LAMPIRAN

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

#define buzzer 4
#define dirStep 2
#define stepStep 3
#define relaySld 7
#define motorA 5
#define motorB 6
#define IR A3
#define left A0
#define right A1
#define ok A2
#define S0 8
#define S1 9
#define S2 10
#define S3 11
#define sensorOut 12
#define addrEEP50 0
#define addrEEP100 1

int redFrequency = 0;
int greenFrequency = 0;
int blueFrequency = 0;
int setSetor50;
int setSetor100;
long setTarik50 = 0;
long setTarik100 = 0;
byte hasilEEP50 = 0;
byte hasilEEP100 = 0;

byte Cursor[8]= {
  B01000,
  B01100,
  B01110,
  B01111,
  B01110,
  B01100,
  B01000,
  B00000,
};
LiquidCrystal_I2C lcd(0x27,20,4);

void setup() {
  Serial.begin (9600);
  pinMode (buzzer,OUTPUT);
  pinMode (dirStep,OUTPUT);
  pinMode (stepStep, OUTPUT);
  pinMode (relaySld, OUTPUT);
  pinMode (motorA, OUTPUT);
  pinMode (motorB, OUTPUT);
  pinMode (IR, INPUT);
```

```
  pinMode (left,INPUT_PULLUP);
  pinMode (right,INPUT_PULLUP);
  pinMode (ok,INPUT_PULLUP);
  pinMode (S0, OUTPUT);
  pinMode (S1, OUTPUT);
  pinMode (S2, OUTPUT);
  pinMode (S3, OUTPUT);
  pinMode (sensorOut, INPUT);

  digitalWrite(relaySld, 1);
  digitalWrite(S0,HIGH);
  digitalWrite(S1,LOW);

  lcd.init();                      // initialize the lcd
  lcd.init();
  lcd.backlight();
  lcd.createChar(0,Cursor);
  //EEPROM.write (addrEEP50,0);delay(5);
  //EEPROM.write (addrEEP100,0);delay(5);
  //hasilEEP50=EEPROM.read(addrEEP50);
  //hasilEEP100=EEPROM.read(addrEEP100);
while (digitalRead(IR)!=0) {resetPosisi();}
}
void loop() {

  menuSetor :
  tampilanUtama();
  lcd.setCursor(2,2);lcd.write(byte(0));
 if     (digitalRead (right)==0) {delay (150);bunyi();
        lcd.clear();goto menuSaldo;}
 if     (digitalRead (left)==0) {delay (150);bunyi();
        lcd.clear();goto menuInfo;}
 if     (digitalRead (ok)==0) {delay (150);bunyi();
        lcd.clear();goto menuSetorTunai;}
 goto menuSetor;
menuSetorTunai :
unsigned long totalSetor50;
unsigned long totalSetor100;
BacaWarna();
lcd.setCursor (0,0); lcd.print("  SETOR UANG ANDA   ")
lcd.setCursor (0,1); lcd.print("NOMINAL YANG BOLEH :");
lcd.setCursor (0,2); lcd.print("  50.000 / 100.000  ");
lcd.setCursor (0,3); lcd.print("        <<<Kembali  ");

if      (digitalRead (left)==0) {delay (150);bunyi();
        lcd.clear();goto menuSetor;}
if (    redFrequency>71&&redFrequency<82){
        alarm();simpan50();tarikUang();kembali50();hasilE=EEPROM.r
        ead(addrEEP50);
        setSetor50=hasilEEP50+=1;EEPROM.write (addrEEP50,
        setSetor50);delay(5);
        hasilEEP50=EEPROM.read(addrEEP50);
        hasilEEP100=EEPROM.read(addrEEP100);
        totalSetor50=(hasilEEP50*50000)+(hasilEEP100*1000;
        lcd.clear();
        lcd.setCursor (0,0); lcd.print("SETORAN ANDASUKSES ");
```

```
        lcd.setCursor (0,1); lcd.print("NOMINAL : Rp50.000 ");
        lcd.setCursor (0,2); lcd.print("TOTAL SALDO SEKARANG");
        lcd.setCursor (6,3); lcd.print("Rp ");lcd.setCursor (9,3);
        lcd.print(totalSetor50);delay(5000);lcd.clear(); }

if (redFrequency>71&&redFrequency<82){

       alarm();simpan50();tarikUang();kembali50();hasilEEEPROM.red
       (addrP50);
       setSetor50=hasilEEP50+=1;EEPROM.write (addrEEP50,
       setSetor50);delay(5);
       hasilEEP50=EEPROM.read(addrEEP50);
       hasilEEP100=EEPROM.read(addrEEP100);
       totalSetor50=(hasilEEP50*50000)+(hasilEEP100*100000);
       lcd.clear();
       lcd.setCursor (0,0); lcd.print("SETORAN ANDA SUKSES ");
       lcd.setCursor (0,1); lcd.print("NOMINAL : Rp 50.000 ");
       lcd.setCursor (0,2); lcd.print("TOTAL SALDO SEKARANG");
       lcd.setCursor (6,3);
       lcd.print("Rp");lcd.setCursor(9,3);lcd.print(totalSetor50);
       delay(5000;lcd.clear();
        }
 if (redFrequency>54&&redFrequency<66){
     alarm();simpan100();tarikUang();kembali100();
     hasilEEP100=EEPROM.read(addrEEP100);
     setSetor100=hasilEEP100+=1;EEPROM.write (addrEEP100,
     setSetor100);delay(5);
     hasilEEP100=EEPROM.read(addrEEP100);
     hasilEEP50=EEPROM.read(addrEEP50);
     totalSetor100=(hasilEEP50*50000)+(hasilEEP100*100000);
     lcd.clear();
     lcd.setCursor (0,0); lcd.print("SETORAN ANDA SUKSES ");
     lcd.setCursor (0,1); lcd.print("NOMINAL : Rp 100.000");
     lcd.setCursor (0,2); lcd.print("TOTAL SALDO SEKARANG");
     lcd.setCursor (6,3); lcd.print("Rp ");lcd.setCursor (9,3);
     lcd.print(totalSetor100);
     delay(5000);lcd.clear();}
 if  (redFrequency>55&&redFrequency<75 &&
     greenFrequency>55&&greenFrequency<71 &&
     blueFrequency>55&&blueFrequency<64){bunyi();lcd.clear();
     lcd.setCursor (0,0);
     lcd.print("Uang Tdk Dikenali");delay(2000);lcd.clear();}
     goto menuSetorTunai;
```

```
menuSaldo :
    tampilanUtama();
    lcd.setCursor(2,3);lcd.write(byte(0));
if (digitalRead (right)==0) {delay (150);bunyi(); lcd.clear();
     goto  menuTarik;}
if (digitalRead (left)==0) {delay (150);bunyi(); lcd.clear();
     goto menuSetor;}
if (digitalRead (ok)==0) {delay (150);bunyi();
     hasilEEP100=EEPROM.read(addrEEP100);
     hasilEEP50=EEPROM.read(addrEEP50);ld.clear();
     goto menuCekSaldo;}
     goto menuSaldo;


menuTarik :
     tampilanUtama();
     lcd.setCursor(11,2);lcd.write(byte(0));
if (digitalRead (right)==0) {delay (150);bunyi(); lcd.clear();
     goto menuInfo;}
if (digitalRead (left)==0) {delay (150);bunyi(); lcd.clear();
     goto menuSaldo;}
if (digitalRead (ok)==0) {delay (150);bunyi(); lcd.clear();
     goto menuNominal50;}
     goto menuTarik;

menuNominal50 :
     lcd.setCursor (0,0); lcd.print(" PILIH NOMINAL UANG ");
     lcd.setCursor (0,1);lcd.write(byte(0));
     lcd.setCursor (1,1);
     lcd.print("Rp 50.000");
     lcd.setCursor (1,2); lcd.print("Rp 100.000");
     lcd.setCursor (0,3); lcd.print("                <<<OK");
if (digitalRead (right)==0) {delay (150);bunyi(); lcd.clear();
     goto menuNominal100;}
if (digitalRead (left)==0) {delay (150);bunyi(); lcd.clear();
     goto menuNominal100;}
if (digitalRead (ok)==0) {delay (150);bunyi();
     hasilEEP50=EEPROM.read(addrEEP50);
if (hasilEEP50>=1) {lcd.clear();
     goto menuTarikTunai50;}
if (hasilEEP50<=0) {alarm();lcd.clear(); lcd.setCursor(0,0);
     lcd.print("  MOHON MAAF !!!!   ");
     lcd.setCursor(0,1); lcd.print("JUMLAH NOMINAL 50000");
     lcd.setCursor(0,2); lcd.print("   TIDAK MENCUKUPI  ");
     lcd.setCursor(0,3); lcd.print("   CEK SALDO ANDA   ");
     delay(3000);lcd.clear();}
     }
     }
     goto menuNominal50;
```

```
menuNominal100 :
       lcd.setCursor (0,0); lcd.print(" PILIH NOMINAL UANG ");
       lcd.setCursor (1,1); lcd.print("Rp 50.000");
       lcd.setCursor(0,2);lcd.write(byte(0));lcd.setCursor(1,2);
       lcd.print("Rp 100.000");
       lcd.setCursor (0,3); lcd.print(" <<<OK");
 if   (digitalRead (left)==0) {delay (150);bunyi();
       lcd.clear();
       goto menuNominal50;}
 if   (digitalRead (right)==0) {delay (150);bunyi();
       lcd.clear();
       goto menuNominal50;}
 if   (digitalRead (ok)==0) {delay (150);bunyi();
       hasilEEP100=EEPROM.read(addrEEP100);
 if   (hasilEEP100>=1) {lcd.clear();
       goto menuTarikTunai100;}
 if   (hasilEEP100<=0) {alarm();lcd.clear(); lcd.setCursor(0,0);
       lcd.print("  MOHON MAAF !!!!   ");
       lcd.setCursor(0,1); lcd.print("JUMLH NOMINAL 100000");
       lcd.setCursor(0,2); lcd.print("   TIDAK MENCUKUPI  ");
       lcd.setCursor(0,3); lcd.print("   CEK SALDO ANDA   ");
       delay(3000);lcd.clear();}
       }
       goto menuNominal100;

 menuTarikTunai50 :
       int sisaTarik50;
       unsigned long sisaTotalSaldo50;
       lcd.setCursor (0,0); lcd.print("  MENU TARIK TUNAI  ");
       lcd.setCursor (0,1); lcd.print("Masukkan Jumlah Uang");
       lcd.setCursor (6,2); lcd.print("Rp "); lcd.setCursor (9,2);
       lcd.print(setTarik50);
       lcd.setCursor (0,3); lcd.print("           <<<Reset");
 if   (digitalRead (left)==0) {delay
       150);bunyi();lcd.clear();setTarik50-=50000;
 if   (setTarik50<0)setTarik50=0;}
 if   (digitalRead (right)==0)
      {delay(150);bunyi();lcd.clear();setTarik50+=50000;}
 if   (digitalRead (ok)==0) {delay
      (150);bunyi();lcd.clear();hasilEEP50=EEPROM.read(addrEEP50);

 if   ((setTarik50/50000)>hasilEEP50) {alarm();
       lcd.setCursor (0,0); lcd.print("     MOHON MAAF !   ");
       lcd.setCursor (0,1); lcd.print(" SISA NOMINAL 50000 ");
       lcd.setCursor (0,2); lcd.print("   TIDAK MENCUKUPI  ");
       delay(3000);lcd.clear();}
 if  ((setTarik50/50000)<=hasilEEP50) {
       sisaTarik50 = hasilEEP50-(setTarik50/50000);
       EEPROM.write (addrEEP50, sisaTarik50);delay(5);
       hasilEEP50=EEPROM.read(addrEEP50);
       hasilEEP100=EEPROM.read(addrEEP100);
       sisaTotalSaldo50 = (hasilEEP50*50000)+(hasilEEP100*100000);
       lcd.setCursor (0,0); lcd.print("TRANSAKSI BERHASIL !");
       lcd.setCursor (0,1); lcd.print("  SISA SALDO ANDA   ");
       lcd.setCursor (5,2); lcd.print("Rp ");
       lcd.setCursor (8,2); lcd.print(sisaTotalSaldo50);
```

```
        lcd.setCursor (0,3); lcd.print("  AMBIL UANG ANDA   ");
        delay(5000);lcd.clear();
        goto menuNominal50;}
        }
        goto menuTarikTunai50;

 menuTarikTunai100 :
        int sisaTarik100;
        unsigned long sisaTotalSaldo100;
        lcd.setCursor (0,0); lcd.print("  MENU TARIK TUNAI  ");
        lcd.setCursor (0,1); lcd.print("Masukkan Jumlah Uang");
        lcd.setCursor (6,2); lcd.print("Rp "); lcd.setCursor (9,2);
        lcd.print(setTarik100);
        lcd.setCursor (0,3); lcd.print("            <<<Reset");
if      (digitalRead (left)==0) {delay
        (150);bunyi();lcd.clear();setTarik100-=100000;
if      (setTarik100<0)setTarik100=0;}
if      (digitalRead (right)==0) {delay
        (150);bunyi();lcd.clear();setTarik100+=100000;}
if      (digitalRead (ok)==0)

        {delay(150);bunyi();lcd.clear();hasilEEP100=EEPROM.read(addr
        EEP100);

if      ((setTarik100/100000)>hasilEEP100) {alarm();
        lcd.setCursor (0,0); lcd.print("     MOHON MAAF !   ");
        lcd.setCursor (0,1); lcd.print(" SISA NOMINAL 100000");
        lcd.setCursor (0,2); lcd.print("   TIDAK MENCUKUPI  ");
        delay(3000);lcd.clear();}
if      ((setTarik100/100000)<=hasilEEP100) {
        sisaTarik100 = hasilEEP100-(setTarik100/100000);
        EEPROM.write (addrEEP100, sisaTarik100);delay(5);
        hasilEEP100=EEPROM.read(addrEEP100);
        hasilEEP50=EEPROM.read(addrEEP50);
        sisaTotalSaldo100 = (hasilEEP50*50000)+(hasilEEP100*100000);
        lcd.setCursor (0,0); lcd.print("TRANSAKSI BERHASIL !");
        lcd.setCursor (0,1); lcd.print("  SISA SALDO ANDA   ");
        lcd.setCursor (5,2); lcd.print("Rp ");
        lcd.setCursor (8,2); lcd.print(sisaTotalSaldo100);
        lcd.setCursor (0,3); lcd.print("  AMBIL UANG ANDA   ");
        delay(5000);lcd.clear();
        goto menuNominal50;}
        }
        goto menuTarikTunai100;
menuInfo :
        tampilanUtama();
        lcd.setCursor(11,3);lcd.write(byte(0));
if      (digitalRead (right)==0) {delay (150);bunyi();
        lcd.clear();goto menuSetor;}
if      (digitalRead (left)==0) {delay (150);bunyi(); lcd.clear();
        goto menuTarik;}
if      (digitalRead (ok)==0) {delay (150);bunyi(); lcd.clear();
        goto menuInfoAlat;}
        goto menuInfo;

menuInfoAlat :
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```
      lcd.setCursor (0,0); lcd.print("1 Rapikan uang anda");
      lcd.setCursor (0,1); lcd.print("  jika setor tunai");
      lcd.setCursor (0,2); lcd.print("2 Ambil Uang Anda di");
      lcd.setCursor (0,3); lcd.print("  pintu belakang");
 if   (digitalRead (left)==0) {delay (150);bunyi(); lcd.clear();
      goto menuInfo;}
      goto menuInfoAlat;
void tampilanUtama() {
      lcd.setCursor(0,0);lcd.print(" TABUNGAN OTOMATIS  ");
      lcd.setCursor(0,1);lcd.print("SILAKAN PILIH MENU !");
      lcd.setCursor(3,2);lcd.print("SETOR");
      lcd.setCursor(12,2);lcd.print("TARIK");
      lcd.setCursor(3,3);lcd.print("SALDO");lcd.setCursor(12,3);
      lcd.print("INFO");
      }

void BacaWarna() {

      digitalWrite(S2,LOW);
      digitalWrite(S3,LOW);
      redFrequency = pulseIn(sensorOut, LOW);
      Serial.print("R = ");
      Serial.print(redFrequency);
      delay(100);
      digitalWrite(S2,HIGH);
      digitalWrite(S3,HIGH);
      greenFrequency = pulseIn(sensorOut, LOW);
      Serial.print(" G = ");
      Serial.print(greenFrequency);
      delay(100);
      digitalWrite(S2,LOW);
      digitalWrite(S3,HIGH);
      blueFrequency = pulseIn(sensorOut, LOW);
      Serial.print(" B = ");
      Serial.println(blueFrequency);
      delay(100);
      }

void simpan50(){
       digitalWrite(dirStep,LOW);
       for(int x = 0; x < 800; x++) {
       digitalWrite(stepStep,HIGH);
       delayMicroseconds(800);
       digitalWrite(stepStep,LOW);
       delayMicroseconds(800); }
       }

void kembali50(){
      digitalWrite(dirStep,HIGH);
      for(int x = 0; x < 800; x++) {
      digitalWrite(stepStep,HIGH);
      delayMicroseconds(800);
      digitalWrite(stepStep,LOW);
      delayMicroseconds(800); }
      }
```

```
void simpan100(){
    digitalWrite(dirStep,HIGH);
    for(int x = 0; x < 800; x++) {
    digitalWrite(stepStep,HIGH);
    delayMicroseconds(800);
    digitalWrite(stepStep,LOW);
    delayMicroseconds(800); }
    }

void kembali100(){
    digitalWrite(dirStep,LOW);
    for(int x = 0; x < 800; x++) {
    digitalWrite(stepStep,HIGH);
    delayMicroseconds(800);
    digitalWrite(stepStep,LOW);
    delayMicroseconds(800); }
    }

void resetPosisi() {
     digitalWrite(dirStep,LOW);
     digitalWrite(stepStep,HIGH);
     delayMicroseconds(1500);
     digitalWrite(stepStep,LOW);
     delayMicroseconds(1500);
     }

void bunyi() {
     digitalWrite (buzzer,1); delay (50);
     digitalWrite (buzzer,0); delay (50);
     }

void alarm() {
    for (int x=0; x<3; x++) {digitalWrite (buzzer,1); delay
    (50);digitalWrite (buzzer,0); delay (50);}
    }

void tarikUang() {
     analogWrite (motorA,100);
     digitalWrite (motorB,0);
     delay (1000);
     digitalWrite (motorA,0);
     digitalWrite (motorB,0);
     }
```