

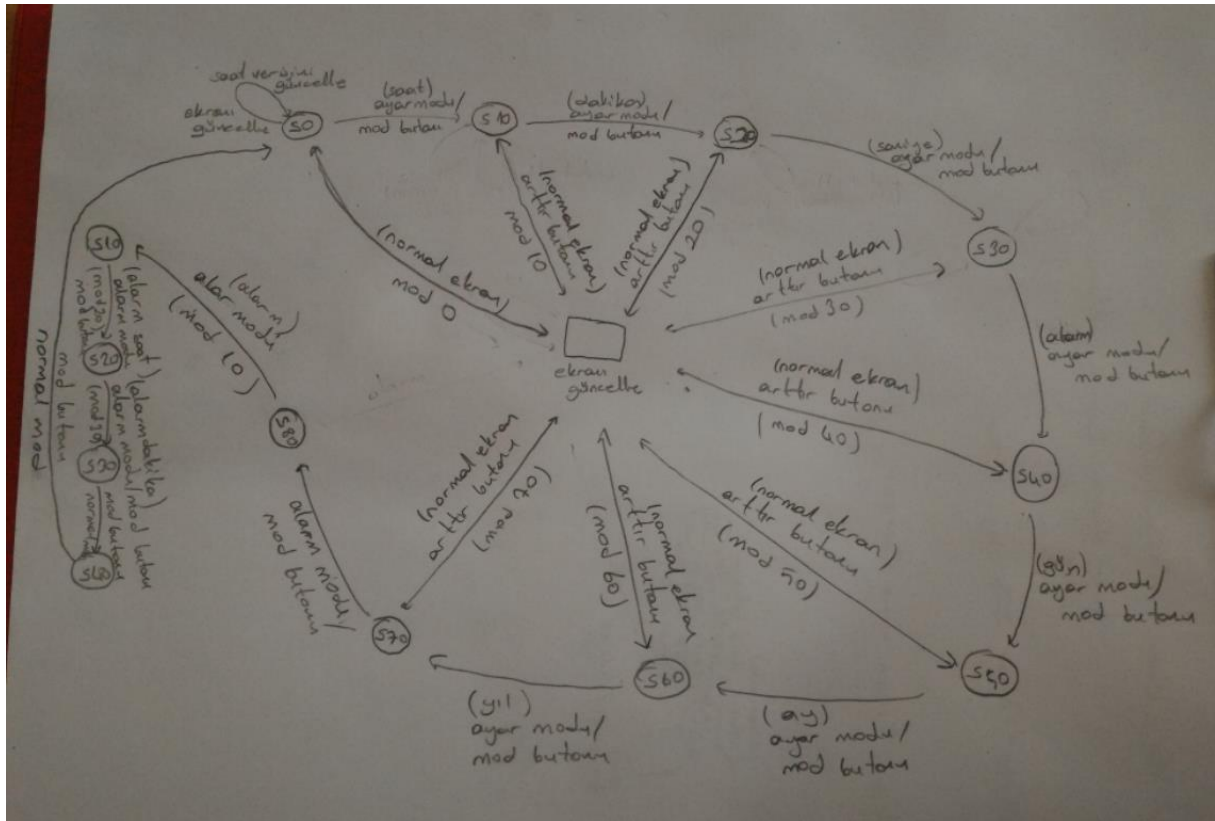
PROJE RAPORU

Proje Numarası : 2

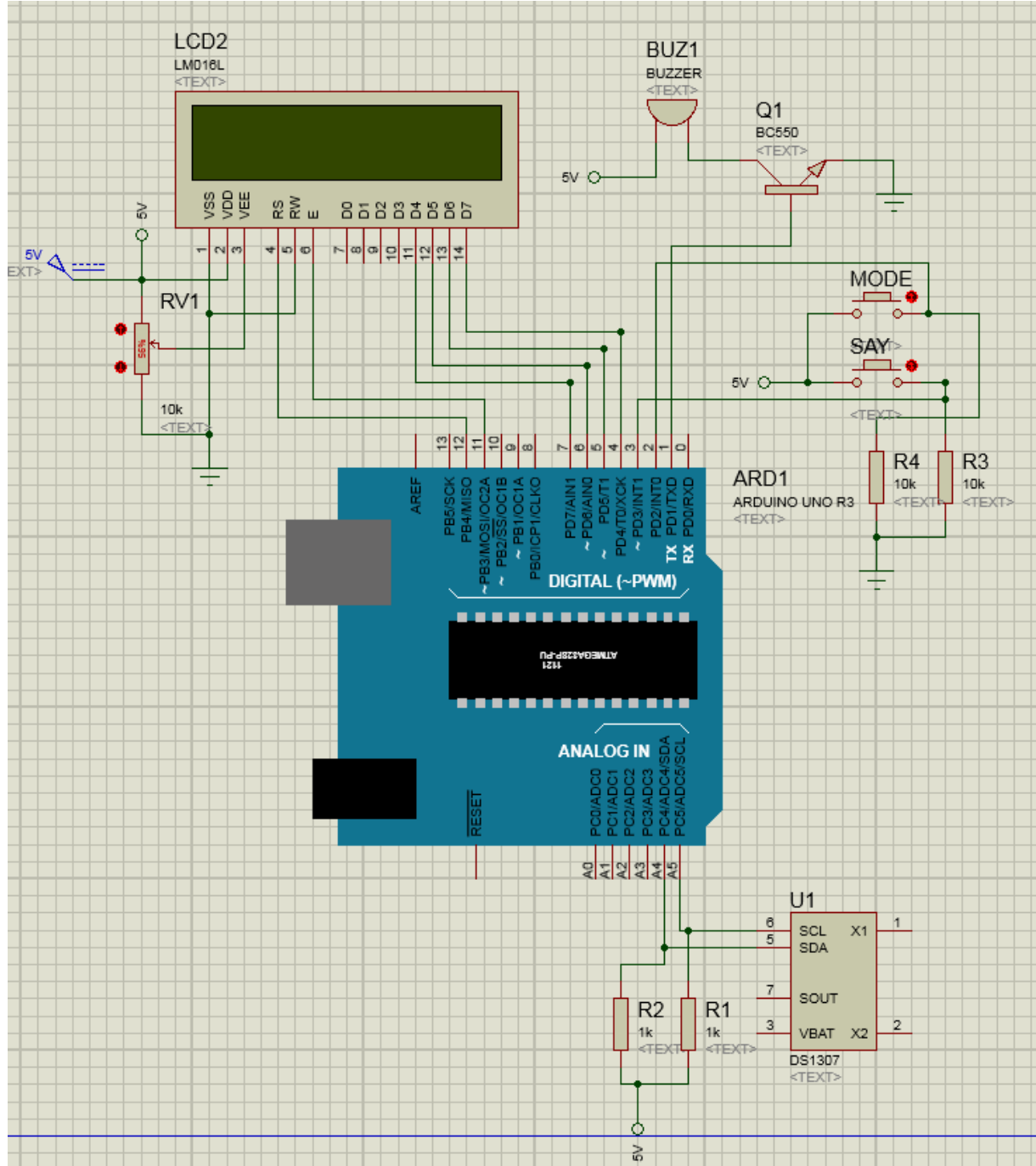
Projeyi Yapan : Emir Baran Özkaptan

Numarası : 1112706040

Sonlu Durum Makinesi Çizimi



Devre Şeması



Kodlar

```
#include <LiquidCrystal.h>

#include <Wire.h>

#include "RTCLib.h"

DateTime simdi;

RTC_DS1307 rtc;

LiquidCrystal lcd(12, 11, 7, 6, 5, 4);

long simdikizaman=millis();

long eskizaman=millis();

long lcd_eskizaman=millis();

long cursor_eskizaman=millis();


long debounce_sure = 100;

volatile unsigned long onceki_micros;


byte st=0,dk=0,sn=0,gn=0,ay=0;int yil=0;

byte a_st=0,a_dk;

char alarm = 'K';


int mode=0;

int ekran=0;


void setup() {

    pinMode(2,INPUT);

    pinMode(3,INPUT);

    pinMode(1,OUTPUT);

    rtc.begin();

    attachInterrupt(0, Mode_Buton, FALLING);

    lcd.begin(16, 2);
```

```
lcd.noCursor();

}

void ekran_yaz(){
    if(simdikizaman-lcd_eskizaman>100){
        if(ekran==0){
            //lcd.clear();
            lcd.setCursor(4,0);
            if(st<10) lcd.print("0");
            lcd.print(st,DEC);
            lcd.print(":");
            if(dk<10) lcd.print("0");
            lcd.print(dk,DEC);
            lcd.print(":");
            if(sn<10) lcd.print("0");
            lcd.print(sn,DEC);
            lcd.setCursor(13,0);
            lcd.print("(");
            lcd.print(alarm);
            lcd.print(")");
            lcd.setCursor(3,1);
            if(gn<10) lcd.print("0");
            lcd.print(gn,DEC);
            lcd.print("/");
            if(ay<10) lcd.print("0");
            lcd.print(ay,DEC);
            lcd.print("/");
            lcd.print(yil,DEC);
            lcd_eskizaman=simdikizaman;
        }else{
            lcd.clear();
        }
    }
}
```

```

    lcd.setCursor(6,0);

    lcd.print("(");

    lcd.print(alarm);

    lcd.print(")");

    lcd.setCursor(5,1);

    if(a_st<10) lcd.print("0");

    lcd.print(a_st,DEC);

    lcd.print(":");

    if(a_dk<10)lcd.print("0");

    lcd.print(a_dk,DEC);

    lcd_eskizaman=simdikizaman;
}
}
}

void loop() {

    simdikizaman=millis();

    if(ekran==0){

        switch(mode){

            case 0:

                simdi = rtc.now();

                lcd.noCursor();

                st= simdi.hour();

                dk = simdi.minute();

                sn = simdi.second();

                gn = simdi.day();

                ay = simdi.month();

                yil= simdi.year();

                ekran_yaz();

                break;

            case 10:

                cursor_blink(5,0);//saat

```

```
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 20:  
    cursor_blink(8,0);  
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 30:  
    cursor_blink(11,0);  
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 40:  
    cursor_blink(14,0);  
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 50:  
    cursor_blink(4,1);  
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 60:  
    cursor_blink(7,1);  
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 70:  
    cursor_blink(12,1);  
    rtc.adjust(DateTime(yil,ay,gn,st,dk,sn));  
break;  
case 80:  
    ekran=1;  
    mode=10;  
    ekran_yaz();  
break;
```

```

    }
}
else{
    switch(mode){
        case 10:
            cursor_blink(7,0);
            break;
        case 20:
            cursor_blink(6,1);
            break;
        case 30:
            cursor_blink(9,1);
            break;
        case 40:
            ekran=0;
            mode=0;
            break;
    }
}

if(digitalRead(3)==HIGH){
    delay(50);
    if((simdikizaman-eskizaman>200) & digitalRead(3)==HIGH){
        Say_Buton();
        eskizaman=simdikizaman;
    }
}

if(alarm=='A'){
    if(a_st == st & a_dk==dk){
        digitalWrite(1,HIGH);
    }
    else{

```



```

    digitalWrite(1,LOW);
}
}else{
    digitalWrite(1,LOW);
}
}

void cursor_blink(byte sutun,byte satir){
    if(simdikizaman-cursor_eskizaman >=0 & simdikizaman-cursor_eskizaman <100){
        lcd.cursor();
        lcd.setCursor(sutun,satir);
    }else if(simdikizaman-cursor_eskizaman >=100 & simdikizaman-cursor_eskizaman <=200){
        lcd.noCursor();
    }else{
        cursor_eskizaman = simdikizaman;
    }

}

void Mode_Buton(){
    if((long)(micros() - onceki_micros) >= debounce_sure * 1000) {
        mode+=10;
        if(mode==90)mode=0;
        onceki_micros = micros();
    }
}

void Say_Buton(){
    if(ekran==0){
        switch(mode){
            case 10:
                st++;
                if(st==24)st=0;
                break;

```

```
case 20:
    dk++;
    if(dk==60)dk=0;
    break;
case 30:
    sn++;
    if(sn==60)sn=0;
    break;
case 40:
    if(alarm=='K')alarm='A';
    else alarm='K';
    break;
case 50:
    gn++;
    if(gn==32)gn=1;
    break;
case 60:
    ay++;
    if(ay==13)ay=1;
    break;
case 70:
    yil++;
    if(yil==2100)yil=1970;
    break;
}
}else{
    switch(mode){
case 10:
    if(alarm=='K')alarm='A';
    else alarm='K';
    break;
```

```
case 20:
    a_st++;
    if(a_st==24)a_st=0;
    break;
case 30:
    a_dk++;
    if(a_dk==60)a_dk=0;
    break;
}
}
ekran_yaz();
}
```