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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
}
}
```