6 – 7 . APRIL
ATLANTA, GA, USA
SYNERGY 2017
Building for the future. Better, faster, everywhere.

IoT - Internet of Things

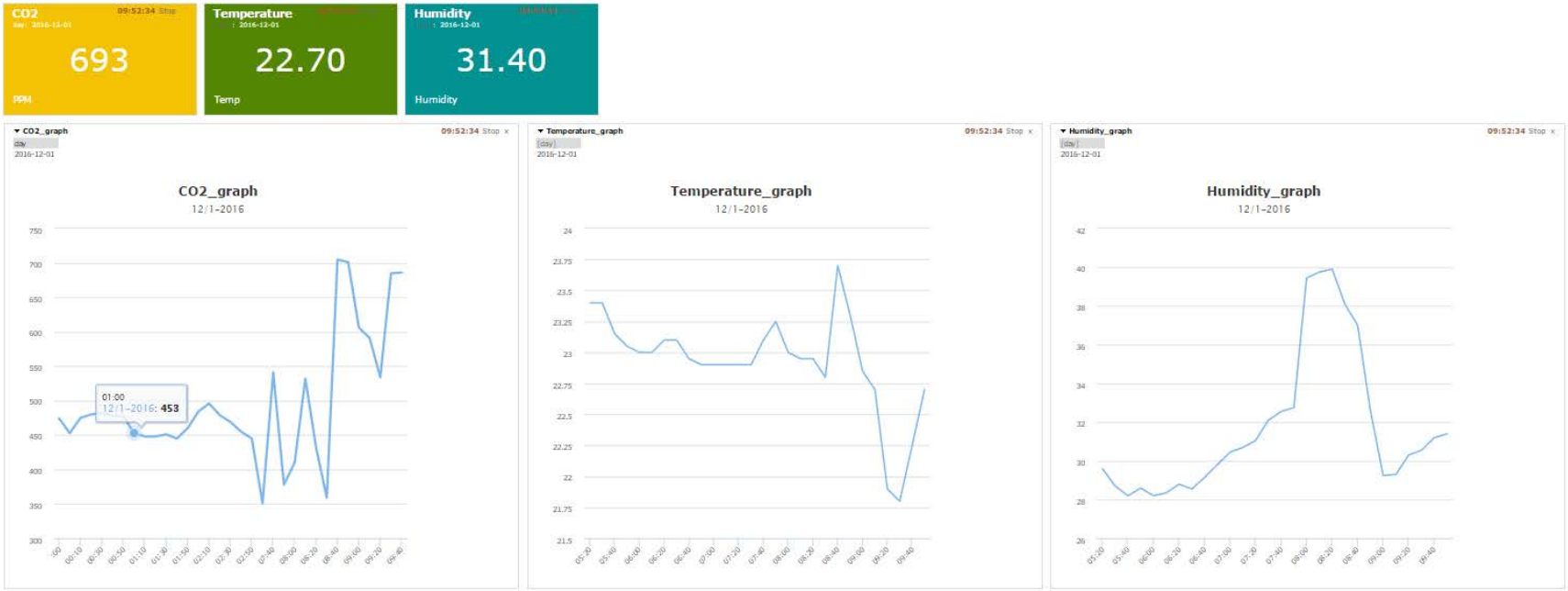
Klaus Berthelsen

FrontIoT

Agenda

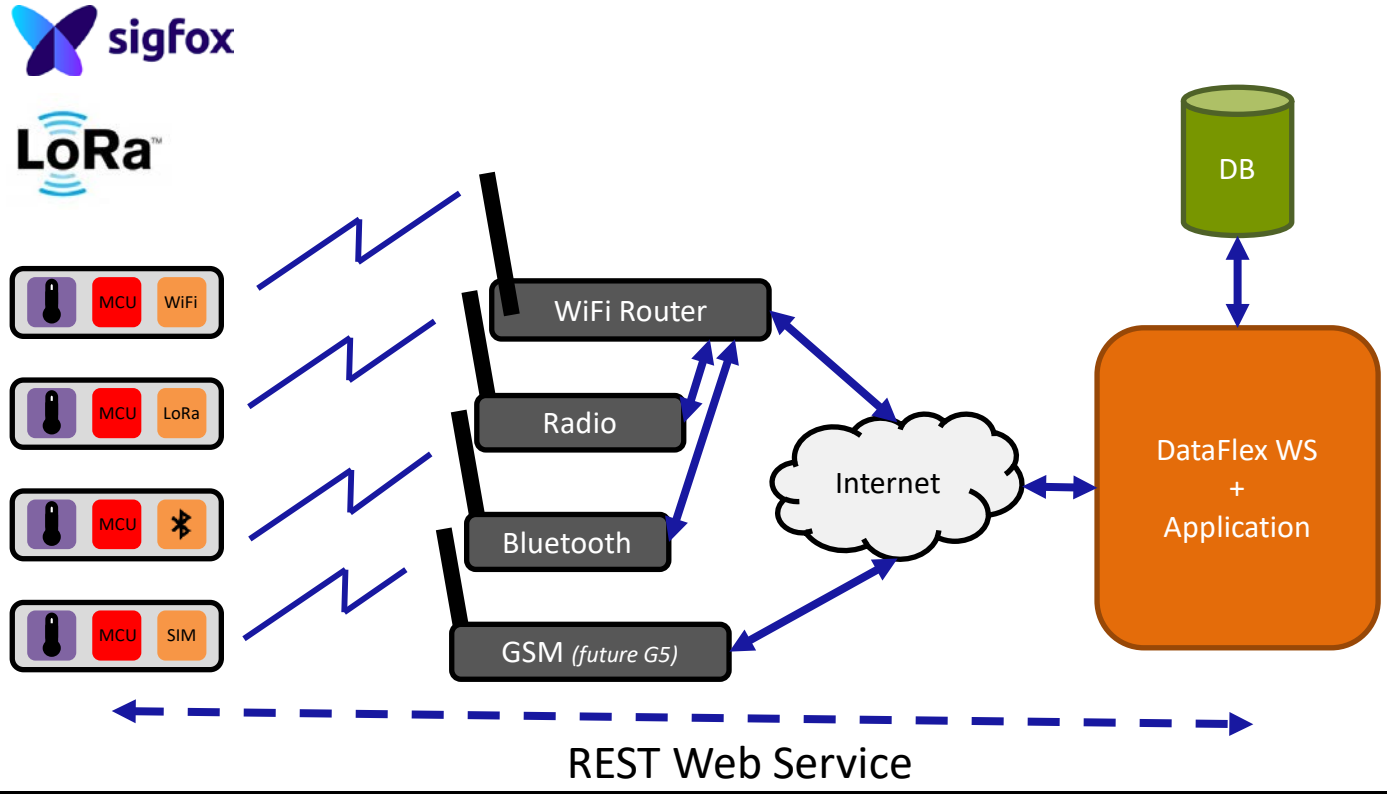
- Showcase environment monitor
- What's with DataFlex and IoT?
- How to get started
- What we do in the IoT space
- State of IoT business today

Visualizing with Dynamic AI

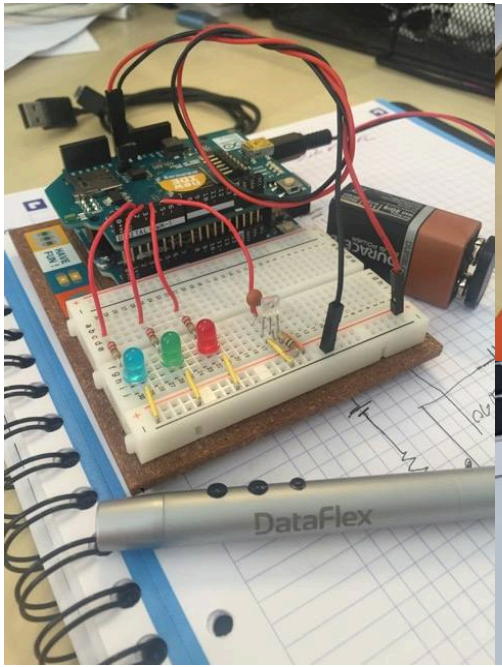


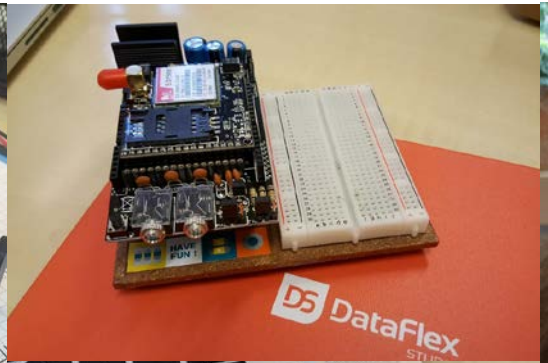
http://2.107.26.23/ai6/default.asp

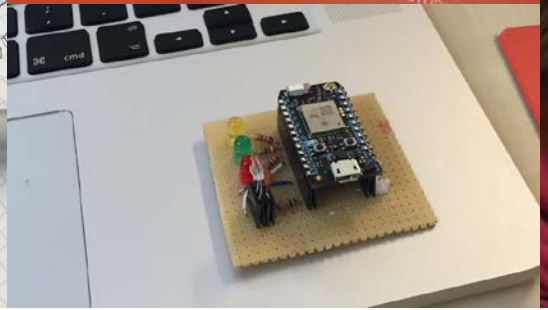
Platforms


sigfox
LoRa
MCU
WiFi
MCU
LoRa
MCU
MCU
SIM
WiFi Router
Radio
Bluetooth
GSM (future G5)
Internet
DB
DataFlex WS
+
Application
REST Web Service

Spring 2016 – Exploring new territory







Why DataFlex and IoT?

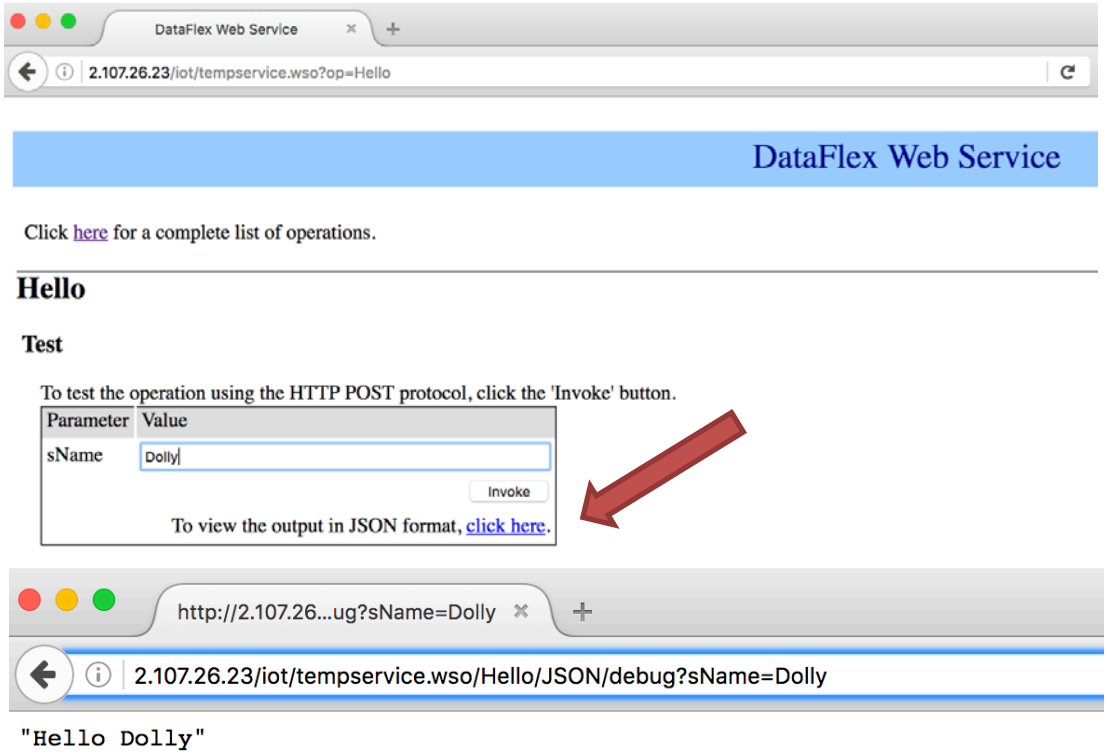
To be or not to be? Which is the lesser evil?

To program a SOAP client in c

Or to program a REST-service in DataFlex?

As it turns out DataFlex already does REST.

REST service in DF



DataFlex Web Service

Sensor (C/C++)

```
client.println("GET /Arduino/tempService.wso/Hello/JSON/debug?sName=Dolly HTTP/1.1");
client.println("Host: 192.168.1.63");
client.println();
```

Server (DataFlex)

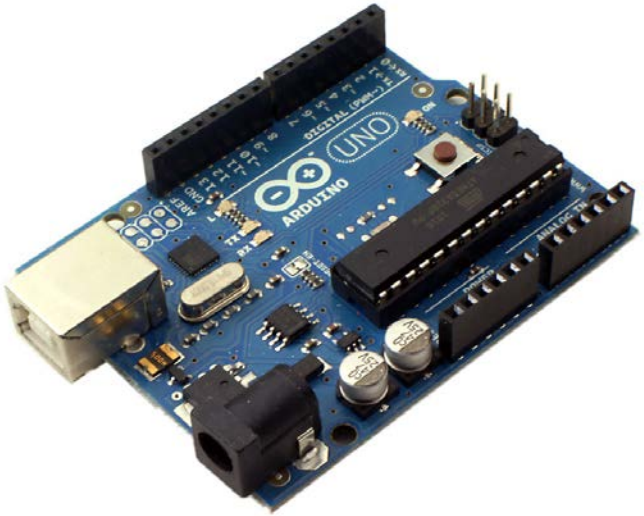
```
Object oHello is a cWebService

   { Published=True }
   { Description="" }

   Procedure Hello String sName Returns String
       Function_Return ("Hello " + sName)
   End_Procedure

End_Object
```

Micro Controllers; What are they?

- A Micro Controller or MCU is a small programmable device with a lot of analogous and digital connectors.
- It can do a set of simple repetitive tasks – Fast
- In recent years MCU’s and WiFi chips are build together.

How to start

ARDUINO UNO



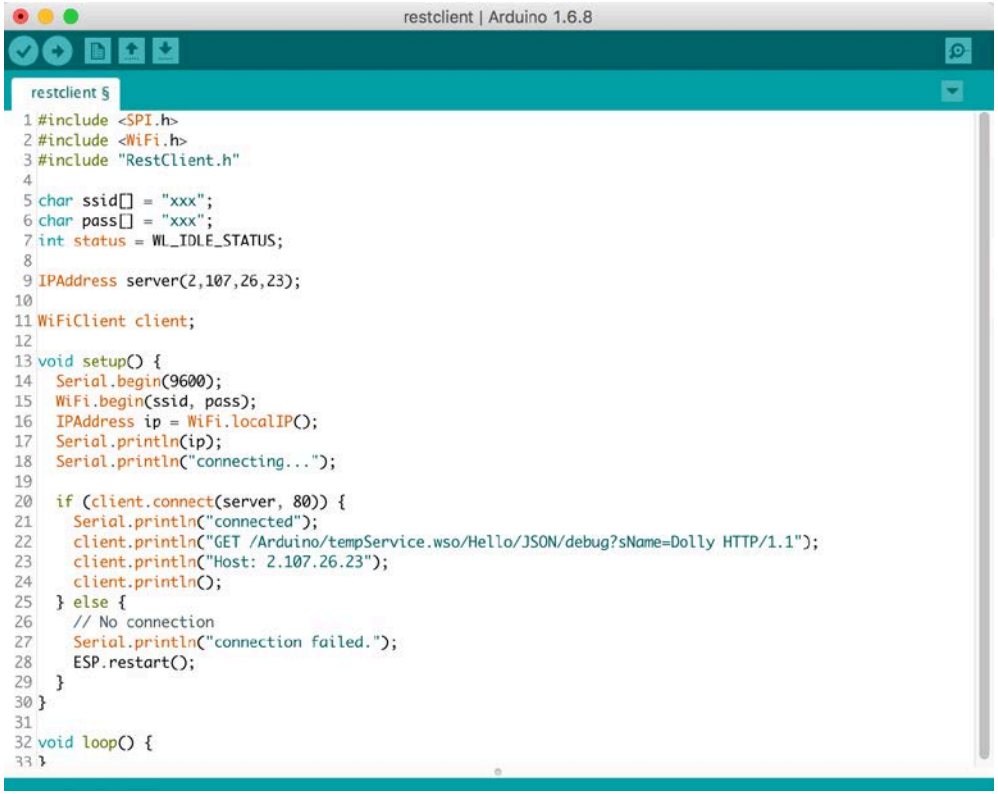
WeMos D1 mini

ESP8266 12E

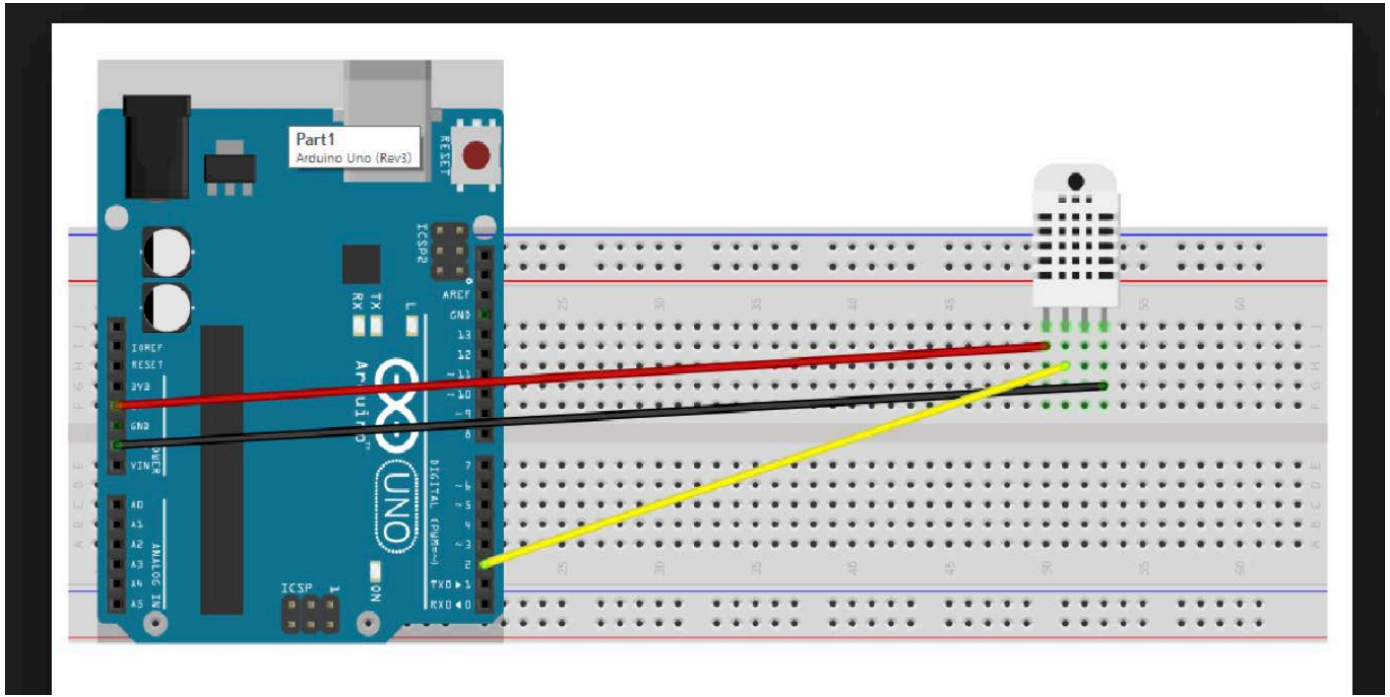
Why Arduino

- It is a de-facto standard.
- Easy to work with.
- Are referenced to by all producers of MCU’s and sensors.
- IDE (Big word for small program) works for most other MCU’s

The Arduino IDE

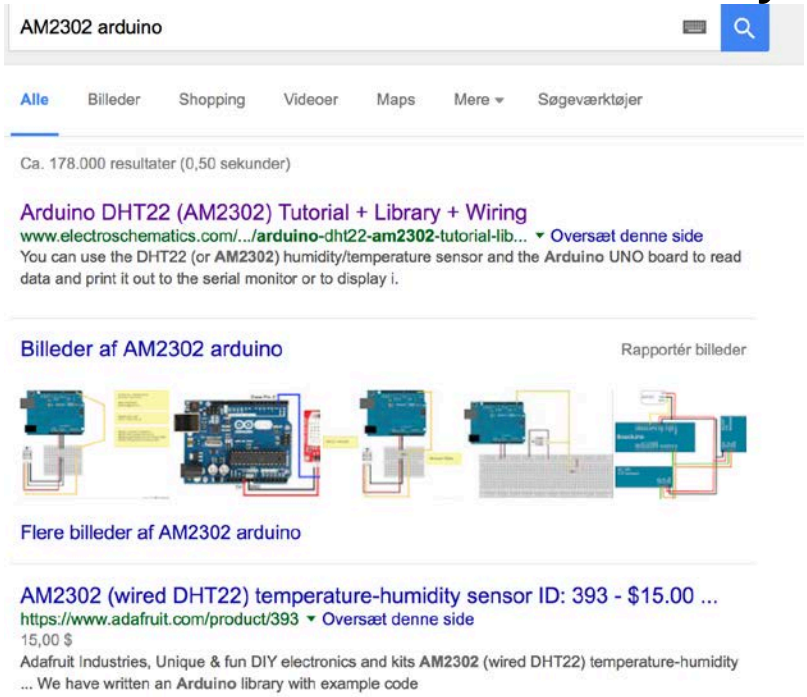


How to connect a sensor?



How to get information?

If the vendor does not have the information you need: Google it!



Sensors

Gas

Color

IR

Hall

Vibrations

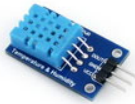
Light

Moisture

Twist

Sound

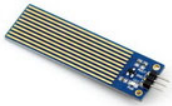
Temp/Humidity



Tilt

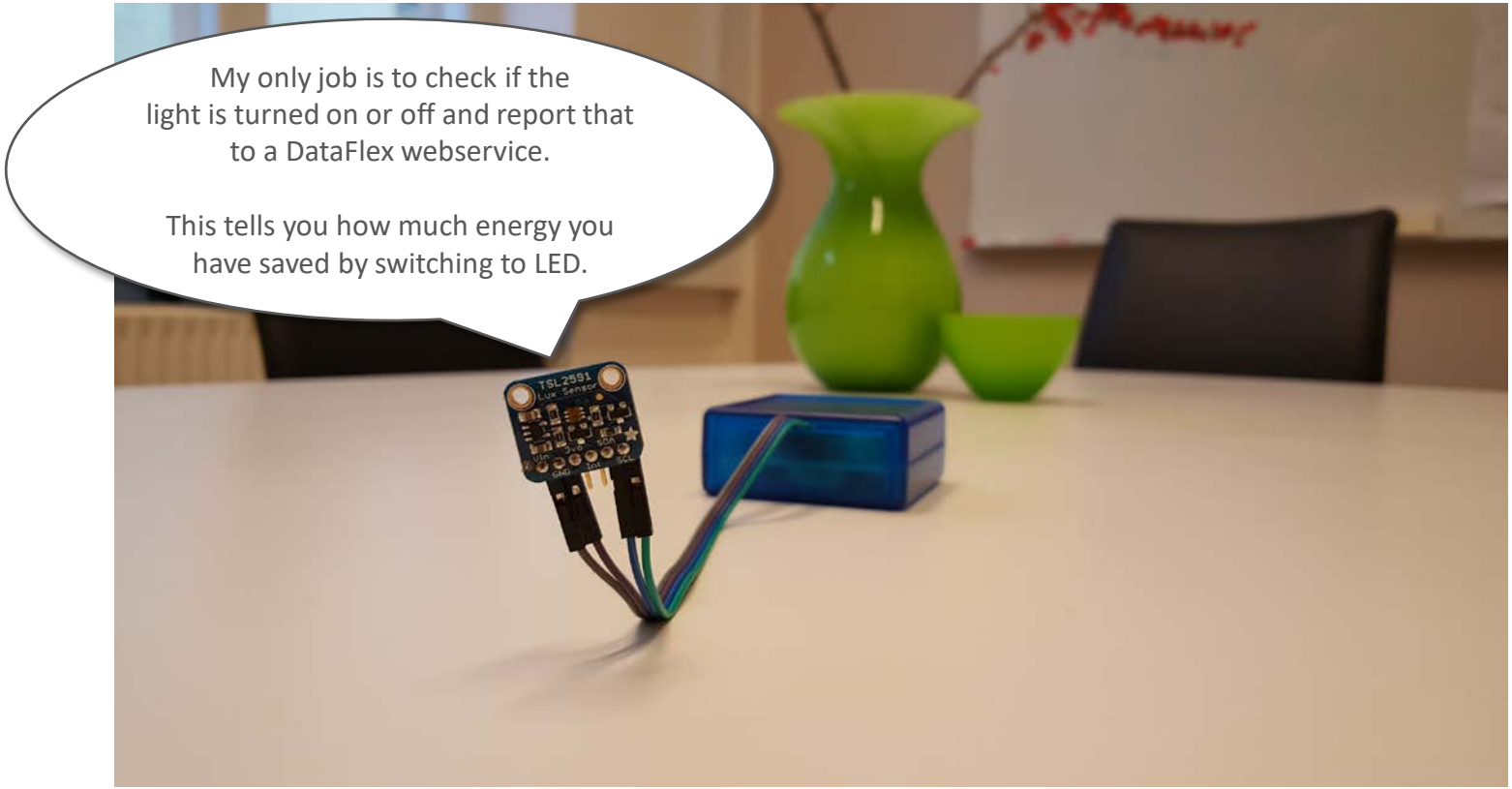
Laser

Water level



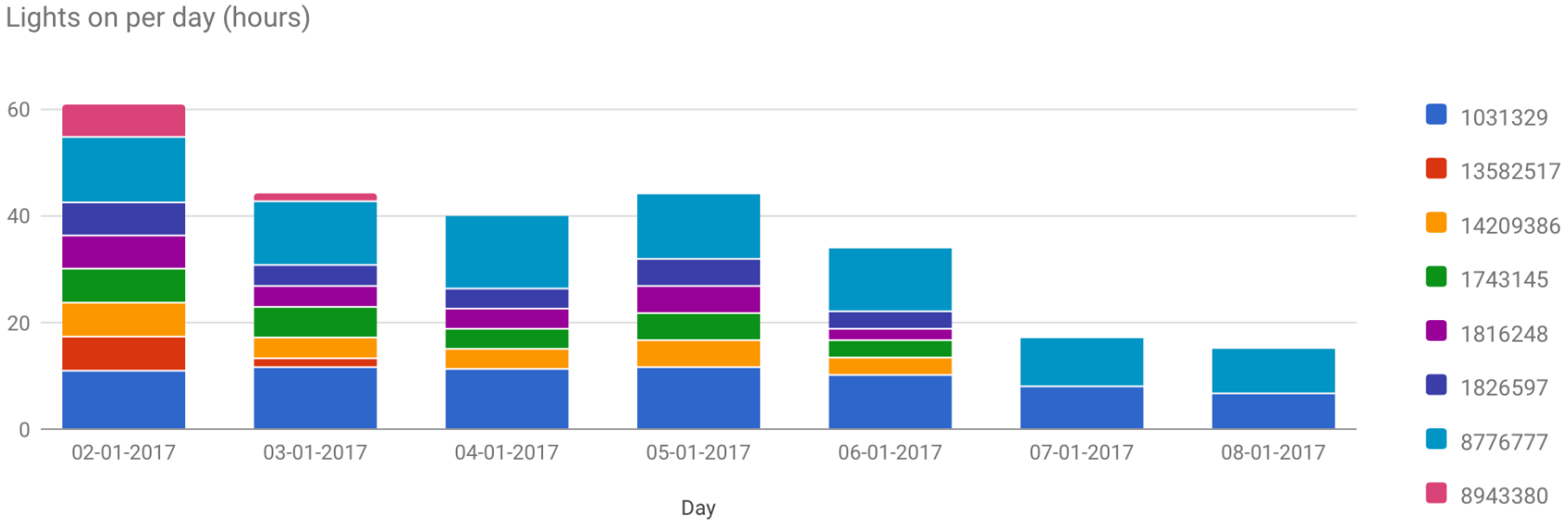
and many more…

A business case - Light



Presenting data

From 02-01-2017 To 08-01-2017 Show



State of IoT business today

MCU's and Sensors

State of IoT business today

MCU's and Sensors

IoT Infrastructure

State of IoT business today

MCU's and Sensors

Solutions ??

That's us

(Void)

IoT Infrastructure

Usefull links

- https://www.arduino.cc
- http://www.esp8266.com
- https://www.adafruit.com
- https://www.sparkfun.com