#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(0x3F,20,4); // gets the lcd

Servo servo;

#define Password\_Length 5 // 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] = "1234"; // 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 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 rowns and columns

// sets the keypad digits

{'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] = {7, 6, 5, 4};

byte colPins[COLS] = {3, 2, 1, 0};

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,

B11111

};

void setup()

{

servo.attach(10); // attaches the servo to pin 10

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("Vector X"); // prints the text/charater

lcd.setCursor(0,1); // sets the cursor on the lcd

lcd.print("Arduino Lock!!!"); // 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

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 postion

delay(15); // waits 15 milliseconds

}

}

void ServoClose() // closes the servo

{

for (Position = 0; Position <= 180; Position += 5) { // moves from position 0 to 180 degrees

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

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);

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

}

}