

Welcome!



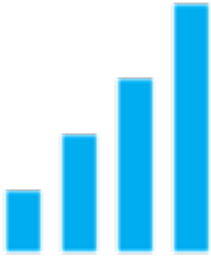
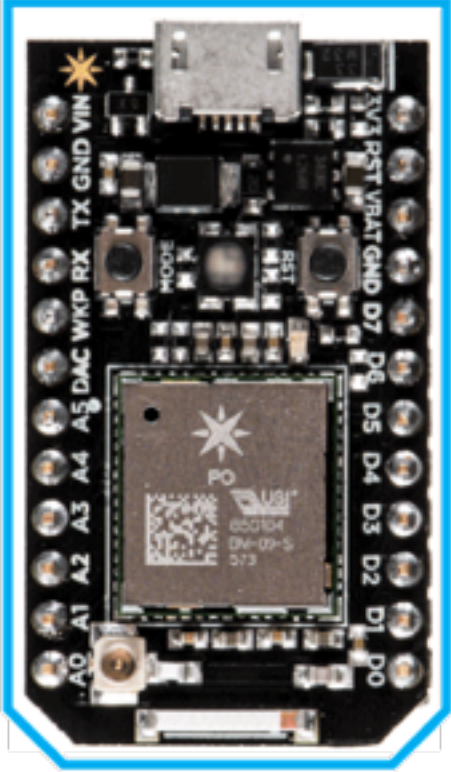
<http://madlab.org.uk>
@madlabuk

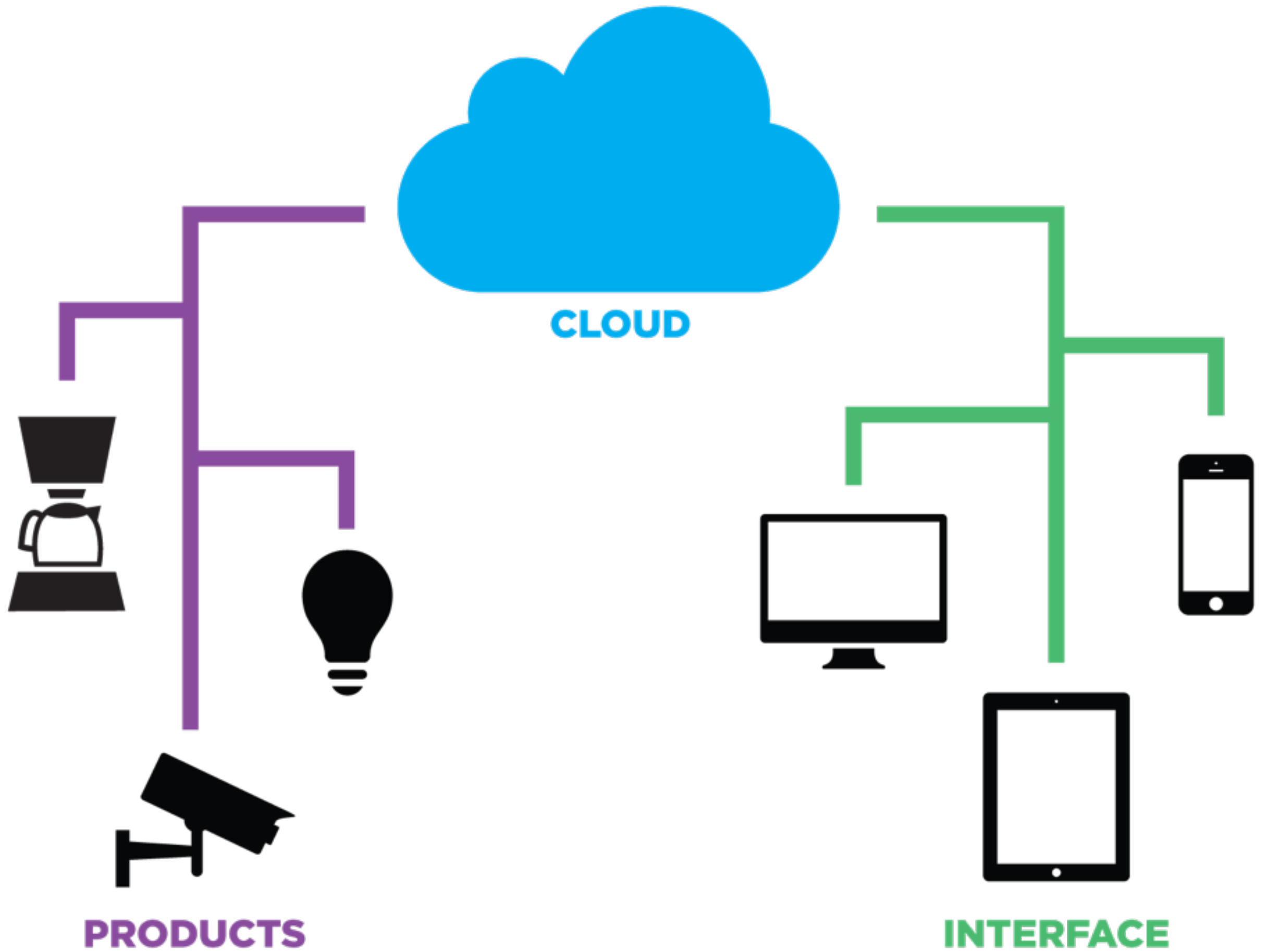
The Internet of Things!

“Hardware. Software.
Everywhere”

IoT Design, Some considerations

- Power: batteries or mains?
- Communication: how far, how often, how much?
- Security
- Network topology (and backhaul?)
- Where does processing take place? How constrained?
- Size & cost
- Ease of development
- Design for manufacturing?





Let's get started!

```
$ npm install -g particle-cli
```

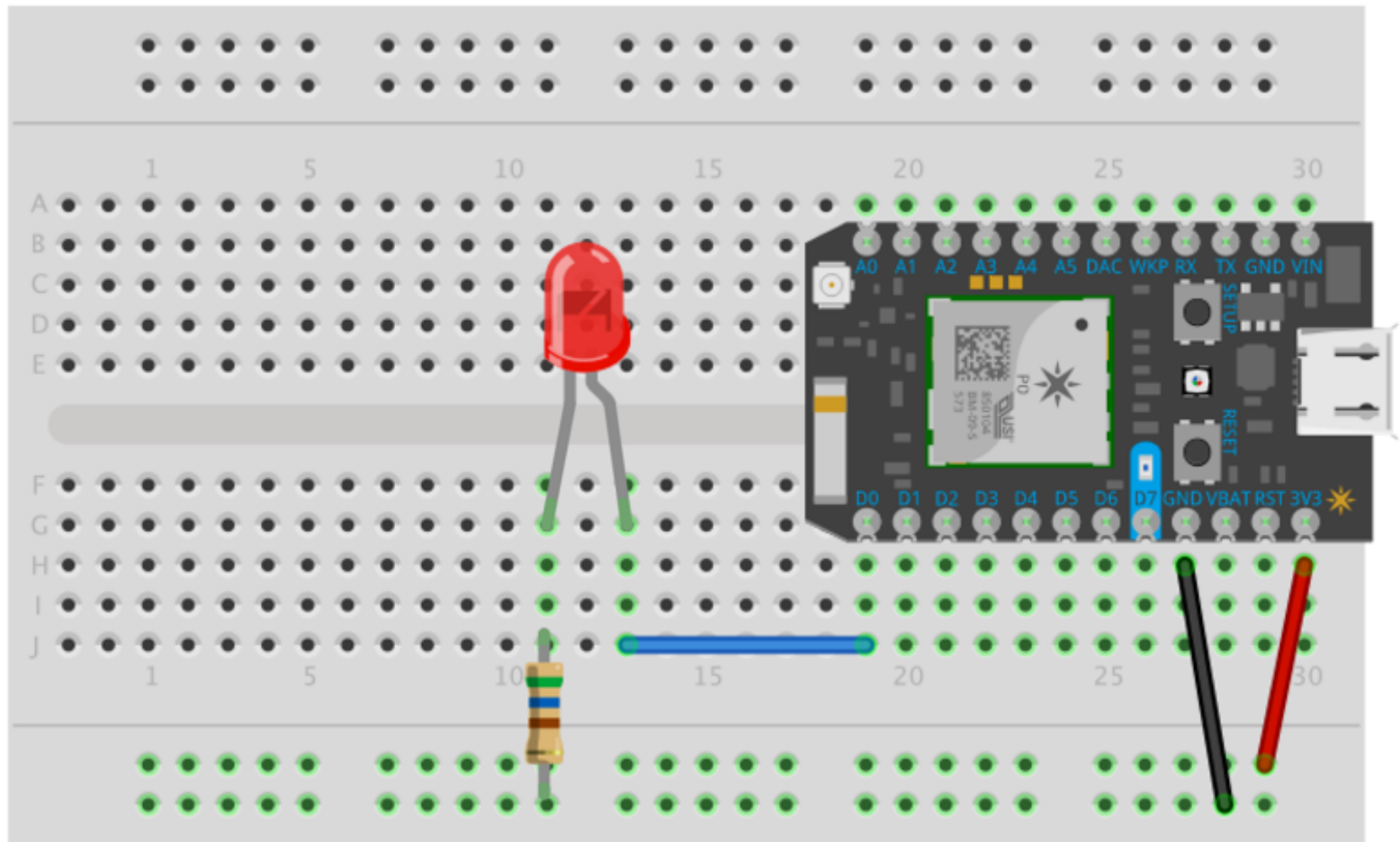
```
$ particle setup
```

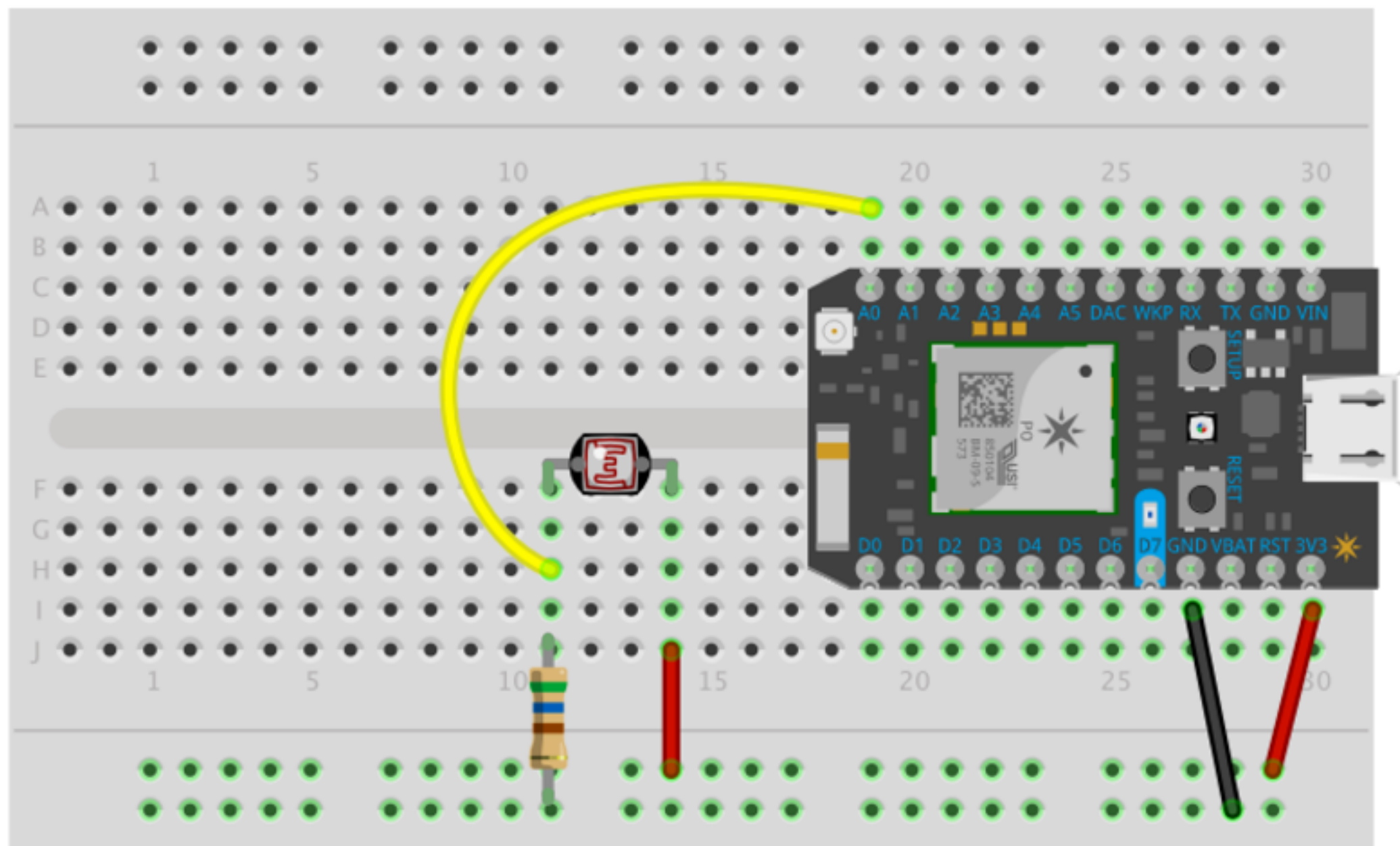
```
$ particle help
```

```
...
```

```
$ particle call <id> "digitalWrite" "D7,HIGH"
```

<http://bit.ly/17kwJYq>





Human Web

Web Data (Human-readable – HTML, Text etc.)

HTTP

TCP/TLS

IP

Machine Web

Binary Data

CoAP

UDP/DTLS

???

Human Web

Web Data (Human-readable – HTML, Text etc.)

HTTP (& REST)

TCP/TLS

IP

Particle Web

Binary Data

CoAP

TCP/TLS

IP

Machine Web

Binary Data

CoAP

UDP/DTLS

???

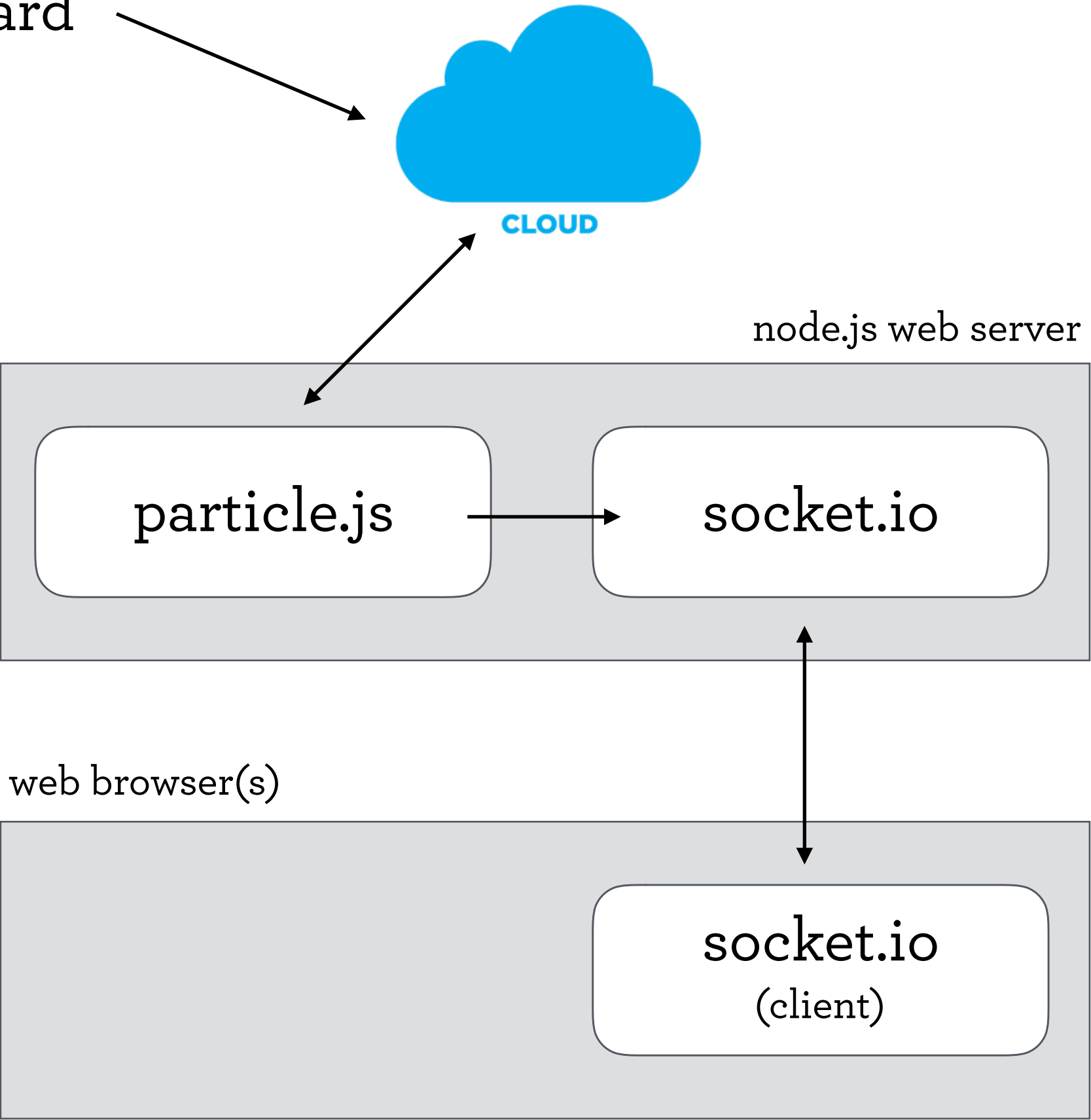
Humans + Machines

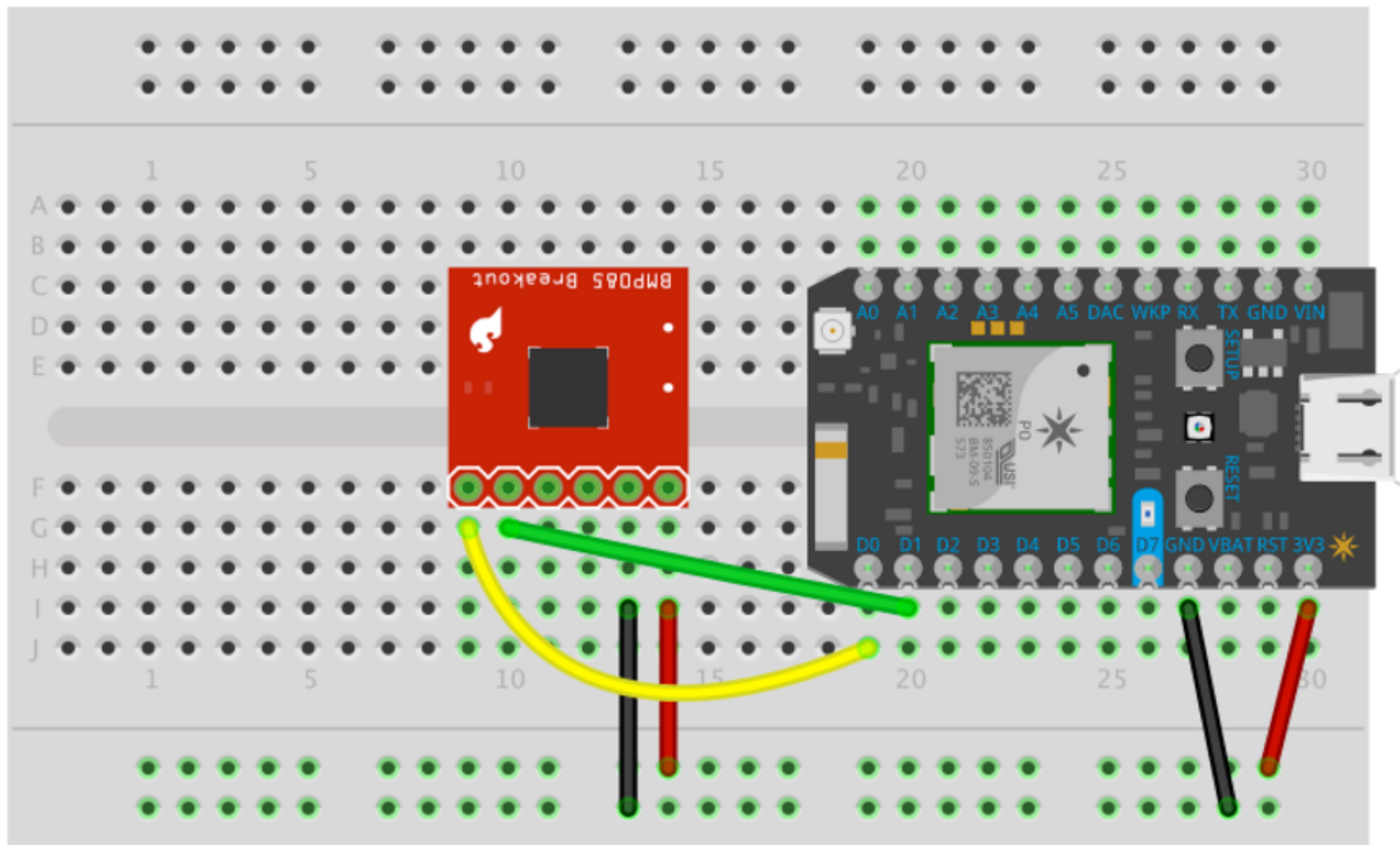
```
$ cd <download folder>/sokkit
```

```
$ npm install
```

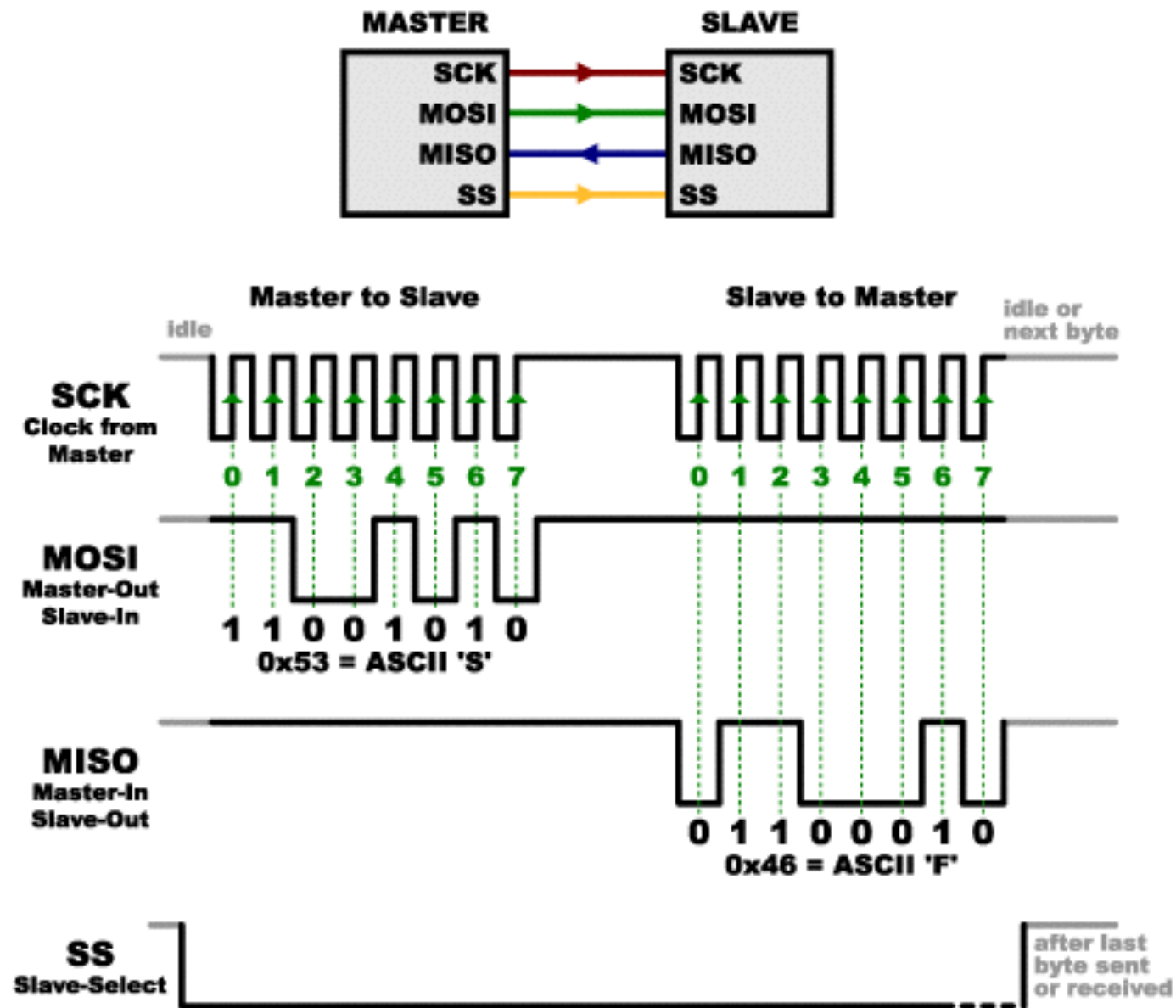
```
$ node sokkit.js
```

Particle Board

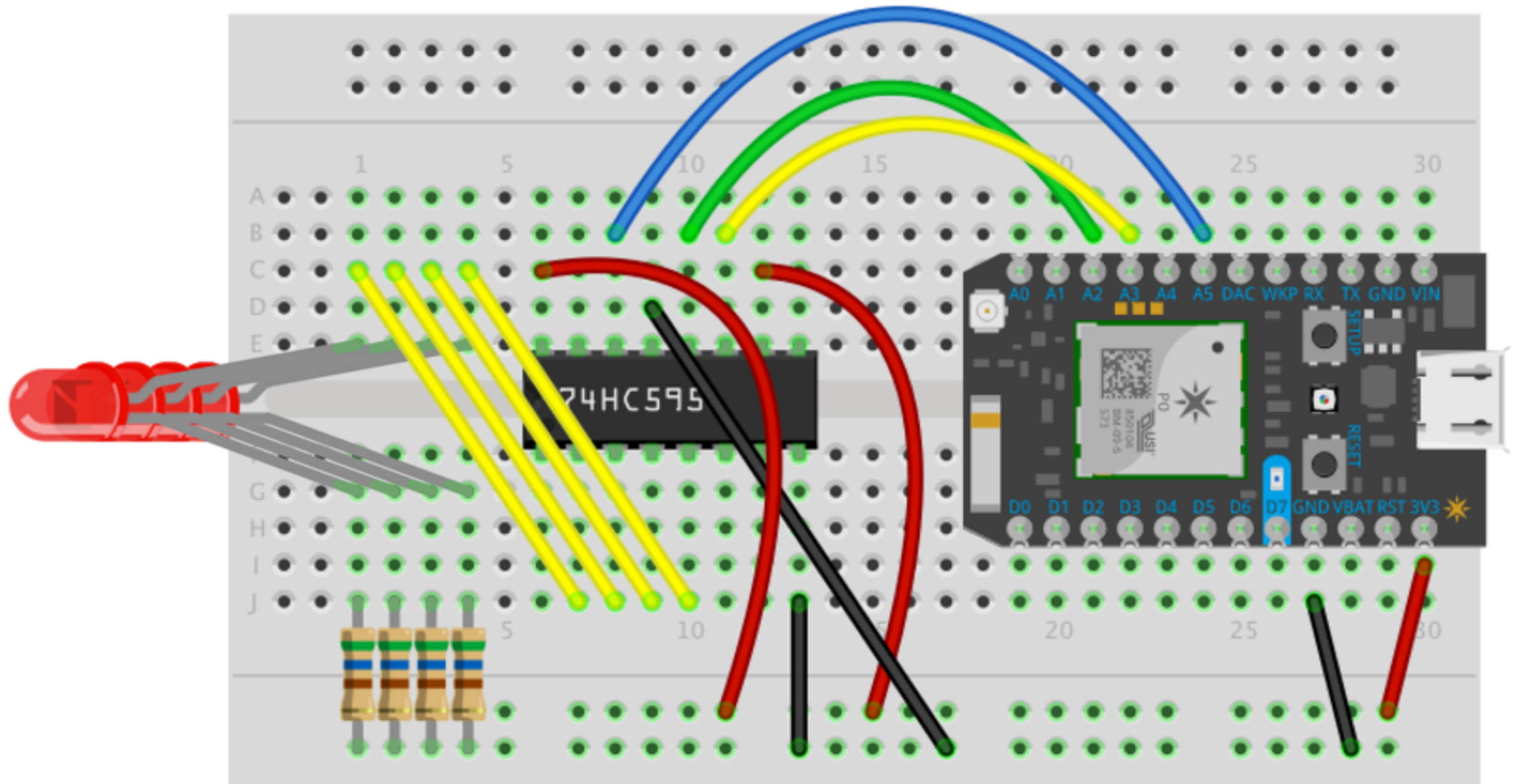




Let's SPI!



<https://learn.sparkfun.com/tutorials/serial-peripheral-interface-spi>
<http://docs.spark.io/firmware/#communication-spi>



Where to Next?

- Lots of alternative technology: microcontrollers & platforms, communication protocols, ...
e.g. MQTT, BLE, Zigbee, 6Lowpan, LoRa, GSM. RedBear Labs, Waspote, Arduino Yún, Contiki, ...
- Fun stuff! IFTTT, Hackster, Stores, Books, ...
e.g. Oomlout (naturally!), Sparkfun, Adafruit. “Designing the internet of things”.