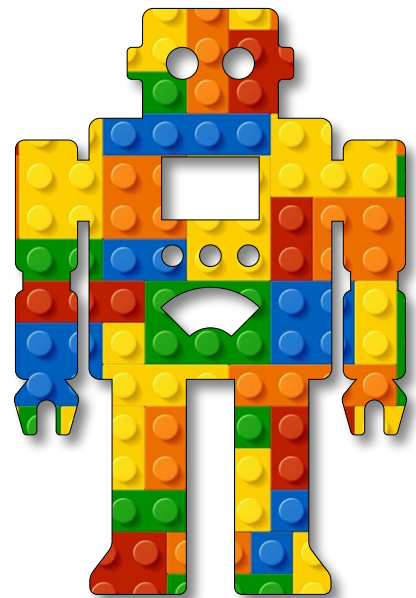


Intelligent Machines Module B Unit #2 LED slider





Content

Module B Unit #2 LED slider

Sketch B2.1	receiving a value
Sketch B2.2	starting sketch
Sketch B2.3	slider
Sketch B2.4	slider value
Sketch B2.5	visual



Introduction to LED slider

In this example, we are going to alter the brightness of the LED using a slider in p5.js.

The `index.html` file remains unaltered.

The `port.js` file remains unaltered.



Sketch B2.1 receiving a value

! Our Arduino sketch

Remove everything in the `Serial.available()` loop and replace it with the code highlighted below. We are going to be sending an integer value from `p5.js` to the Arduino, and it will alter the brightness of the LED. To receive the value, we create an integer called `val`.

Arduino

```
const int ledPin = 13;
int val = 0;

void setup()
{
  pinMode(ledPin, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  if (Serial.available() > 0)
  {
    val = Serial.read();
    analogWrite(ledPin, val);
  }
}
```



Notes

Now upload the sketch.



Code Explanation

<code>int val = 0;</code>	Creating the integer variable
<code>val = Serial.read();</code>	Reading the integer value form the p5.js sketch
<code>analogWrite(ledPin, val);</code>	Write that value to the LED



Sketch B2.2 starting sketch

! The main sketch.js

We include the `navigation()` function in our basic sketch.

sketch.js

```
function setup()
{
  createCanvas(400, 400)
  navigation()
}

function draw()
{
  background(220)
}
```



Notes

We need to include the `navigation()` function each time.



Sketch B2.3 slider

Adding the slider.

sketch.js

```
let slider

function setup()
{
  createCanvas(400, 400)
  navigation()
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
}
```



Notes

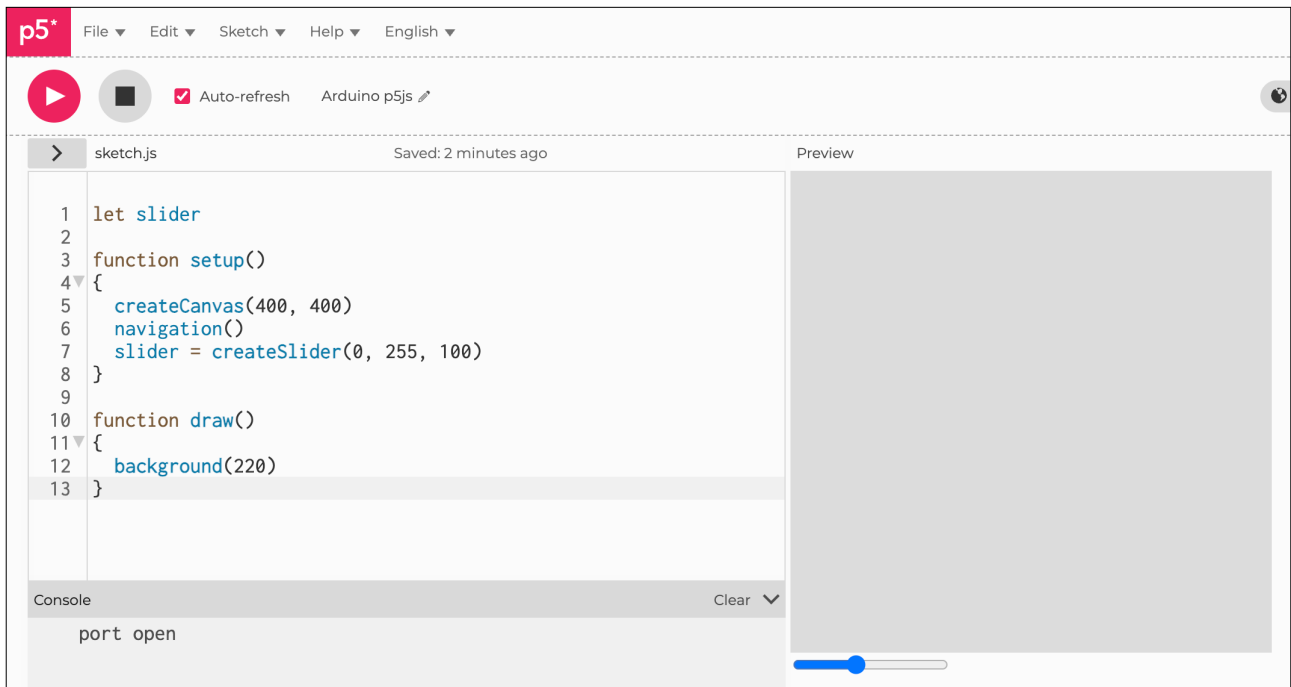
This just pops the slider on the bottom of the canvas.



Code Explanation

<code>let slider</code>	Naming the slider object
<code>slider = createSlider(0, 255, 100)</code>	Creating a slider with values from 0-255 with a default setting of 100

Figure B2.3





Sketch B2.4 slider value

We take the value of the slider and send it (via serial) to the Arduino.

sketch.js

```
let slider
let val

function setup()
{
  createCanvas(400, 400)
  navigation()
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  val = slider.value()
  serial.write(val)
}
```



Notes

If you try this now, assuming you have connected successfully to the Arduino through a port, the LED on the board should correspond in brightness with the slider.



Code Explanation

let val	The val variable
val = slider.value()	Read the value of the slider
serial.write(val)	Send the value of val to the serial port



Sketch B2.5 visual

Just to add a bit of visualisation, we fill a circle according to the value and write the value on the canvas for good measure.

sketch.js

```
let slider
let val

function setup()
{
  createCanvas(400, 400)
  navigation()
  slider = createSlider(0, 255, 100)
}

function draw()
{
  background(220)
  val = slider.value()
  serial.write(val)
  fill(val)
  circle(200, 200, 200)
  fill('darkred')
  textSize(30)
  text('val: ' + val, 20, 40)
}
```



Notes

Adding a circle and text to the p5.js sketch.

Figure B2.5

