BBB電子項圈

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1. .js檔

// Creates a websocket with socket.io

// Make sure to install socket.io: terminal, goto /var/lib/cloud9 and enter: npm install socket.io

// Installing this takes a few minutes; wait until the installation is complete

var app = require('http').createServer(handler);

var io = require('socket.io').listen(app);

var fs = require('fs');

var b = require('bonescript');

app.listen(8888);

// socket.io options go here

io.set('log level', 2); // reduce logging - set 1 for warn, 2 for info, 3 for debug

io.set('browser client minification', true); // send minified client

io.set('browser client etag', true); // apply etag caching logic based on version number

console.log('Server running on: http://' + getIPAddress() + ':8888');

var ledRed = "P8\_19";

var ledGreen = "P8\_13";

var ledBlue = "P9\_14";

var demoMode = false;

var demoStep = 0;

var demoCount = 0;

var flashMode = false;

var flashStep = 0;

var flashCount = 0;

var ledDir = 0;

var ledBright = 0;

// configure pins and set all low

b.pinMode(ledRed, b.OUTPUT);

b.pinMode(ledGreen, b.OUTPUT);

b.pinMode(ledBlue, b.OUTPUT);

b.analogWrite(ledRed,1);

b.analogWrite(ledBlue,1);

b.analogWrite(ledGreen,1);

function handler (req, res) {

if (req.url == "/favicon.ico"){ // handle requests for favico.ico

res.writeHead(200, {'Content-Type': 'image/x-icon'} );

res.end();

console.log('favicon requested');

return;

}

fs.readFile('test\_flash.html', // load html file

function (err, data) {

if (err) {

res.writeHead(500);

return res.end('Error loading index.html');

}

res.writeHead(200);

res.end(data);

});

}

io.sockets.on('connection', function (socket) {

// listen to sockets and write analog values to LED's

socket.on('ledRed', function (data) {

b.analogWrite(ledRed, 1-(data/100));

// console.log('Red: ' + data);

});

socket.on('ledGreen', function (data) {

b.analogWrite(ledGreen, 1-(data/100));

// console.log('Green: ' + data);

});

socket.on('ledBlue', function (data) {

b.analogWrite(ledBlue, 1-(data/100));

// console.log('Blue: ' + data);

});

socket.on('demo', function (data) {

// console.log("Demo: " + data);

// switch mode

if (data == 'on') {

demoMode = true;

runDemo();

} else if (data == 'off') {

demoMode = false;

led(1,1,1);

}

});

/////////////////////////////////////////////////////////////////////////

socket.on('redflash', function (data) {

// console.log("RED: " + data);

// switch mode

if (data == 'on') {

flashMode = true;

runRedFlash();

} else if (data == 'off') {

flashMode = false;

led(1,1,1);

}

});

socket.on('blueflash', function (data) {

// console.log("BLUE: " + data);

// switch mode

if (data == 'on') {

flashMode = true;

runBlueFlash();

} else if (data == 'off') {

flashMode = false;

led(1,1,1);

}

});

socket.on('greenflash', function (data) {

// console.log("GREEN: " + data);

// switch mode

if (data == 'on') {

flashMode = true;

runGreenFlash();

} else if (data == 'off') {

flashMode = false;

led(1,1,1);

}

});

});

///////////////////////////////////////////////////////////////////////////////////

setInterval(runDemo, 10);

function runDemo() {

if (demoMode === true){

switch (demoStep){

case 0:

led(0,1,1);

break;

case 1:

led(1,0,1);

break;

case 2:

led(1,1,0);

break;

case 3:

led(ledBright,1,1);

break;

case 4:

led(1,ledBright,1);

break;

case 5:

led(1,1,ledBright);

break;

case 6:

led(ledBright,ledBright,ledBright);

break;

case 7:

led(ledBright,ledBright,ledBright);

break;

case 8:

demoStep = 0;

break;

}

demoCount++;

if (demoCount>100){

demoStep++;

demoCount=0;

}

if (ledDir===0) ledBright=ledBright+0.02;

else ledBright = ledBright-0.02;

if (ledBright>1) ledDir=1;

if (ledBright<0) ledDir=0;

}

}

//flash part functions

//////////////////////////////////////////////////////////////////////////////////////////////

setInterval(runRedFlash, 10);

function runRedFlash() {

if (flashMode === true){

switch (flashStep){

case 0:

led(0,1,1);

led(0,1,1);

led(0,0,0);

led(0,1,1);

led(0,1,1);

led(0,0,0);

led(0,1,1);

led(0,1,1);

led(0,0,0);

led(0,1,1);

led(0,1,1);

led(0,0,0);

case 1:

flashStep = 0;

break;

}

flashCount++;

if (flashCount>100){

flashStep++;

flashCount=0;

}

}

}

//////////////////////////////////////////////////////////////////////////////////

setInterval(runBlueFlash, 10);

function runBlueFlash() {

if (flashMode === true){

switch (flashStep){

case 0:

led(1,0,1);

led(1,0,1);

led(0,0,0);

led(1,0,1);

led(1,0,1);

led(0,0,0);

led(1,0,1);

led(1,0,1);

led(0,0,0);

led(1,0,1);

led(1,0,1);

led(0,0,0);

case 1:

flashStep = 0;

break;

}

flashCount++;

if (flashCount>100){

flashStep++;

flashCount=0;

}

}

}

setInterval(runGreenFlash, 10);

function runGreenFlash() {

if (flashMode === true){

switch (flashStep){

case 0:

led(1,1,0);

led(1,1,0);

led(0,0,0);

led(1,1,0);

led(1,1,0);

led(0,0,0);

led(1,1,0);

led(1,1,0);

led(0,0,0);

led(1,1,0);

led(1,1,0);

led(0,0,0);

case 1:

flashStep = 0;

break;

}

flashCount++;

if (flashCount>100){

flashStep++;

flashCount=0;

}

}

}

function led(red, blue, green){

b.analogWrite(ledRed, red);

b.analogWrite(ledBlue, blue);

b.analogWrite(ledGreen, green);

}

// Get server IP address on LAN

function getIPAddress() {

var interfaces = require('os').networkInterfaces();

for (var devName in interfaces) {

var iface = interfaces[devName];

for (var i = 0; i < iface.length; i++) {

var alias = iface[i];

if (alias.family === 'IPv4' && alias.address !== '127.0.0.1' && !alias.internal)

return alias.address;

}

}

return '0.0.0.0';

}

1. .html檔

<!DOCTYPE html>

<html>

<head>

<meta charset="utf-8">

<meta name="viewport" content="initial-scale=1.0, user-scalable=no">

<meta name="apple-mobile-web-app-capable" content="yes">

<meta name="apple-mobile-web-app-status-bar-style" content="black">

<title>BeagleBone Black Demo</title>

<!-- jQuery and jQuery Mobile -->

<link rel="stylesheet" href="http://code.jquery.com/mobile/1.3.1/jquery.mobile-1.3.1.min.css" />

<script src="http://code.jquery.com/jquery-1.9.1.min.js"></script>

<script src="http://code.jquery.com/mobile/1.3.1/jquery.mobile-1.3.1.min.js"></script>

<script src="/socket.io/socket.io.js"></script>

<!-- Code for socket.io and device orientation handling -->

<script>

var socket = io.connect();

// Send data through socket

function ledRed(value){

socket.emit('ledRed', value);

}

function ledGreen(value){

socket.emit('ledGreen', value);

}

function ledBlue(value){

socket.emit('ledBlue', value);

}

function Demo(value){

socket.emit('demo', value);

}

function redFlash(value){

socket.emit('redflash',value);

}

function blueFlash(value){

socket.emit('blueflash',value);

}

function greenFlash(value){

socket.emit('greenflash',value);

}

// Take actions based on device orientation (works on mobile devices only)

if (window.DeviceOrientationEvent) {

// Listen for the deviceorientation event and handle the raw data

window.addEventListener('deviceorientation', function(eventData) {

// gamma is the left-to-right tilt in degrees, where right is positive

var tiltLR = eventData.gamma;

// beta is the front-to-back tilt in degrees, where front is positive

var tiltFB = eventData.beta;

// call orientation event handler

if (Gyro.value == 'on'){

deviceOrientationHandler(tiltLR, tiltFB);

}

}, false);

}

else {

console.log("DeviceOrientation is NOT supported");

}

function deviceOrientationHandler(LeftRight, FrontBack){

// normalize and limit values between 0 and 100

LeftRight = Math.min(Math.max(Math.round(LeftRight), -100), 100);

FrontBack = Math.min(Math.max(Math.round(FrontBack), -100), 100);

//LeftRight = Math.round((LeftRight/180)\*100);

//FrontBack = Math.round((LeftRight/180)\*50);

if (LeftRight >= 0) {

ledGreen(LeftRight);

ledRed(0);

}

if (LeftRight <= 0) {

ledRed(Math.abs(LeftRight));

ledGreen(0);

}

if (FrontBack <= 0) {

ledBlue(Math.abs(FrontBack));

}

if (FrontBack > 0) {

ledBlue(0);

}

}

//when switch is chose, disabled the sliders; otherwise, enabled

function demoSwitch(sel){

if (sel.value == "on") {

$("#Gyro").val('off').slider('refresh').slider('disable');

$("#redFlash").val('off').slider('refresh').slider('disable');

$("#blueFlash").val('off').slider('refresh').slider('disable');

$("#greenFlash").val('off').slider('refresh').slider('disable');

$("#slider1").val('0').slider('refresh').slider('disable');

$("#slider2").val('0').slider('refresh').slider('disable');

$("#slider3").val('0').slider('refresh').slider('disable');

socket.emit('demo', sel.value);

} else if (sel.value == "off") {

socket.emit('demo', sel.value);

$('#Gyro').slider('enable');

$('#redFlash').slider('enable');

$('#blueFlash').slider('enable');

$('#greenFlash').slider('enable');

$("#slider1").slider('enable');

$("#slider2").slider('enable');

$("#slider3").slider('enable');

}

}

function gyroSwitch(sel){

if (sel.value == "on") {

$("#Demo").val('off').slider('refresh').slider('disable');

$("#redFlash").val('off').slider('refresh').slider('disable');

$("#blueFlash").val('off').slider('refresh').slider('disable');

$("#greenFlash").val('off').slider('refresh').slider('disable');

$("#slider1").val('0').slider('refresh').slider('disable');

$("#slider2").val('0').slider('refresh').slider('disable');

$("#slider3").val('0').slider('refresh').slider('disable');

} else if (sel.value == "off") {

$('#Demo').slider('enable');

$('#redFlash').slider('enable');

$('#blueFlash').slider('enable');

$('#greenFlash').slider('enable');

$("#slider1").slider('enable');

$("#slider2").slider('enable');

$("#slider3").slider('enable');

}

}

function redFlashSwitch(sel){

if (sel.value == "on") {

$("#Demo").val('off').slider('refresh').slider('disable');

$("#Gyro").val('off').slider('refresh').slider('disable');

$("#blueFlash").val('off').slider('refresh').slider('disable');

$("#greenFlash").val('off').slider('refresh').slider('disable');

$("#slider1").val('0').slider('refresh').slider('disable');

$("#slider2").val('0').slider('refresh').slider('disable');

$("#slider3").val('0').slider('refresh').slider('disable');

socket.emit('redflash', sel.value);

} else if (sel.value == "off") {

socket.emit('redflash', sel.value);

$('#Demo').slider('enable');

$('#Gyro').slider('enable');

$('#blueFlash').slider('enable');

$('#greenFlash').slider('enable');

$("#slider1").slider('enable');

$("#slider2").slider('enable');

$("#slider3").slider('enable');

}

}

function blueFlashSwitch(sel){

if (sel.value == "on") {

$("#Demo").val('off').slider('refresh').slider('disable');

$("#Gyro").val('off').slider('refresh').slider('disable');

$("#redFlash").val('off').slider('refresh').slider('disable');

$("#greenFlash").val('off').slider('refresh').slider('disable');

$("#slider1").val('0').slider('refresh').slider('disable');

$("#slider2").val('0').slider('refresh').slider('disable');

$("#slider3").val('0').slider('refresh').slider('disable');

socket.emit('blueflash', sel.value);

} else if (sel.value == "off") {

socket.emit('blueflash', sel.value);

$('#Demo').slider('enable');

$('#Gyro').slider('enable');

$('#redFlash').slider('enable');

$('#greenFlash').slider('enable');

$("#slider1").slider('enable');

$("#slider2").slider('enable');

$("#slider3").slider('enable');

}

}

function greenFlashSwitch(sel){

if (sel.value == "on") {

$("#Demo").val('off').slider('refresh').slider('disable');

$("#Gyro").val('off').slider('refresh').slider('disable');

$("#redFlash").val('off').slider('refresh').slider('disable');

$("#blueFlash").val('off').slider('refresh').slider('disable');

$("#slider1").val('0').slider('refresh').slider('disable');

$("#slider2").val('0').slider('refresh').slider('disable');

$("#slider3").val('0').slider('refresh').slider('disable');

socket.emit('greenflash', sel.value);

} else if (sel.value == "off") {

socket.emit('greenflash', sel.value);

$('#Demo').slider('enable');

$('#Gyro').slider('enable');

$('#redFlash').slider('enable');

$('#blueFlash').slider('enable');

$("#slider1").slider('enable');

$("#slider2").slider('enable');

$("#slider3").slider('enable');

}

}

</script>

</head>

<body>

<!-- Home -->

<div data-role="page" id="page1">

<div data-theme="a" data-role="header">

<h3>

Embedded System Final Project Demo

</h3>

</div>

<div data-role="content">

<div data-role="fieldcontain">

<label for="slider1">

Red LED

</label>

<input id="slider1" type="range" name="slider" value="0" min="0" max="100"

data-highlight="false" data-theme="b" onChange="ledRed(value);">

</div>

<div data-role="fieldcontain">

<label for="slider2">

Blue LED

</label>

<input id="slider2" type="range" name="slider" value="0" min="0" max="100"

data-highlight="false" data-theme="b" onChange="ledBlue(value);">

</div>

<div data-role="fieldcontain">

<label for="slider3">

Green LED

</label>

<input id="slider3" type="range" name="slider" value="0" min="0" max="100"

data-highlight="false" data-theme="b" onChange="ledGreen(value);">

</div>

<div data-role="fieldcontain">

<label for="Demo">

Demo Mode

</label>

<select name="toggleswitch1" id="Demo" data-theme="b" data-role="slider" onchange="demoSwitch(this);">

<option value="off">Off</option>

<option value="on">On</option>

</select>

</div>

<div data-role="fieldcontain">

<label for="Gyro">

Gyroscope

</label>

<select name="toggleswitch2" id="Gyro" data-theme="b" data-role="slider" onchange="gyroSwitch(this);">

<option value="off">Off</option>

<option value="on">On</option>

</select>

</div>

<div data-role="fieldcontain">

<label for="redFlash">

Flash RED

</label>

<select name="toggleswitch3" id="redFlash" data-theme="b" data-role="slider" onchange="redFlashSwitch(this);">

<option value="off">Off</option>

<option value="on">On</option>

</select>

</div>

<div data-role="fieldcontain">

<label for="blueFlash">

Flash BLUE

</label>

<select name="toggleswitch4" id="blueFlash" data-theme="b" data-role="slider" onchange="blueFlashSwitch(this);">

<option value="off">Off</option>

<option value="on">On</option>

</select>

</div>

<div data-role="fieldcontain">

<label for="greenFlash">

Flash GREEN

</label>

<select name="toggleswitch5" id="greenFlash" data-theme="b" data-role="slider" onchange="greenFlashSwitch(this);">

<option value="off">Off</option>

<option value="on">On</option>

</select>

</div>

</div>

</div>

</body>

</html>