcpy(strDataWeb[1],"     ");

  pinMode(pinStatusJaringan, OUTPUT);

  pinMode(pinStatusInternetResponDatabase, OUTPUT);

  pinMode(pinStatusInternetServer, OUTPUT);

  for (int xxxx= 0 ;xxxx<4;xxxx++){

   pinMode(btn[xxxx],INPUT_PULLUP);

    }


  for (ulang = 0; ulang < 3; ulang++) {

    pinMode(sensfudotdotdot[ulang], INPUT_PULLUP);

     pinMode(outPin[ulang],OUTPUT);

   // delay(100);
```

```
   state[ulang]=digitalRead(sensfudotdotdot[ulang]);
  // state[ulang] = digitalRead(sensfudotdotdot[ulang]);
 }
//while(1){ digitalWrite(outPin[2],HIGH);}
 ulang = 0;
 //attachInterrupt(2, intFu1, CHANGE);
 //attachInterrupt(5, intFu2, CHANGE);
// attachInterrupt(4, intFu3, CHANGE);

 Serial.begin(115200);
 Serial.println("RESET: ");
 if (EnClock) {
  // setupDS1307Fu();
   setupDS();
   lcd.print("RESET: ");


 }
//tulis_hari();
 if (EnEthernet) {


if (Ethernet.begin(mac) == 0) {
 //  Serial.println("Failed to configure Ethernet using DHCP");
   // no point in carrying on, so do nothing forevermore:
```

```
  // try to congifure using IP address instead of DHCP:
   Serial.print("failed DHCP = ");
  Ethernet.begin(mac, ip);
}
Serial.print("IP ADdress = ");
Serial.println(Ethernet.localIP());

  if (DEBUG)Serial.println("DEBUG");
  else Serial.println(" NOT DEBUG");
  // give the Ethernet shield a second to initialize:
  //Serial.print("My IP address: ");
  //Serial.println(Ethernet.localIP());

  //char strTempSend[] = "status_tanah,01"; // send only status tanah
  char strTempSend[]="status_tanah_siram,11,11"; // send  status tanah and status siram
  //kirimUpdateClientFuDotDotDot(strTempSend);
}

delay(2000);

adaInterruptFUDotDotDot = false;
//checkAvail();
Serial.println("<<< Start  >>>");
updateTimerRTC = millis();
delay(1000);
```

```
Serial.println(__DATE__);
// Timer1.initialize(150000);
  //Timer1.attachInterrupt(blinkLED); // blinkLED to run every 0.15 seconds
}
void intervalJam(void)
{


}

void loop()
{

bacaSensor();

cekTekanTombolllllllllllllllllllllllllllllllllllllllllllll();
if ((millis() - updateTimerRTC) > 1000)
    {lcd.clear();
    olahOutputFu();
    Serial.println("tampilkan status sensor");
switch(statusTekanTombol){
   // jika 1 maka tampil status sensor 1
   // jika 2 maka status sensor 2
   // jika 1 maka tampil status sensor 3
   case 1 : lcd.setCursor(0,0);
            lcd.print("status Sensor 1");
```

```
        lcd.setCursor(0,1);
        if (state[0]==0){
        lcd.print("tanah lembab");
        } else if(state[0]==1){
         lcd.print("tidak lembab");
        }   break;
 case 2 : lcd.setCursor(0,0);
        lcd.print("status Sensor 2");
        lcd.setCursor(0,1);
        if (state[1]==0){
        lcd.print("tanah lembab");
        } else if(state[1]==1){
         lcd.print("tidak lembab");
        }   break;
 case 3 : lcd.setCursor(0,0);
        lcd.print("status Sensor 3");
        lcd.setCursor(0,1);
        if (state[2]==0){
        lcd.print("tanah lembab");
        } else if(state[2]==1){
         lcd.print("tidak lembab");
        }   break;

}
if (EnClock && statusTekanTombol==0) {
```

```
    displayTime(); // display the real-time clock data on the Serial Monitor
   //  updateTimerRTC = millis();
   }

updateTimerRTC = millis();
 }

 if (EnEthernet) {
   if ((millis() - updateTimer) > 15000)
   {// noInterrupts();
      lcd.begin(16, 2);

    digitalWrite( pinStatusJaringan,LOW);// led akan menyala tanda bahwa ada permintaan koneksi dengan webserver
     bool interupt=adaInterruptFUDotDotDot;
      // interrupts();
     if (!interupt) {
      //Serial.print(" koneksi rEQUEST");
      //Serial.println(clientConnected);
     // statusUpdate=false;
      RequestClientFuDotDotDot();

     } else {
     // statusUpdate=true;
     Serial.println("perubahan tanah");
```

```
  delay(3000);
   char strTemp[10][2];
   char strTempSend[50] = "";
   int intTemp[4];
   intTemp[0] = state[0];
   intTemp[1] = state[1];
   intTemp[2] = state[2];

   itoa(intTemp[0], strTemp[0], 10);
   itoa(intTemp[1], strTemp[1], 10);
   itoa(intTemp[2], strTemp[2], 10);
   strcpy(strTempSend, "status_tanah,");
   strcat(strTempSend, strTemp[0]);
   //strcat(strTempSend, ",");
   strcat(strTempSend, strTemp[1]);
   //strcat(strTempSend, ",");
   strcat(strTempSend, strTemp[2]);
   //strcat(strTempSend, ",");
   Serial.println(strTempSend);
   delay(3000);
   kirimUpdateClientFuDotDotDot(strTempSend);

   adaInterruptFUDotDotDot = false;
 }
printStatusKoneksi();
```

```
   updateTimer=millis();
     client.stop();
      digitalWrite( pinStatusJaringan,HIGH);// led akan mati tanda bahwa tidak ada permintaan ke
webserver
    }
  }
}

void ambilWeb() {
  char tempLokal[200];
  strcpy(tempLokal, ambilGet);
  strcat(tempLokal, "Host: ");
  strcat(tempLokal, server);
  strcat(tempLokal, "\r\nUser-Agent: doni\r\nConnection: close\r\n\r\n");
  client.print(tempLokal);
  //Serial.println("Ambil web ");
  if (DEBUG)Serial.println(tempLokal);

  strcpy(tempLokal, " ");
}

void printStatusKoneksi() {

  if (clientConnected) {
```

```
  Serial.print("KONEK KE SERVER ");
  Serial.println(server);
  Serial.flush();
  digitalWrite(pinStatusInternetServer, LOW);
 }
 else {
  Serial.println("TIDAK KONEK KE SERVER , CEK ALAMAT SERVER ");
  digitalWrite(pinStatusInternetServer, HIGH);
 }
 /*********************************************************************/
 /*********************************************************************/
 if ( responDatabaseFu) {
  Serial.println("responDatabase OK ");
  digitalWrite(pinStatusInternetResponDatabase, LOW);
  // if (statusUpdate==false){
olahOutputFu();
  // }
 }
 else {
  Serial.println("responDatabase BAD");
  digitalWrite(pinStatusInternetResponDatabase, HIGH);
 }
 /*********************************************************************/
 /*********************************************************************/
 if (responKonekJaringanFu) {
```

```
   Serial.print("My IP address: ");
   Serial.println(Ethernet.localIP());
  //digitalWrite(pinStatusJaringan, HIGH);
  } else {
   Serial.println("CEK SETTINGAN ROUTER/PC HARUS DHCP ");
  // digitalWrite(pinStatusJaringan, LOW);
  }
  Serial.println("\r\r\r");
  Serial.println("sundul");
}
/*
bool bacaJam() {



  bool status=false;
  if (RTC.read(tm)) {
   if(DEBUG){
   Serial.print("Ok, Time = ");
   print2digits(tm.Hour);
   //Serial.write(':');
   print2digits(tm.Minute);
   // Serial.write(':');
   print2digits(tm.Second);
   //Serial.print(", Date (D/M/Y) = ");
   //Serial.print(tm.Day);
```

```
  //Serial.write('/');
  // Serial.print(tm.Month);
  // Serial.write('/');
  //Serial.print(tmYearToCalendar(tm.Year));
  //Serial.println();
  }
  ReadTime();
  char * hariIni= dow2String(dow);
  sprintf(jam, "%2d:%2d", tm.Hour, tm.Minute);
  sprintf(jamLCD, "%02i:%02i:%02i", tm.Hour, tm.Minute, tm.Second);
 sprintf(waktu,"%s, %d-%d-%d",hariIni,tm.Day,tm.Month,tmYearToCalendar(tm.Year));
  status = true;
} else {
  if (RTC.chipPresent()) {
    Serial.println("The DS1307 is stopped.  Please run the SetTime");
    Serial.println("example to initialize the time and begin running.");
    Serial.println();
  } else {
    Serial.println("DS1307 read error!  Please check the circuitry.");
    Serial.println();
  }
  status = false;
  //delay(9000);
}
return status;
```

```
}



void print2digits(int number) {
  if (number >= 0 && number < 10) {
    Serial.write('0');
  }
  Serial.print(number);
}

void tulis_hari(){
//dow =1;
//WriteTime();
  }
  void WriteTime()
// Pack up and write the time stored in the object variables to the RTC
// Note: Setting the time will also start the clock of it is halted
{




  // check what time mode is current
  //readDevice(ADDR_HR, &mode12, 1);
  mode12 &= CTL_12H;
```

```
 // pack it up in the current space
// bufRTC[ADDR_SEC] = bin2BCD(s);
// bufRTC[ADDR_MIN] = bin2BCD(m);



  // bufRTC[ADDR_HR] = bin2BCD(h);
// bufRTC_[ADDR_DAY] = bin2BCD_(dow);
 unsigned char hari__ = bin2BCD_(dow);
  //bufRTC[ADDR_DATE] = bin2BCD(dd);
  //bufRTC[ADDR_MON] = bin2BCD(mm);
  //bufRTC[ADDR_YR] = bin2BCD(yyyy - 2000);

  writeDevice_(RAM_BASE_READ, hari__, 1);
}
*/
bool statusUpdate_=false;
bool statusSebelumnyaSiram=false;
bool resetWaktu1=false;
bool resetWaktu2=false;
void olahOutputFu(){
Serial.print("JAM LCD =");
Serial.println(jam);
Serial.print("jadwal 1=");
Serial.println(strDataWeb[0]);
```

```
Serial.print("jadwal 2=");
Serial.println(strDataWeb[1]);

if(strcmp(jam,strDataWeb[0])==0 && !resetWaktu1){
   if(DEBUG){Serial.println("jadwal 1 siram ");}
    // tulisEeprom();
digitalWrite(outPin[0],HIGH);
int delaySiram =detiksiram;
while( delaySiram >0 ){
 digitalWrite( outPin[2],1);
  delay(500);
  delaySiram--;
   digitalWrite( outPin[2],0);
    delay(500);
  }
  digitalWrite(outPin[0],LOW);
 //digitalWrite(outPin[1],HIGH);
 // delay(5000);
 resetWaktu1=true;

  }else{
   if(strcmp(jam,strDataWeb[0])!=0 && resetWaktu1){
     resetWaktu1=false;
     }
        if(DEBUG){Serial.println("jadwal siram 1 tidak cocok ");}
```

```
   }
   if(strcmp(jam,strDataWeb[1])==0&& !resetWaktu2){
//if(strcmp(jam,jam)==0){
   if(DEBUG){Serial.println("jadwal 2 siram ");}
  // tulisEeprom();
 digitalWrite(outPin[0],HIGH);
 int delaySiram =detiksiram;
while( delaySiram >0 ){
digitalWrite( outPin[2],1);
 delay(500);
 delaySiram--;
  digitalWrite( outPin[2],0);
   delay(500);
 }
 digitalWrite(outPin[0],LOW);
  //digitalWrite(outPin[1],HIGH);
 resetWaktu2=true;

 }else{
   if(strcmp(jam,strDataWeb[1])!=0 && resetWaktu2){
     resetWaktu2=false;
     }
 // digitalWrite(outPin[0],LOW);
  // digitalWrite(outPin[1],LOW);
```

```
  if(DEBUG){Serial.println("jadwal siram 2 tidak cocok ");}
 }

  //  digitalWrite(outPin[1],LOW);




}

void cekTekanTombolllllllllllllllllllllllllllllllllllllllllllll(){
 for (int II=0;II<5;II++){
 if (digitalRead(btn[II])==0){
   Serial.print("tombol ");
   Serial.println(btn[II]);
   Serial.println("ditekan");
   for(int yyy=0;yyy<10;yyy++){
     digitalWrite(outPin[2],HIGH);
     delay(100);
     }
     digitalWrite(outPin[2],LOW);


  statusTekanTombol=II;
   }
```

```
 }
}
```