

Introducing Bangle.js (the NodeWatch)



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**"any application that can be written in
JavaScript, will eventually be written in
JavaScript."**

Atwood's Law

<https://blog.codinghorror.com/the-principle-of-least-power>



Banglejs

The Open Smart Watch



<https://banglejs.com/>



NodeWatch

**The world's first
hackable open source
JavaScript-powered
and TensorFlow-
powered smartwatch**



<https://nodewatch.dev/>

NodeConf EU 2019





NODECONF
EU 2019

Say hello to Bangle.js. Get started with your Bangle.js on nodewatch.dev

Powered by

TensorFlow

Powered by

Espruino

Sponsored by

NearForm

With love from

NearForm
RESEARCH







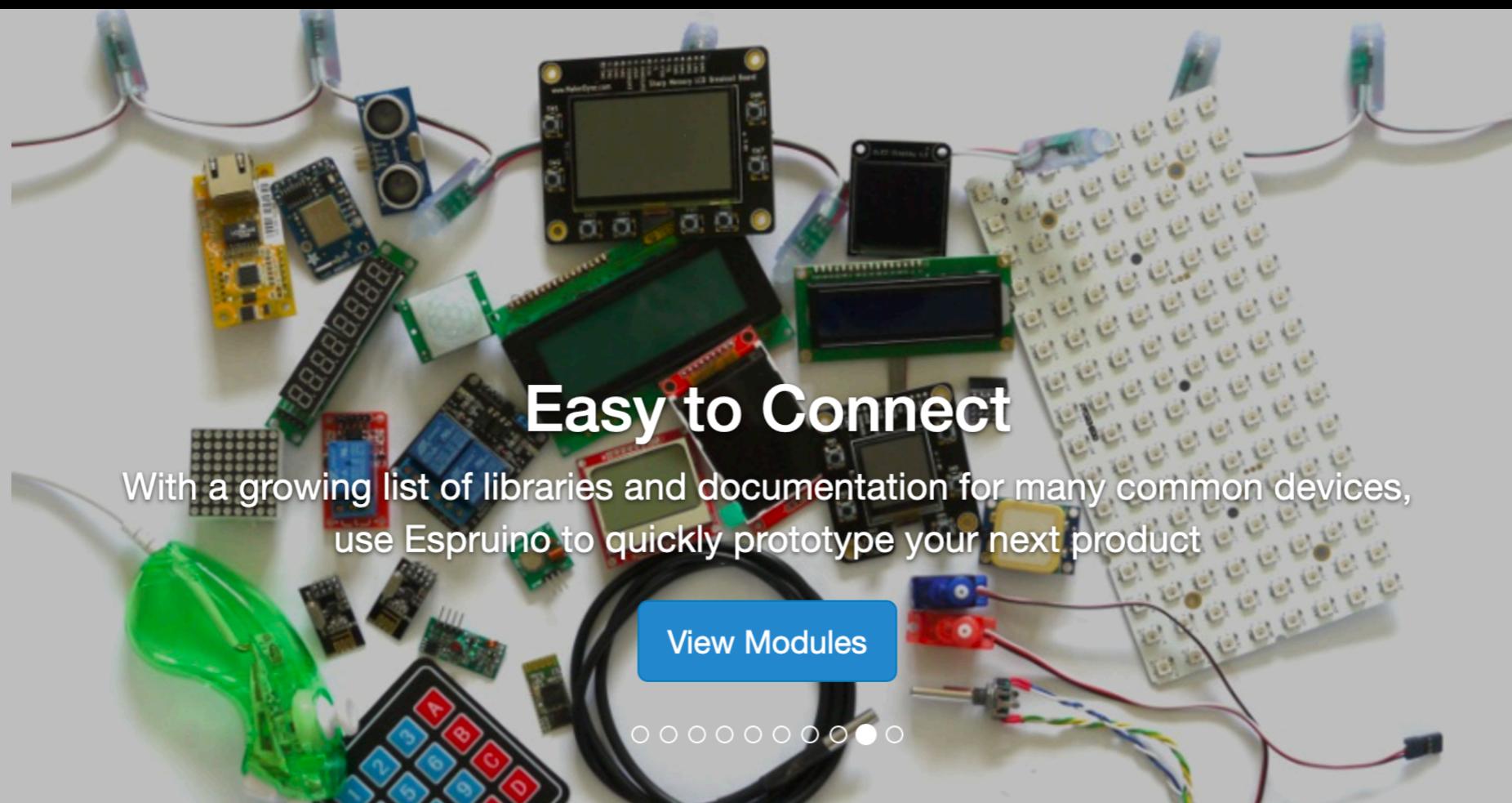
NodeWatch

Hardware

High-Level Hardware

- Nordic Semiconductor [NRF52832](#) SoC with Bluetooth LE 4.2
- [KX023 accelerometer](#)
- 3 axis compass
- BD 1668 heart rate monitor
- 32 mbit flash - similar command set to [this](#)
- [240x240 Colour LCD](#)
- Holtek touch controller - [bs83a02a with 2 zone on/off](#)
- [GPS UBX-M8130](#), ROM CORE 3.01, PROTVER=18.00*11
- Buzzer

<https://nodewatch.dev/software>



Easy to Connect

With a growing list of libraries and documentation for many common devices,
use Espruino to quickly prototype your next product

[View Modules](#)

Got my [@Espruino](#) running nicely in 15 mins on Win 8.1. This is the perfect hardware to introduce students to ICT in schools.

by Ward De Backer —



JavaScript



Responsive

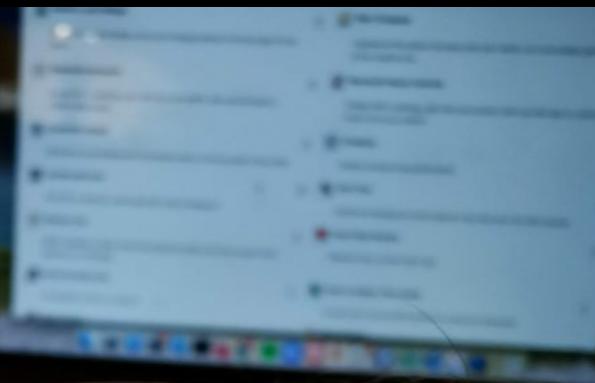


Fully Open Source



Crowdfunded

<http://www.espruino.com/>







Bangle App Loader

Connect

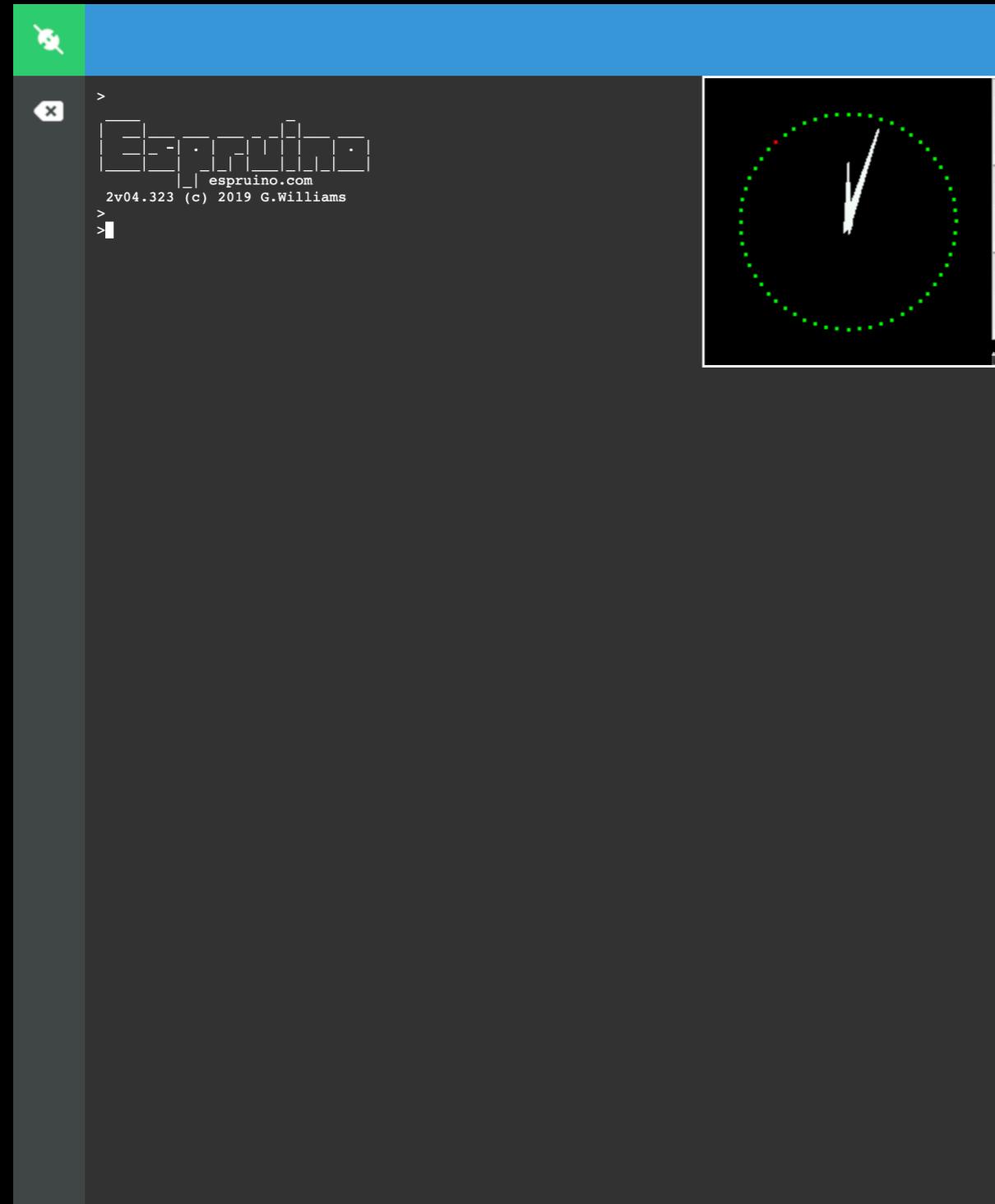
Library 53 My Apps My files About

All Clocks Games Tools Widgets Bluetooth

Keywords... Search

| | | | |
|--|---|---|---|
|  Bootloader (0.03) | This is needed by Bangle.js to automatically load the clock, menu, widgets and settings |  Centerclock (0.01) | Watch-centered digital 24h clock with date in dd.mm.yyyy format. |
|  Morphing Clock (0.01) | 7 segment clock that morphs between minutes and hours |  Settings (0.02) | A menu for setting up Bangle.js - by default this disables Bluetooth unless you enable 'BLE' AND 'Dev' |
|  NCEU 5K Fun Run (0.01) | Display a map of the NodeConf EU 2019 5K Fun Run route and your location on it |  NCEU Logo Widget (0.01) | Show the NodeConf EU logo in the top left |
|  NCEU Startup (0.01) | NodeConfEU 2019 Startup Sequence |  3x2 Pixel Clock (0.01) | This is a simple clock using minimalistic 3x2 pixel numerical digits |
|  Analog Clock (0.01) | An Analog Clock |  App Manager (0.01) | Show currently installed apps, free space, and allow their deletion from the watch |
|  Asteroids! (0.01) | Retro asteroids game |  BLE Scanner (0.01) | Scan for advertising BLE devices |
|  Battery Level Widget (0.01) | Show the current battery level and charging status in the top right of the clock |  Beer Compass (0.01) | Uploads all the pubs in an area onto your watch, so it can always point you at the nearest one |
|  Berlin Clock | Berlin Clock (see https://en.wikipedia.org/wiki/Mengenlehreuuhr) |  Binary Bluetooth Keyboard (0.01) | Enable HID in settings, pair with your phone/PC, then type messages using the onscreen keyboard by tapping repeatedly on the key you want |
|  Binary Clock (0.01) | |  Bluetooth Keyboard (0.01) | |

<https://banglejs.com/apps/>

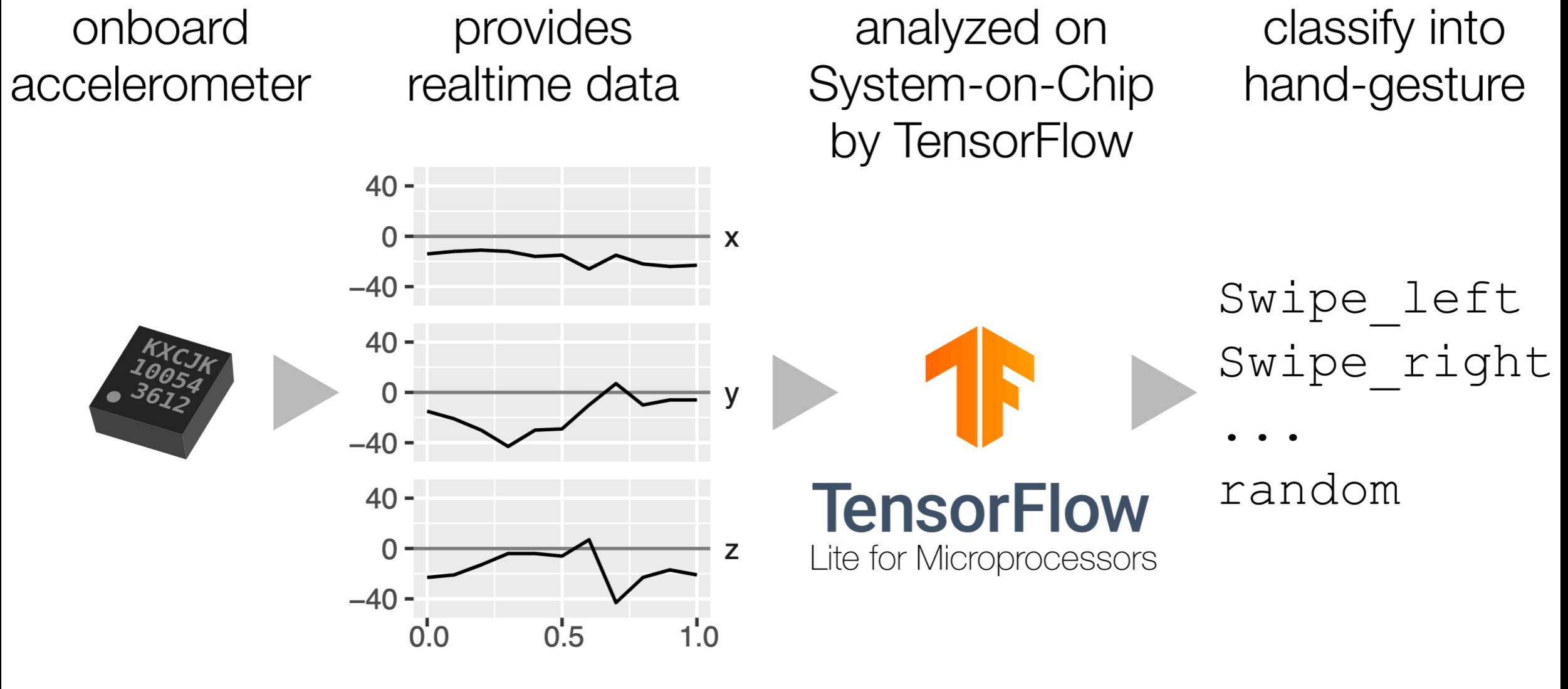


The screenshot shows the Espruino IDE Emulator interface. On the left, there's a terminal window with the command `espruino.com` and the version `2v04.323 (c) 2019 G.Williams`. To the right of the terminal is a preview window displaying a digital clock with a green dotted circle and hands. Below the preview is a code editor with the following JavaScript code:

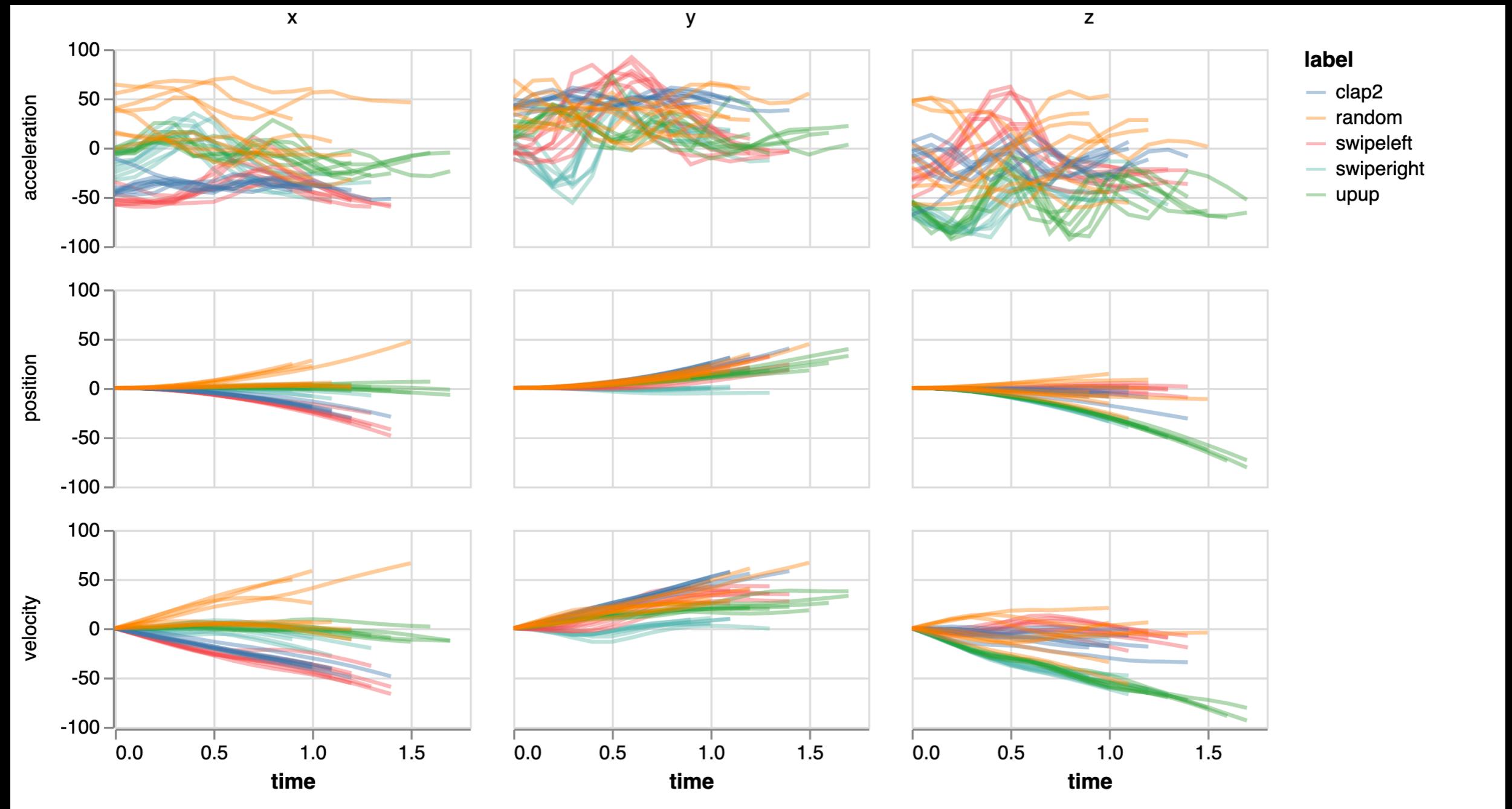
```
1 (function(){
2   g.clear();
3   const p = Math.PI/2;
4   const PRad = Math.PI/180;
5
6   let intervalRefMin = null;
7   let intervalRefSec = null;
8
9   let minuteDate = new Date();
10  let secondDate = new Date();
11
12  function seconds(angle, r) {
13    const a = angle*PRad;
14    const x = 120+Math.sin(a)*r;
15    const y = 120-Math.cos(a)*r;
16    g.fillRect(x-1,y-1,x+1,y+1);
17  }
18  function hand(angle, r1,r2) {
19    const a = angle*PRad;
20    const r3 = 3;
21    g.fillPoly([
22      120+Math.sin(a)*r1,
23      120-Math.cos(a)*r1,
24      120+Math.sin(a+p)*r3,
25      120-Math.cos(a+p)*r3,
26      120+Math.sin(a)*r2,
27      120-Math.cos(a)*r2,
28      120+Math.sin(a-p)*r3,
29      120-Math.cos(a-p)*r3]);
30  }
31
32  function drawAll() {
33    g.clear();
34    secondDate = minuteDate = new Date();
35    // draw hands first
36    onMinute();
37    // draw seconds
38    g.setColor(0,1,0);
39    for (let i=0;i<60;i++)
40      seconds(360*i/60, 90);
41    onSecond();
42  }
43
44  function onSecond() {
45    g.setColor(0,1,0);
46    seconds(360*secondDate.getSeconds()/60, 90);
47    g.setColor(1,0,0);
48    secondDate = new Date();
49    seconds(360*secondDate.getSeconds()/60, 90);
50    g.setColor(1,1,1);
51
52  }
53
54  function onMinute() {
55    g.setColor(0,0,0);
56    hand(360*minuteDate.getHours()/12, -10, 50);
57    hand(360*minuteDate.getMinutes()/60, -10, 82);
58    minuteDate = new Date();
59    g.setColor(1,1,1);
60    hand(360*minuteDate.getHours()/12, -10, 50);
61    hand(360*minuteDate.getMinutes()/60, -10, 82);
62    if(minuteDate.getHours() >= 0 && minuteDate.getMinutes() === 0) {
63      Bangle.buzz();
64    }
65
66  }
67
68  function clearTimers() {
69    if(intervalRefMin) {clearInterval(intervalRefMin);}
70    if(intervalRefSec) {clearInterval(intervalRefSec);}
71  }
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73  drawAll();
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75  setinterval(drawAll, 1000);
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