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// very good simple
#include <LiquidCrystal.h>
#include <Keypad.h>
//#include <EEPROM.h>

// select the pins used on the LCD panel
LiquidCrystal lcd(8, 9, 4, 5, 6, 7);      // LCD Shield Pins
(incl) Pin10

// Password Length
const int Password_Length = 7;

// Character to hold password input
String Data;

// Password
String Master1 = "AD123*A";
String Master2 = "AD123*B";
String Master3 = "AD123*C";
String Master4 = "AD123*D";

// Pin connected to lock relay signal
int lockOutput = 11;

// Counter for character entries
byte data_count = 0;

// Character to hold key input
char customKey;

// Constants for row and column sizes
const byte ROWS = 4;
const byte COLS = 4;

// Array to represent keys on keypad
char hexaKeys[ROWS][COLS] = {
  {'1', '2', '3', 'A'},

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    {'4', '5', '6', 'B'},
    {'7', '8', '9', 'C'},
    {'*', '0', '#', 'D'}
};

// Connections to Arduino
byte rowPins[ROWS] = {2, 1, 0, A5};
byte colPins[COLS] = {A4, A3, A2, A1};

//byte rowPins[ROWS] = {A4, A3, A2, A1};
//byte colPins[COLS] = {2, 1, 0, A5};

// Create keypad object
Keypad customKeypad = Keypad(makeKeymap(hexaKeys), rowPins,
colPins, ROWS, COLS);

char code_buff1[4];
char code_buff2[4];
short a=0,i=0,s=0,j=0;           //Variables used later
char keypressed;                //Where the keys are stored it
changes very often

bool k1, k2, k3, k4;

void setup() {
    // Setup LCD with backlight and initialize
    // lcd.init();
    // lcd.backlight();
    lcd.begin (16,2);

    lcd.home ();
    lcd.print("PASS WORD based");           //What's written on the LCD
you can change
    lcd.setCursor(0,1);
    lcd.print("CIRCUIT BREAKER");

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delay(2000);

lcd.setCursor(0,0);
lcd.print("Chen Inst of Tech");
lcd.setCursor(0,1);
lcd.print("Comp Science Dept");
//delay(3000);

// Set lockOutput as an OUTPUT pin
pinMode(lockOutput, OUTPUT); // pin11
digitalWrite(lockOutput, HIGH);

pinMode(12, OUTPUT);
digitalWrite(12, HIGH);
pinMode(13, OUTPUT);
digitalWrite(13, HIGH);
pinMode(3, OUTPUT);
digitalWrite(3, HIGH);

k1=1; k2=1; k3=1; k4=1;

// for(int i=0 ; i<sizeof(Master);i++){           //When you upload
the code the first time keep it commented
// EEPROM.get(i, Master[i]);                     //Upload the code and
change it to store it in the EEPROM
// }                                               //Then uncomment this for
loop and reupload the code (It's done only once)

digitalWrite(13, LOW );
delay(1200);
digitalWrite(13, HIGH);

digitalWrite(12, LOW );
delay(1200);
digitalWrite(12, HIGH);

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digitalWrite(lockOutput, LOW );
delay(1200);
digitalWrite(lockOutput, HIGH);

digitalWrite(3, LOW );
delay(1200);
digitalWrite(3, HIGH);

lcd.clear();
}

void loop() {

// Initialize LCD and print
  lcd.setCursor(0, 0);
  lcd.print("Enter Password:");

// Look for keypress
  customKey = customKeypad.getKey();

  if (customKey == '*'){                                     //To check the entered
pass word, it calls the GetPW function
    GetPW();

// Clear data and LCD display
    lcd.clear();
    clearData();
  }

}

void clearData() {
//Reset data_count
  data_count = 0;

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//Reset Data
    Data = "";
}

void GetPW(){
    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("Please Enter :");

    delay(500);

while(1){
    // Look for keypress
    customKey = customKeypad.getKey();
    if (customKey) {
        // enter the key pressed into the array and increment the
counter
        Data += customKey;
        lcd.setCursor(data_count, 1);
        lcd.print(Data[data_count]);
        data_count++;
    }

    // Check to see if we have reached the password length
    if (data_count == Password_Length) {
        lcd.clear();

        if (Data == Master1) {
                                // Correct Password
            lcd.print("Correct*1*");
            /*
            // Turn on relay for 1.5 seconds
            digitalWrite(lockOutput, HIGH);
            delay(1500);

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    digitalWrite(lockOutput, LOW);
*/

k1=!k1;
digitalWrite(13, k1);
delay(1500);

break;
}

else if (Data == Master2) {
                                // Correct Password
    lcd.print("Correct*2*");
/*
    // Turn on relay for 1.5 seconds
    digitalWrite(lockOutput, HIGH);
    delay(1500);
    digitalWrite(lockOutput, LOW);
*/

k2=!k2;
digitalWrite(12, k2);
delay(1500);

break;
}

else if (Data == Master3) {
                                // Correct Password
    lcd.print("Correct*3*");
/*
    // Turn on relay for 1.5 seconds
    digitalWrite(lockOutput, HIGH);
    delay(1500);
    digitalWrite(lockOutput, LOW);
*/

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k3=!k3;
digitalWrite(lockOutput, k3);
delay(1500);

break;
}

else if (Data == Master4) {
                                // Correct Password
    lcd.print("Correct*4*");
/*
    // Turn on relay for 1.5 seconds
    digitalWrite(lockOutput, HIGH);
    delay(1500);
    digitalWrite(lockOutput, LOW);
*/

k4=!k4;
digitalWrite(3, k4);
delay(1500);

break;
}

else {
                                // Incorrect Password
    lcd.print("Incorrect");
    delay(1000);
    break;
}
}
}
}

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