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include <Keyboard.h>

#include <KeyboardLayout.h>

#include <Keyboard_da_DK.h>

#include <Keyboard_de_DE.h>

#include <Keyboard_es_ES.h>

#include <Keyboard_fr_FR.h>

#include <Keyboard_hu_HU.h>

#include <Keyboard_it_IT.h>

#include <Keyboard_pt_PT.h>

#include <Keyboard_sv_SE.h>


#include <LiquidCrystal.h>


#include <Keypad.h> // the library for the 4x4 keypad
#include <LiquidCrystal_I2C.h> // the library for the i2c 1602 lcd
#include <Servo.h> // the library to control the servo motor

LiquidCrystal_I2C lcd(0x27,20,4); // gets the lcd

Servo servo;


#define Password_Length 8 // the length of the password, if the password is 4 digits long set this to
5

int Position = 0; // position of the servo

char Particular[Password_Length]; // the password length

char Specific[Password_Length] = "137926A"; // the password which is called specific in the code,
change this to anything you want with the numbers 0-9 and the letters A-D

byte Particular_Count = 0, Specific_Count = 0; // counts the amount of digits and checks to see if
the password is correct

char Key;

const byte ROWS = 4; // the amount of rows on the keypad

const byte COLS = 4; // the amount of columns on the keypad

char keys[ROWS][COLS] = { // sets the rows and columns

    // sets the keypad digits

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    {'1','2','3','A'},
    {'4','5','6','B'},
    {'7','8','9','C'},
    {'*','0','#','D'}
};

bool SmartDoor = true; // the servo

// the pins to plug the keypad into
byte rowPins[ROWS] = {8, 7, 6, 5};
byte colPins[COLS] = {4, 3, 2, 1};

Keypad myKeypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS); // gets the data from the
keypad

// locked charcater
byte Locked[8] = {
    B01110,
    B10001,
    B10001,
    B11111,
    B11011,
    B11011,
    B11011,
    B11111
};

// open character
byte Opened[8] = {
    B01110,
    B00001,
    B00001,
    B11111,
    B11011,
    B11011,
    B11011,
    B11011,

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    B11011,

    B11111

};

void setup()
{
    servo.attach(0); // attaches the servo to pin 0
    ServoClose(); // closes the servo when you say this function
    lcd.init(); // initializes the lcd
    lcd.backlight(); // turns on the backlight
    lcd.setCursor(0,0); // sets the cursor on the lcd
    lcd.print("MR REAL MAKER"); // prints the text/charater
    lcd.setCursor(0,1); // sets the cursor on the lcd
    lcd.print("DoorLock Project"); // prints text
    delay(4000); // waits 4 seconds
    lcd.clear(); // clears the lcd diplay

}

void loop()
{
    if (SmartDoor == 0) // opens the smart door
    {
        Key = myKeypad.getKey(); // the word key = myKeypad which gets the value

        if (Key == '#') // when the '#' key is pressed

        {
            lcd.clear(); // clears the lcd diplay
            ServoClose(); // closes the servo motor
            lcd.setCursor(2,0); // sets the cursor on the lcd
            lcd.print("Door Closed"); // prints the text to the lcd
        }
    }
}

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    lcd.createChar(0, Locked); // prints the locked character
    lcd.setCursor(14,0); // sets the cursor on the lcd
    lcd.write(0); // prints the first character when you are on the door closed page
    delay(3000); // waits 3 seconds
    SmartDoor = 1; // closes the door
}
}

else Open(); // keeps the door open
}

void clearData() // clears the data
{
    while (Particular_Count != 0) // counts the digits pressed
    {
        Particular[Particular_Count--] = 0; // counts how many digits
    }
    return; // returns the data
}

void ServoOpen() // opens the servo
{
    for (Position = 180; Position >= 0; Position -= 5) { // moves from 0 to 180 degrees
        servo.write(Position); // moves to the position
        delay(15); // waits 15 milliseconds
    }
}

void ServoClose() // closes the servo
{
    for (Position = 0; Position <= 180; Position += 5) { // moves from position 0 to 180 degrees

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servo.write(Position); // moves to the position
delay(15); // waits 15 milliseconds
}
}

void Open() // function declarations
{
  lcd.setCursor(1,0); // sets the cursor on the lcd
  lcd.print("Enter Password"); // prints the text

  Key = myKeypad.getKey(); // gets the keys you press from the keypad
  if (Key)
  {
    Particular[Particular_Count] = Key;
    lcd.setCursor(Particular_Count, 1); // sets the cursor on the lcd
    lcd.print(""); // prints " instead of the password
    Particular_Count++; // counts the length of the password
  }

  if (Particular_Count == Password_Length - 1) // gets the length of the password
  {
    if (!strcmp(Particular, Specific)) // counts the length and checks to see if the password is correct
    {
      lcd.clear();
      ServoOpen(); // moves the servo 180 degrees
      lcd.setCursor(2,0); // sets the cursor on the lcd
      lcd.print("Door Opened");
      lcd.createChar(1, Opened);
      lcd.setCursor(14,0); // sets the cursor on the lcd
      lcd.write(1);
      lcd.setCursor(0,1); // sets the cursor on the lcd
    }
  }
}

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    lcd.print("Press # to Close");  
    SmartDoor = 0;  
}  
else {  
    lcd.clear();  
    lcd.setCursor(0,0); // sets the cursor on the lcd  
    lcd.print("Wrong Password"); // prints the text/character  
    lcd.setCursor(0,1);  
    lcd.print("Try Again In");  
    lcd.setCursor(13,1);  
    lcd.print("10");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("09");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("08");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("07");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("06");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("05");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("04");  
    delay(1000);  
    lcd.setCursor(13,1);
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    lcd.print("03");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("02");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("01");  
    delay(1000);  
    lcd.setCursor(13,1);  
    lcd.print("00");  
    delay(1000);  
    lcd.clear();  
  
    SmartDoor = 1; // closes the smart door  
}  
  
clearData(); // clears the data  
}  
}
```