Generate a WOKWI simulation code that display characters 0 to 9 and A to F on the Arduino Mega board.

The circuit should contain a Arduino Mega board, a dip switch 4 and a 8x8 LEDs matrix, which consists of 64 individual LED units. The code should use the Binary - Hexadecimal conversion, in order to display characters onto the LED matrix, using the dip switch 4. For instance, when the dip switch generate 0010, the LED system should display number 2.

Remember not to use the MAX7219 LED matrix module since it is not appropriate in this task. Afterwards, please provide the instruction to circuitry installation, related to the code you provide.

**Success:**

#include "ScrollingText8x8Display.h"

ScrollingText8x8Display render;

const int switch1Pin = 22;

const int switch2Pin = 23;

const int switch3Pin = 24;

const int switch4Pin = 25;

const int switch5Pin = 26;

const int button1Pin = 42;

const int button2Pin = 43;

const int button3Pin = 44;

void setup()

{

pinMode(switch1Pin, INPUT\_PULLUP);

pinMode(switch2Pin, INPUT\_PULLUP);

pinMode(switch3Pin, INPUT\_PULLUP);

pinMode(switch4Pin, INPUT\_PULLUP);

pinMode(switch5Pin, INPUT\_PULLUP);

pinMode(button1Pin, INPUT\_PULLUP);

pinMode(button2Pin, INPUT\_PULLUP);

pinMode(button3Pin, INPUT\_PULLUP);

byte displayRowPins[] = { 21, 20, 19, 18, 17, 16, 15, 14 };

byte displayColumnPins[] = { 13, 12, 11, 10, 9, 8, 7, 6 };

ScrollingDirection scrollingDirection = LEFT\_TO\_RIGHT;

CharacterOrientation characterOrientation = BOTTOM;

render.init(displayRowPins, displayColumnPins, scrollingDirection, characterOrientation);

}

void loop()

{

bool switch1On = digitalRead(switch1Pin) == LOW;

bool switch2On = digitalRead(switch2Pin) == LOW;

bool switch3On = digitalRead(switch3Pin) == LOW;

bool switch4On = digitalRead(switch4Pin) == LOW;

bool switch5On = digitalRead(switch5Pin) == LOW;

bool button1On = digitalRead(button1Pin) == LOW;

bool button2On = digitalRead(button2Pin) == LOW;

bool button3On = digitalRead(button3Pin) == LOW;

//using binary to hexadecimal conversion to operate letter 0-F

//case 0 switch5

if (digitalRead(switch5Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("0", scrollingSpeed);

}

//case 1 0001

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("1", scrollingSpeed);

}

//case 2 0010

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("2", scrollingSpeed);

}

//case 3 0011

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("3", scrollingSpeed);

}

//case 4 0100

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("4", scrollingSpeed);

}

//case 5 0101

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("5", scrollingSpeed);

}

//case 6 0110

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("6", scrollingSpeed);

}

//case 7 0111

if (digitalRead(switch1Pin) == HIGH && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("7", scrollingSpeed);

}

//case 8 1000

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("8", scrollingSpeed);

}

//case 9 1001

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("9", scrollingSpeed);

}

//case A 1010

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("A", scrollingSpeed);

}

//case B 1011

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == HIGH && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("B", scrollingSpeed);

}

//case C 1100

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("C", scrollingSpeed);

}

//case D 1101

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == HIGH && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("D", scrollingSpeed);

}

//case E 1110

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == HIGH) {

float scrollingSpeed = 80;

render.displayText("E", scrollingSpeed);

}

//case F 1111

if (digitalRead(switch1Pin) == LOW && digitalRead(switch2Pin) == LOW && digitalRead(switch3Pin) == LOW && digitalRead(switch4Pin) == LOW) {

float scrollingSpeed = 80;

render.displayText("F", scrollingSpeed);

}

//Switch off all dip-switch

//button 1 red for low speed scrolling

if (digitalRead(button1Pin) == LOW) {

float scrollingSpeed = 20;

render.displayText("0", scrollingSpeed);

render.displayText("1", scrollingSpeed);

render.displayText("2", scrollingSpeed);

render.displayText("3", scrollingSpeed);

render.displayText("4", scrollingSpeed);

render.displayText("5", scrollingSpeed);

render.displayText("6", scrollingSpeed);

render.displayText("7", scrollingSpeed);

render.displayText("8", scrollingSpeed);

render.displayText("9", scrollingSpeed);

render.displayText("A", scrollingSpeed);

render.displayText("B", scrollingSpeed);

render.displayText("C", scrollingSpeed);

render.displayText("D", scrollingSpeed);

render.displayText("E", scrollingSpeed);

render.displayText("F", scrollingSpeed);

delay(100);

}

//button 2 yellow for low speed scrolling

if (digitalRead(button2Pin) == LOW) {

float scrollingSpeed = 50;

render.displayText("0", scrollingSpeed);

render.displayText("1", scrollingSpeed);

render.displayText("2", scrollingSpeed);

render.displayText("3", scrollingSpeed);

render.displayText("4", scrollingSpeed);

render.displayText("5", scrollingSpeed);

render.displayText("6", scrollingSpeed);

render.displayText("7", scrollingSpeed);

render.displayText("8", scrollingSpeed);

render.displayText("9", scrollingSpeed);

render.displayText("A", scrollingSpeed);

render.displayText("B", scrollingSpeed);

render.displayText("C", scrollingSpeed);

render.displayText("D", scrollingSpeed);

render.displayText("E", scrollingSpeed);

render.displayText("F", scrollingSpeed);

delay(100);

}

//button 3 green for low speed scrolling

if (digitalRead(button3Pin) == LOW) {

float scrollingSpeed = 90;

render.displayText("0", scrollingSpeed);

render.displayText("1", scrollingSpeed);

render.displayText("2", scrollingSpeed);

render.displayText("3", scrollingSpeed);

render.displayText("4", scrollingSpeed);

render.displayText("5", scrollingSpeed);

render.displayText("6", scrollingSpeed);

render.displayText("7", scrollingSpeed);

render.displayText("8", scrollingSpeed);

render.displayText("9", scrollingSpeed);

render.displayText("A", scrollingSpeed);

render.displayText("B", scrollingSpeed);

render.displayText("C", scrollingSpeed);

render.displayText("D", scrollingSpeed);

render.displayText("E", scrollingSpeed);

render.displayText("F", scrollingSpeed);

delay(100);

}

}

**Diagram.json:**

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[ "led34:A", "led35:A", "orange", [ "v0" ] ],

[ "led35:A", "led36:A", "orange", [ "v0" ] ],

[ "led36:A", "led37:A", "orange", [ "v0" ] ],

[ "led37:A", "led38:A", "orange", [ "v0" ] ],

[ "led38:A", "led39:A", "orange", [ "v0" ] ],

[ "led39:A", "led40:A", "orange", [ "v0" ] ],

[ "led40:A", "r5:1", "orange", [ "v0" ] ],

[ "led41:A", "led42:A", "yellow", [ "v0" ] ],

[ "led42:A", "led43:A", "yellow", [ "v0" ] ],

[ "led43:A", "led44:A", "yellow", [ "v0" ] ],

[ "led44:A", "led45:A", "yellow", [ "v0" ] ],

[ "led45:A", "led46:A", "yellow", [ "v0" ] ],

[ "led46:A", "led47:A", "yellow", [ "v0" ] ],

[ "led47:A", "led48:A", "yellow", [ "v0" ] ],

[ "led48:A", "r6:1", "yellow", [ "v0" ] ],

[ "r1:2", "mega:21", "#8f4814", [ "h3.79", "v292.72", "h-103.21" ] ],

[ "r2:2", "mega:20", "#8f4814", [ "h13.59", "v263.12", "h-123.23" ] ],

[ "r3:2", "mega:19", "#8f4814", [ "v0.17", "h25.22", "v236.32", "h-137.34" ] ],

[ "r4:2", "mega:18", "#8f4814", [ "h37.73", "v208.6", "h-165.36" ] ],

[ "r5:2", "mega:17", "#8f4814", [ "v0.31", "h50.37", "v181.31", "h-191.34" ] ],

[ "r6:2", "mega:16", "#8f4814", [ "v-0.53", "h62.05", "v154.14", "h-208.66" ] ],

[ "led49:A", "led50:A", "lime", [ "v0" ] ],

[ "led50:A", "led51:A", "lime", [ "v0" ] ],

[ "led51:A", "led52:A", "lime", [ "v0" ] ],

[ "led52:A", "led53:A", "lime", [ "v0" ] ],

[ "led53:A", "led54:A", "lime", [ "v0" ] ],

[ "led54:A", "led55:A", "lime", [ "v0" ] ],

[ "led55:A", "led56:A", "lime", [ "v0" ] ],

[ "led56:A", "mega:15", "#8f4814", [ "v0.07", "h77.45", "v125.7", "h-145.73" ] ],

[ "led57:A", "led58:A", "cyan", [ "v0" ] ],

[ "led58:A", "led59:A", "cyan", [ "v0" ] ],

[ "led59:A", "led60:A", "cyan", [ "v0" ] ],

[ "led60:A", "led61:A", "cyan", [ "v0" ] ],

[ "led61:A", "led62:A", "cyan", [ "v0" ] ],

[ "led62:A", "led63:A", "cyan", [ "v0" ] ],

[ "led63:A", "led64:A", "cyan", [ "v0" ] ],

[ "led64:A", "mega:14", "#8f4814", [ "v-0.76", "h64.7", "v99.28", "h-138.45" ] ],

[ "led26:A", "led27:A", "purple", [ "v0" ] ],

[ "led1:C", "led9:C", "green", [ "v0" ] ],

[ "led9:C", "led17:C", "green", [ "v0" ] ],

[ "led17:C", "led25:C", "green", [ "v0" ] ],

[ "led25:C", "led33:C", "green", [ "v0" ] ],

[ "led33:C", "led41:C", "green", [ "v0" ] ],

[ "led41:C", "led49:C", "green", [ "v0" ] ],

[ "led49:C", "led57:C", "green", [ "v0" ] ],

[ "led57:C", "mega:13", "green", [ "v0" ] ],

[ "led2:C", "led10:C", "green", [ "v0" ] ],

[ "led10:C", "led18:C", "green", [ "v0" ] ],

[ "led18:C", "led26:C", "green", [ "v0" ] ],

[ "led26:C", "led34:C", "green", [ "v0" ] ],

[ "led34:C", "led42:C", "green", [ "v0" ] ],

[ "led42:C", "led50:C", "green", [ "v0" ] ],

[ "led50:C", "led58:C", "green", [ "v0" ] ],

[ "led3:C", "led11:C", "green", [ "v0" ] ],

[ "led11:C", "led19:C", "green", [ "v0" ] ],

[ "led19:C", "led27:C", "green", [ "v0" ] ],

[ "led27:C", "led35:C", "green", [ "v0" ] ],

[ "led35:C", "led43:C", "green", [ "v0" ] ],

[ "led43:C", "led51:C", "green", [ "v0" ] ],

[ "led51:C", "led59:C", "green", [ "v0" ] ],

[ "led58:C", "mega:12", "green", [ "v72.47", "h-18.96" ] ],

[ "led59:C", "mega:11", "green", [ "v72.47", "h-43.42" ] ],

[ "led60:C", "mega:10", "green", [ "v72.47", "h-52.94" ] ],

[ "led4:C", "led12:C", "green", [ "v0" ] ],

[ "led12:C", "led20:C", "green", [ "v0" ] ],

[ "led20:C", "led28:C", "green", [ "v0" ] ],

[ "led28:C", "led36:C", "green", [ "v0" ] ],

[ "led36:C", "led44:C", "green", [ "v0" ] ],

[ "led44:C", "led52:C", "green", [ "v0" ] ],

[ "led52:C", "led60:C", "green", [ "v0" ] ],

[ "led5:C", "led13:C", "green", [ "v0" ] ],

[ "led13:C", "led21:C", "green", [ "v0" ] ],

[ "led21:C", "led29:C", "green", [ "v0" ] ],

[ "led29:C", "led37:C", "green", [ "v0" ] ],

[ "led37:C", "led45:C", "green", [ "v0" ] ],

[ "led45:C", "led53:C", "green", [ "v0" ] ],

[ "led53:C", "led61:C", "green", [ "v0" ] ],

[ "led61:C", "mega:9", "green", [ "v72.78", "h-49.83" ] ],

[ "led6:C", "led14:C", "green", [ "v0" ] ],

[ "led14:C", "led22:C", "green", [ "v0" ] ],

[ "led22:C", "led30:C", "green", [ "v0" ] ],

[ "led30:C", "led38:C", "green", [ "v0" ] ],

[ "led38:C", "led46:C", "green", [ "v0" ] ],

[ "led46:C", "led54:C", "green", [ "v0" ] ],

[ "led54:C", "led62:C", "green", [ "v0" ] ],

[ "led62:C", "mega:8", "green", [ "v73.44", "h-57.67" ] ],

[ "led7:C", "led15:C", "green", [ "v0" ] ],

[ "led15:C", "led23:C", "green", [ "v0" ] ],

[ "led22:A", "led23:A", "violet", [ "v0" ] ],

[ "led23:C", "led31:C", "green", [ "v0" ] ],

[ "led31:C", "led39:C", "green", [ "v0" ] ],

[ "led39:C", "led47:C", "green", [ "v0" ] ],

[ "led47:C", "led55:C", "green", [ "v0" ] ],

[ "led55:C", "led63:C", "green", [ "v0" ] ],

[ "led63:C", "mega:7", "green", [ "v72.87", "h-86.59" ] ],

[ "led8:C", "led16:C", "green", [ "v0" ] ],

[ "led16:C", "led24:C", "green", [ "v0" ] ],

[ "led24:C", "led32:C", "green", [ "v0" ] ],

[ "led32:C", "led40:C", "green", [ "v0" ] ],

[ "led40:C", "led48:C", "green", [ "v0" ] ],

[ "led48:C", "led56:C", "green", [ "v0" ] ],

[ "led56:C", "led64:C", "green", [ "v0" ] ],

[ "led64:C", "mega:6", "green", [ "v72.87", "h-141.42" ] ],

[ "led33:A", "led34:A", "orange", [ "v0" ] ],

[ "mega:GND.5", "sw1:4a", "black", [ "v-0.09", "h62.41" ] ],

[ "mega:GND.5", "sw1:3a", "black", [ "v-0.09", "h50.78" ] ],

[ "mega:GND.5", "sw1:2a", "black", [ "v-0.09", "h38.37" ] ],

[ "mega:GND.5", "sw1:1a", "black", [ "v-0.09", "h25.96" ] ],

[ "mega:22", "sw1:1b", "limegreen", [ "v0.86", "h52.25" ] ],

[ "mega:23", "sw1:2b", "gold", [ "v0.86", "h47.68" ] ],

[ "mega:24", "sw1:3b", "orange", [ "v-0.35", "h74.74" ] ],

[ "mega:25", "sw1:4b", "#8f4814", [ "v0.42", "h64.74" ] ],

[ "btn1:1.l", "mega:42", "purple", [ "h0" ] ],

[ "btn2:1.l", "mega:43", "magenta", [ "v-41", "h-64.16" ] ],

[ "btn4:1.l", "mega:44", "violet", [ "v-80.84", "h-74.25" ] ],

[ "mega:GND.5", "btn2:2.r", "black", [ "v-0.34", "h131.11" ] ],

[ "mega:GND.5", "btn1:2.r", "black", [ "v0.12", "h136.6" ] ],

[ "mega:GND.5", "btn4:2.r", "black", [ "v-0.34", "h135.23" ] ],

[ "sw1:5b", "mega:26", "gray", [ "v0" ] ],

[ "mega:GND.5", "sw1:5a", "black", [ "v0.08", "h72.58" ] ]

],

"dependencies": {}

}

**Attempt 1:**

#include <LedControl.h>

#include "lib.h"

const int ROWS = 8; // number of rows in the LED matrix

const int COLS = 8; // number of columns in the LED matrix

int rowPins[ROWS] = {21, 20, 19, 18, 17, 16, 15, 14}; // Pins for the 8 rows

int colPins[COLS] = {13, 12, 11, 10, 9, 8, 7, 6}; // Pins for the 8 columns

const int DIP\_SWITCH[] = {22, 23, 24, 25};

// define the bit patterns for each character

const byte charPatterns[][8] = {

};

const int charPatterns\_LEN = sizeof(charPatterns)/8;

void setup() {

// set the row pins as outputs

for (int i = 0; i < 8; i++) {

pinMode(rowPins[i], OUTPUT);

}

// set the column pins as outputs

for (int i = 0; i < 8; i++) {

pinMode(colPins[i], OUTPUT);

}

}

void loop() {

// display each character for 1 second

for (int i = 0; i < 16; i++) {

displayChar(charPatterns[i]);

delay(1000);

}

}

void displayChar(byte pattern) {

// display the given bit pattern on the LED matrix

for (int col = 0; col < 8; col++) {

for (int row = 0; row < 8; row++) {

if (bitRead(pattern, row)) {

digitalWrite(rowPins[row], HIGH);

digitalWrite(colPins[col], LOW);

} else {

digitalWrite(rowPins[row], LOW);

digitalWrite(colPins[col], HIGH);

}

}

// delay to control the brightness of the LEDs

delayMicroseconds(5000);

// turn off the LEDs in the current column

for (int row = 0; row < 8; row++) {

digitalWrite(rowPins[row], LOW);

}

}}

**Attempt 2:**

// Define the pins used for the dip switch and LED matrix

int dipSwitchPins[] = {22, 23, 24, 25};

int ledMatrixPins[] = {21, 20, 19, 18, 17, 16, 15, 14}; // Pins for the 8 rows

void setup() {

// Set the dip switch pins as inputs

for (int i = 0; i < 4; i++) {

pinMode(dipSwitchPins[i], INPUT);

}

// Set the LED matrix pins as outputs

for (int i = 0; i < 8; i++) {

pinMode(ledMatrixPins[i], OUTPUT);

}

}

void loop() {

// Read the state of the dip switch

int dipSwitchState = 0;

for (int i = 0; i < 4; i++) {

dipSwitchState |= digitalRead(dipSwitchPins[i]) << i;

}

// Convert the dip switch state to a hexadecimal digit

char hexDigit = '0' + dipSwitchState;

if (hexDigit > '9') {

hexDigit += 7;

}

// Display the hexadecimal digit on the LED matrix

int ledMatrixCode = hexToLedMatrixCode(hexDigit);

for (int i = 0; i < 8; i++) {

digitalWrite(ledMatrixPins[i], bitRead(ledMatrixCode, i));

}

}

// Helper function to convert a hexadecimal digit to an 8-bit code for the LED matrix

int hexToLedMatrixCode(char hexDigit) {

switch (hexDigit) {

case '0':

return 0b01111110;

case '1':

return 0b00110000;

case '2':

return 0b01101101;

case '3':

return 0b01111001;

case '4':

return 0b00110011;

case '5':

return 0b01011011;

case '6':

return 0b01011111;

case '7':

return 0b01110000;

case '8':

return 0b01111111;

case '9':

return 0b01111011;

case 'A':

return 0b01110111;

case 'B':

return 0b01011100;

case 'C':

return 0b00111101;

case 'D':

return 0b01011110;

case 'E':

return 0b01111101;

case 'F':

return 0b01110001;

default:

return 0;

}

}

**Attempt 3:**

const int ROWS = 8;

const int COLS = 8;

const int rowPins[ROWS] = { 21, 20, 19, 18, 17, 16, 15, 14 };

const int colPins[COLS] = { 13, 12, 11, 10, 9, 8, 7, 6 };

void setup() {

for (int row = 0; row < ROWS; row++) {

pinMode(rowPins[row], OUTPUT);

}

for (int col = 0; col < COLS; col++) {

pinMode(colPins[col], OUTPUT);

}

}

void loop() {

// Read the value of the dip switch

int dipSwitchValue = 0;

dipSwitchValue |= digitalRead(22) << 0;

dipSwitchValue |= digitalRead(23) << 1;

dipSwitchValue |= digitalRead(24) << 2;

dipSwitchValue |= digitalRead(25) << 3;

// Convert dip switch value to hexadecimal

char hexChar = '0' + dipSwitchValue;

if (hexChar > '9') {

hexChar += 7;

}

// Convert hexadecimal character to binary

int binaryValue = 0;

if (hexChar >= '0' && hexChar <= '9') {

binaryValue = hexChar - '0';

} else if (hexChar >= 'A' && hexChar <= 'F') {

binaryValue = hexChar - 'A' + 10;

}

// Display the binary value on the LED matrix

for (int row = 0; row < ROWS; row++) {

digitalWrite(rowPins[row], LOW);

for (int col = 0; col < COLS; col++) {

digitalWrite(colPins[col], (binaryValue & (1 << col)) != 0);

}

digitalWrite(rowPins[row], HIGH);

delay(1);

}

}

**Attempt 4:**

#include "ScrollingText8x8Display.h"

ScrollingText8x8Display render;

const int switch1Pin = 22;

const int switch2Pin = 23;

const int switch3Pin = 24;

const int switch4Pin = 25;

const int button1Pin = 42;

const int button2Pin = 43;

const int button3Pin = 44;

void setup()

{

pinMode(switch1Pin, INPUT\_PULLUP);

pinMode(switch2Pin, INPUT\_PULLUP);

pinMode(switch3Pin, INPUT\_PULLUP);

pinMode(switch4Pin, INPUT\_PULLUP);

pinMode(button1Pin, INPUT\_PULLUP);

pinMode(button2Pin, INPUT\_PULLUP);

pinMode(button3Pin, INPUT\_PULLUP);

byte displayRowPins[] = { 21, 20, 19, 18, 17, 16, 15, 14 };

byte displayColumnPins[] = { 13, 12, 11, 10, 9, 8, 7, 6 };

ScrollingDirection scrollingDirection = LEFT\_TO\_RIGHT;

CharacterOrientation characterOrientation = BOTTOM;

render.init(displayRowPins, displayColumnPins, scrollingDirection, characterOrientation);

}

void loop()

{

bool switch1On = digitalRead(switch1Pin) == LOW;

bool switch2On = digitalRead(switch2Pin) == LOW;

bool switch3On = digitalRead(switch3Pin) == LOW;

bool switch4On = digitalRead(switch4Pin) == LOW;

bool button1On = digitalRead(button1Pin) == LOW;

bool button2On = digitalRead(button2Pin) == LOW;

bool button3On = digitalRead(button3Pin) == LOW;

if (!button1On) {

float scrollingSpeed = 50;

render.displayText("0", scrollingSpeed);

render.displayText("1", scrollingSpeed);

render.displayText("2", scrollingSpeed);

render.displayText("3", scrollingSpeed);

render.displayText("4", scrollingSpeed);

render.displayText("5", scrollingSpeed);

render.displayText("6", scrollingSpeed);

render.displayText("7", scrollingSpeed);

render.displayText("8", scrollingSpeed);

render.displayText("9", scrollingSpeed);

render.displayText("A", scrollingSpeed);

render.displayText("B", scrollingSpeed);

render.displayText("C", scrollingSpeed);

render.displayText("D", scrollingSpeed);

render.displayText("E", scrollingSpeed);

render.displayText("F", scrollingSpeed);

}

if (!button2On) {

float scrollingSpeed = 130;

render.displayText("0", scrollingSpeed);

render.displayText("1", scrollingSpeed);

render.displayText("2", scrollingSpeed);

render.displayText("3", scrollingSpeed);

render.displayText("4", scrollingSpeed);

render.displayText("5", scrollingSpeed);

render.displayText("6", scrollingSpeed);

render.displayText("7", scrollingSpeed);

render.displayText("8", scrollingSpeed);

render.displayText("9", scrollingSpeed);

render.displayText("A", scrollingSpeed);

render.displayText("B", scrollingSpeed);

render.displayText("C", scrollingSpeed);

render.displayText("D", scrollingSpeed);

render.displayText("E", scrollingSpeed);

render.displayText("F", scrollingSpeed);

}}