FLUKSO

Introducing the FluksoKube

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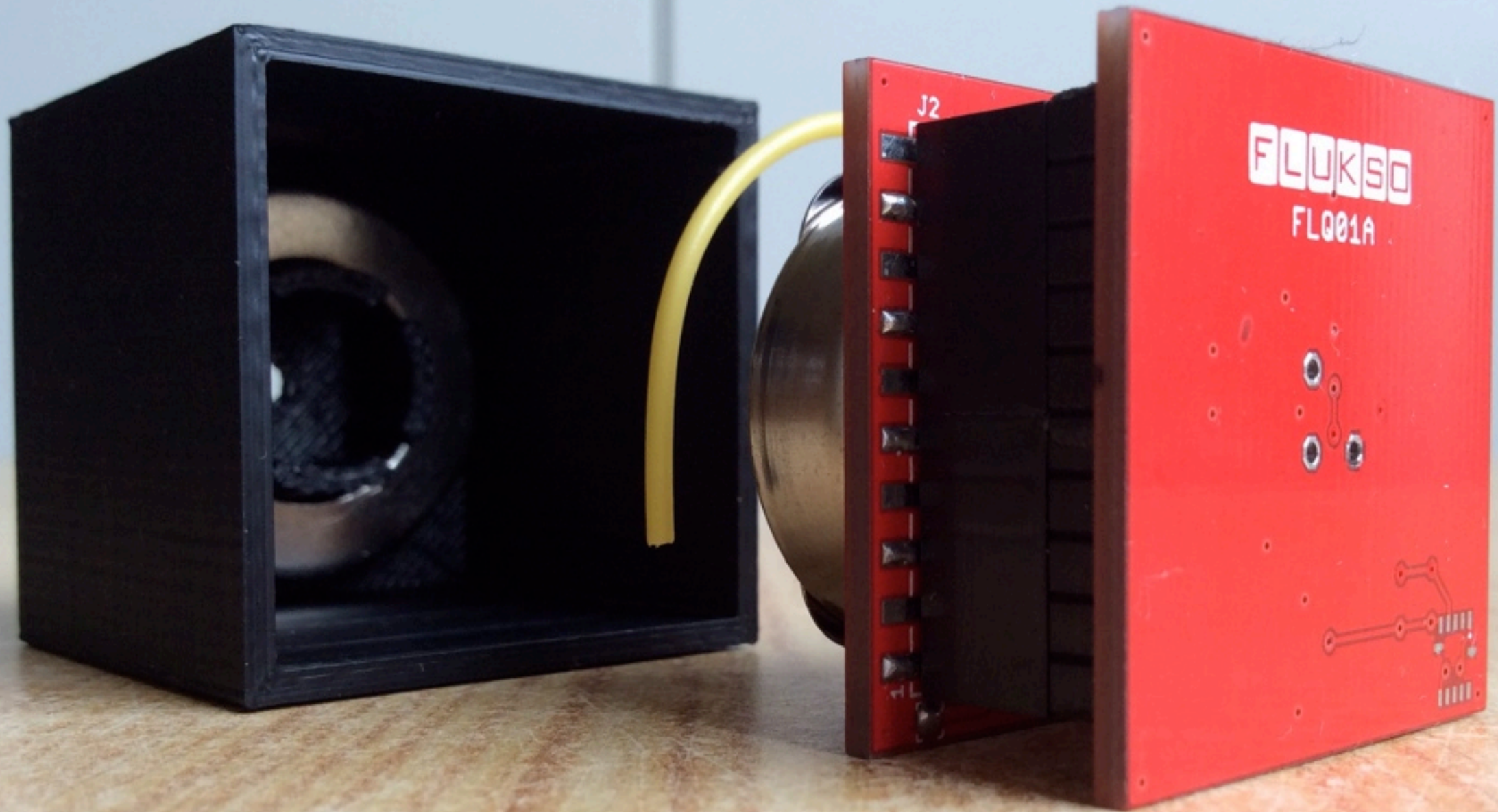
EC1404


FLUKSO
FLQ01A


J2
FLUKSO
FLQ01A

OpenSCAD – kube.scad

```
/*
    kube.scad - OpenSCAD code generating the Fluksokube enclosure

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*/

$fn = 100; /* number of facets per circle */

/*
    _h = height
    _w = width
    _r = radius
    _g = gap
    _t = tolerance
    _s = scaling factor (printer specific)
*/

dim_s = 1;
dim_s = 1.015; /* makerbot */
kube_s = [dim_s, dim_s, dim_s];

magnet_h = 5;
magnet_t = 0.1;
magnet_r = 8 - magnet_t; /* inner diameter now! */

flk_h = 23.5;
flk_t = 0.2;
flk_w = 30.5 + 2*flk_t;

wall_w = 1.5;
outer_w = flk_w + 2*wall_w;

support_h = outer_w - wall_w - flk_h;
support_r = magnet_r;
support_w = 1.5;
support_g = 3;

ring_h = support_h - magnet_h;
ring_t = 0.2;
ring_inner_r = support_r + ring_t;
ring_outer_r = ring_inner_r + 2;

snap_w = 0.4;
snap_t = 0.4;
snap_h = support_h - magnet_h - snap_w - snap_t;
snap_r = support_r + snap_w;

hole_r = 1.5;
```
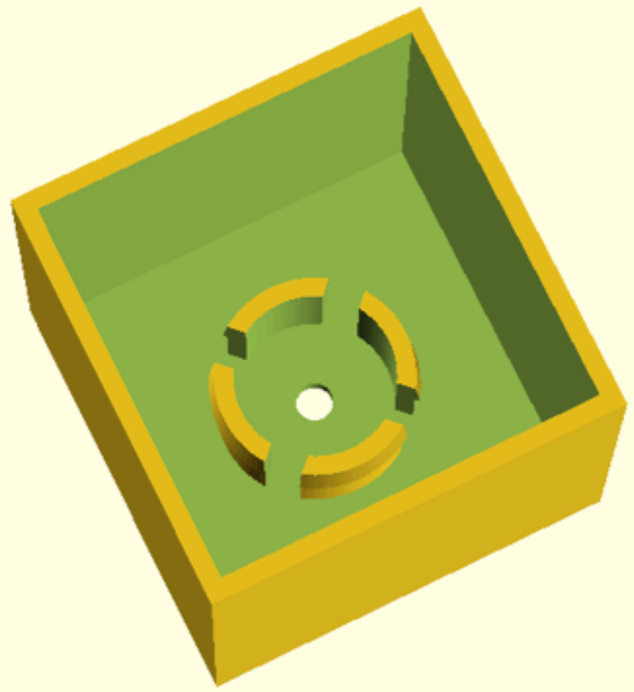
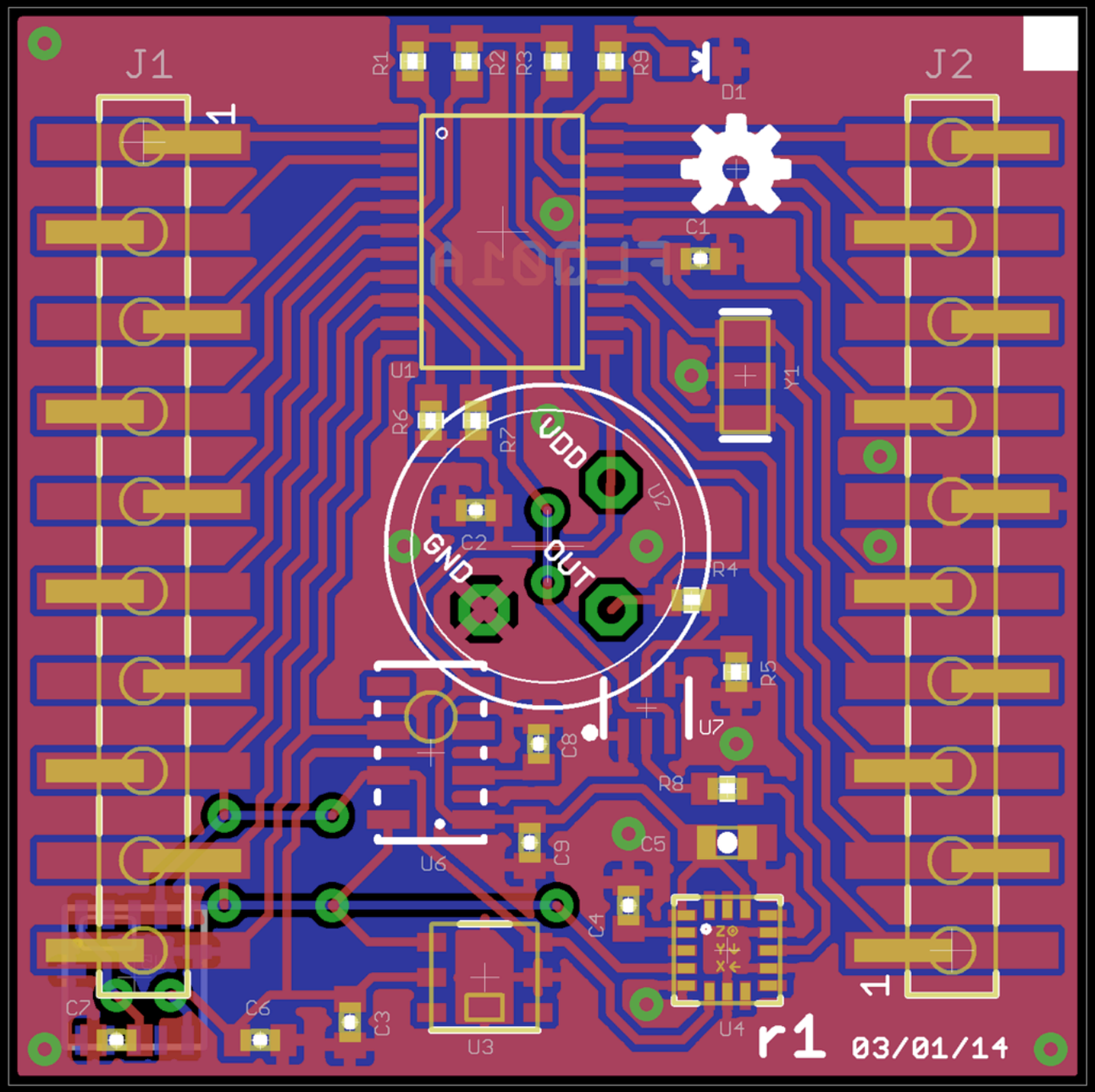



```
ECHO: "ring height", "=", 3.9
ECHO: "ring inner diameter", "=", 16.2
ECHO: "ring outer diameter", "=", 20.2
ECHO: "************************"
Rendering Polygon Mesh using CGAL...
PolySets in cache: 0
PolySet cache size in bytes: 0
CGAL Polyhedrons in cache: 24
CGAL cache size in bytes: 12636928
  Top level object is a 3D object:
  Simple:        yes
  Valid:         yes
  Vertices:     1084
  Halfedges:    3688
  Edges:        1844
  Halffacets:   1550
  Facets:        775
  Volumes:         6
Total rendering time: 0 hours, 0 minutes, 53 seconds
Rendering finished.
```

Viewport: translate = [17.30 10.34 -6.58], rotate = [13.70 0.00 153.80], distance = 442.17



- ARM Cortex M0+
- movement detection
- ambient light
- temperature
- humidity
- barometer
- accelerometer

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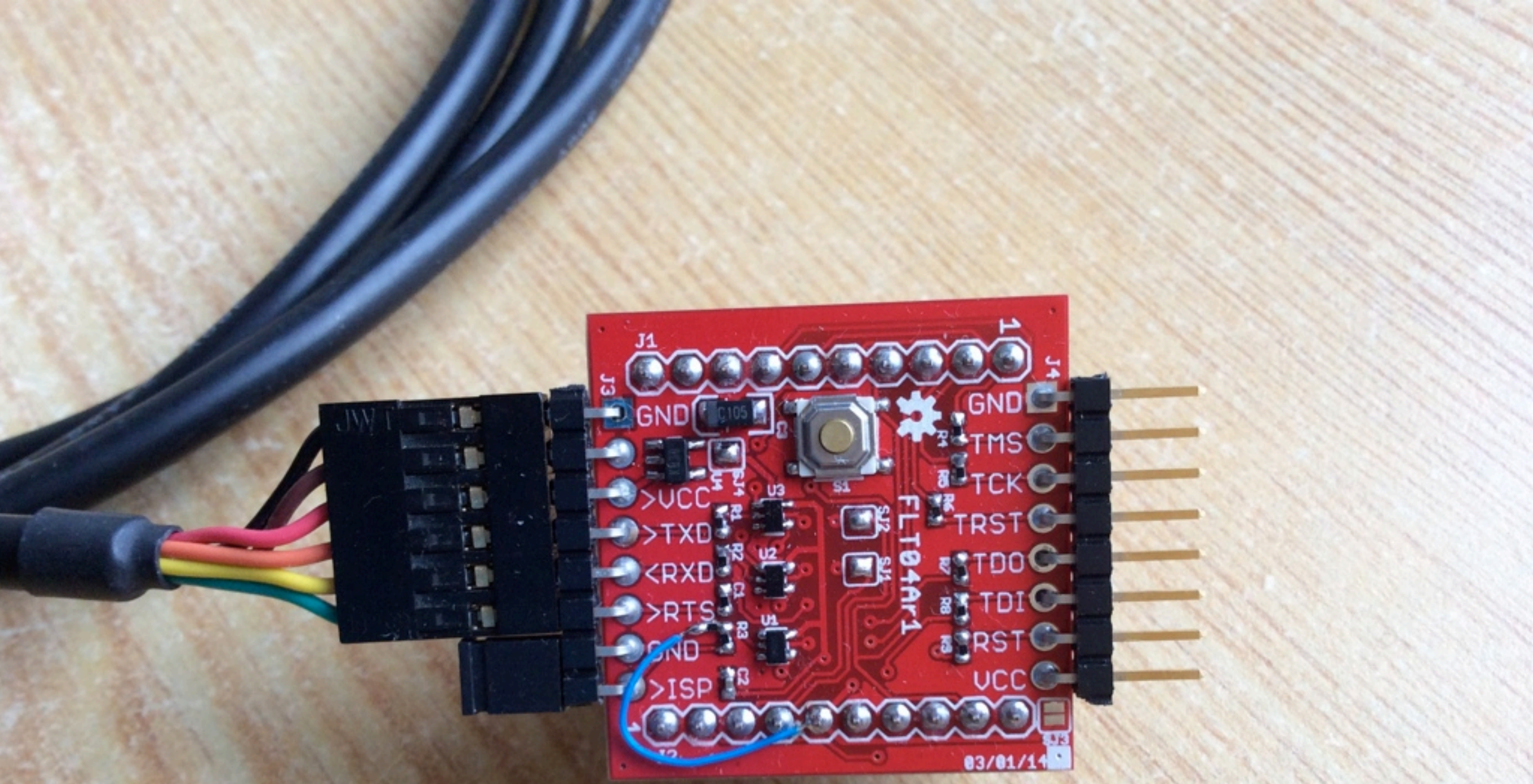
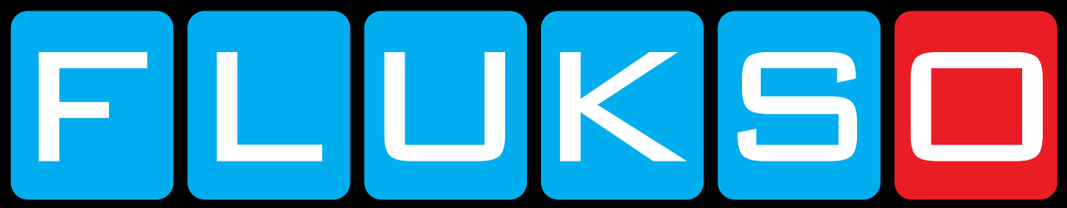
_INTERNALS


J1
J4
J3
GND
>VCC
>TXD
<RXD
>RTS
GND
>ISP
GND
TMS
TCK
TRST
TDO
TDI
RST
VCC
S1
U3
U2
U1
FLT04Ar1
03/01/14


ridaens
Maandag 6 januari 2014
Eerste trimester
DATA RAPPORTEN
26/09
17/10
EERSTE GRAAD
OUDERCONTACT
ONTVANGSTBEWIJS
1/98025/49/004
TALLOEN (HUIS
Datum :
Gaadpleging – Bezoek (2)
Datum 24.12.13 Nomenclatuur nr.:
Andere verstrekkingen (2)
Datum van de verstrekking
Nummer v. d. nomenclatuur
Voorbehouden aan V.I.
Datum van de verstrekking
Voorgeschreven door :
op datum van :
R.I.Z.I.V. - identificatienummer van de voorschrijver :
Laboratorium of apparatuur of dienst erkend onder nummer :
Datum van ontvangst van het voorschrift
Patiënt is gehospitaliseerd / ambulant (1) :
Nummer van de instelling :
Dienst :
(1) Schrappen wat niet past.
(2) De niet gebruikte vakken doorhalen.
Identificatie van de verstrekker :



The Fluksometer as a Telemetry Hub

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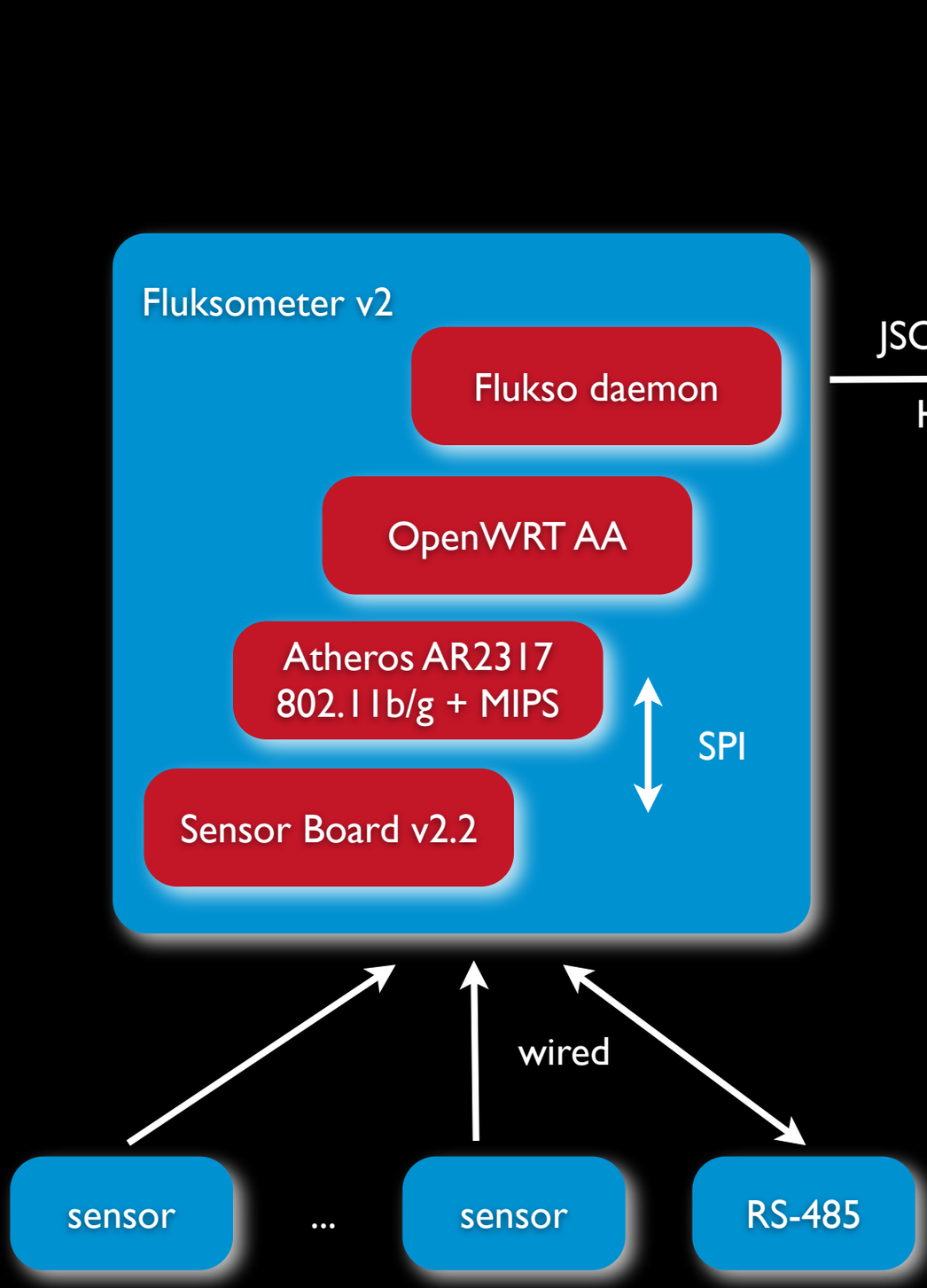
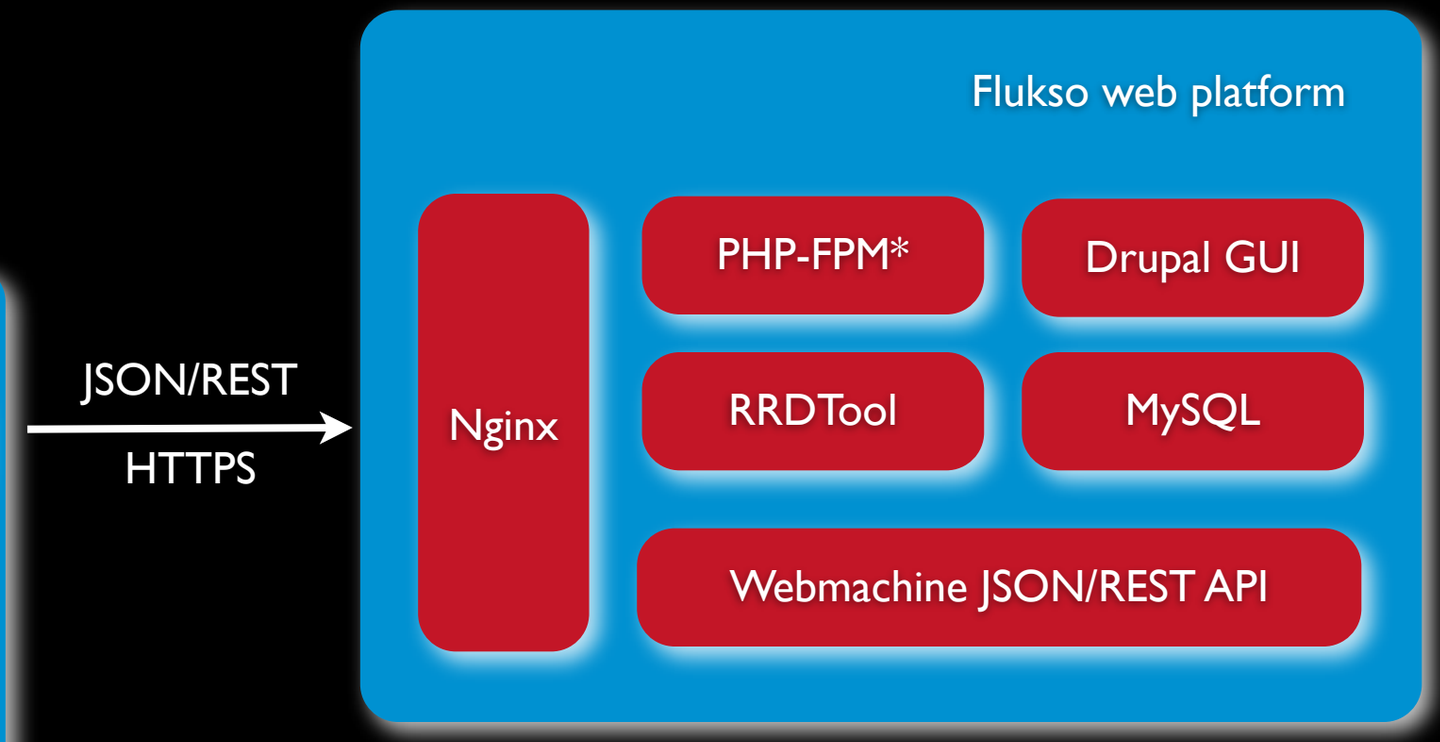
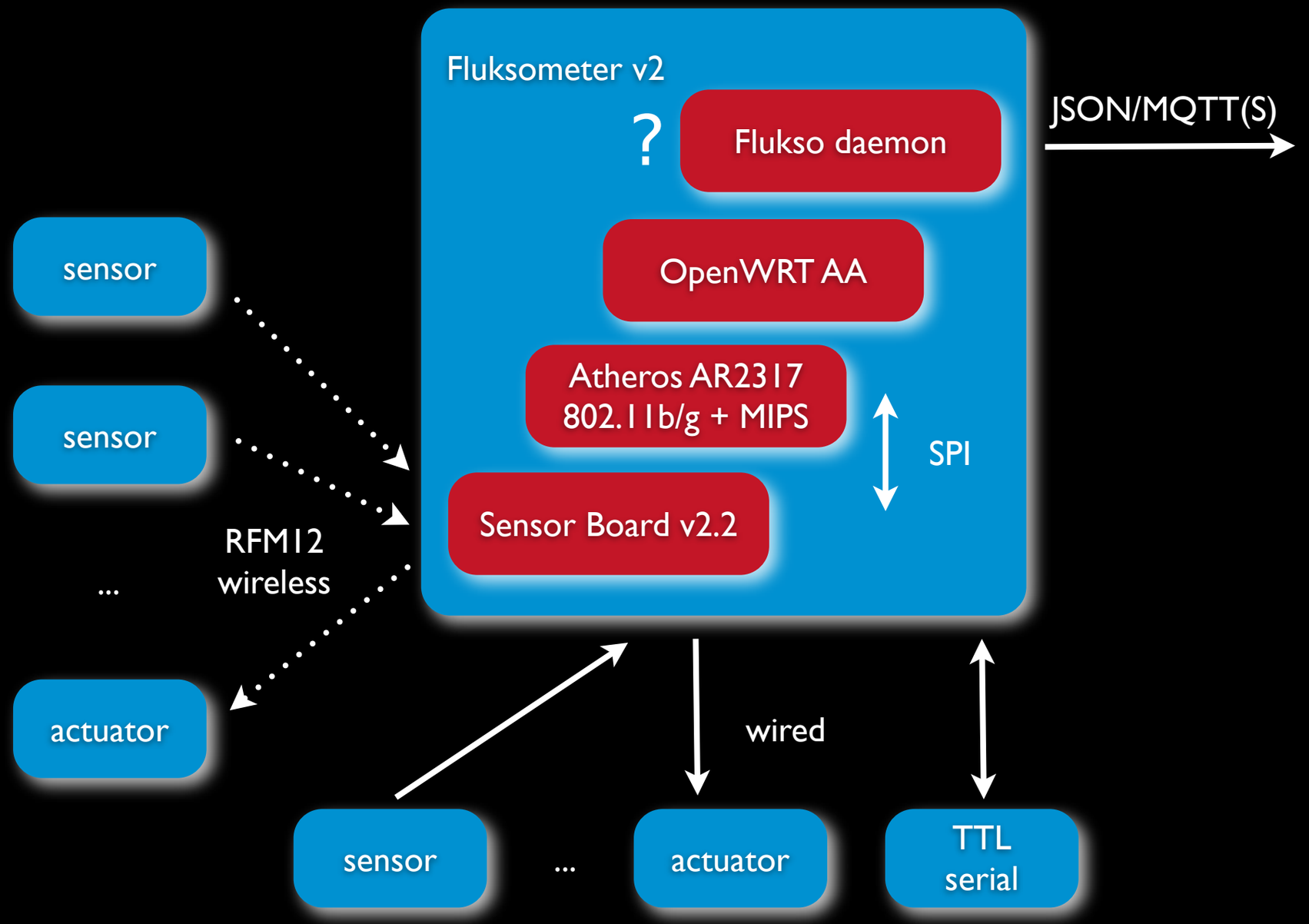
EC1404


Kamstrup
KA6U001526681711
KAMSTRUP 162JxC
686-18A-J2-C3-081
Sn: 15266817
230V
0.25-5(85)A
LED: 1000 imp/kWh
Klasse: A
-40 - +70°C
2011W 2
50/60 Hz
EN 50470-1/3
T10097
M11 0200
KA6U001526681711
KA6U001526681711



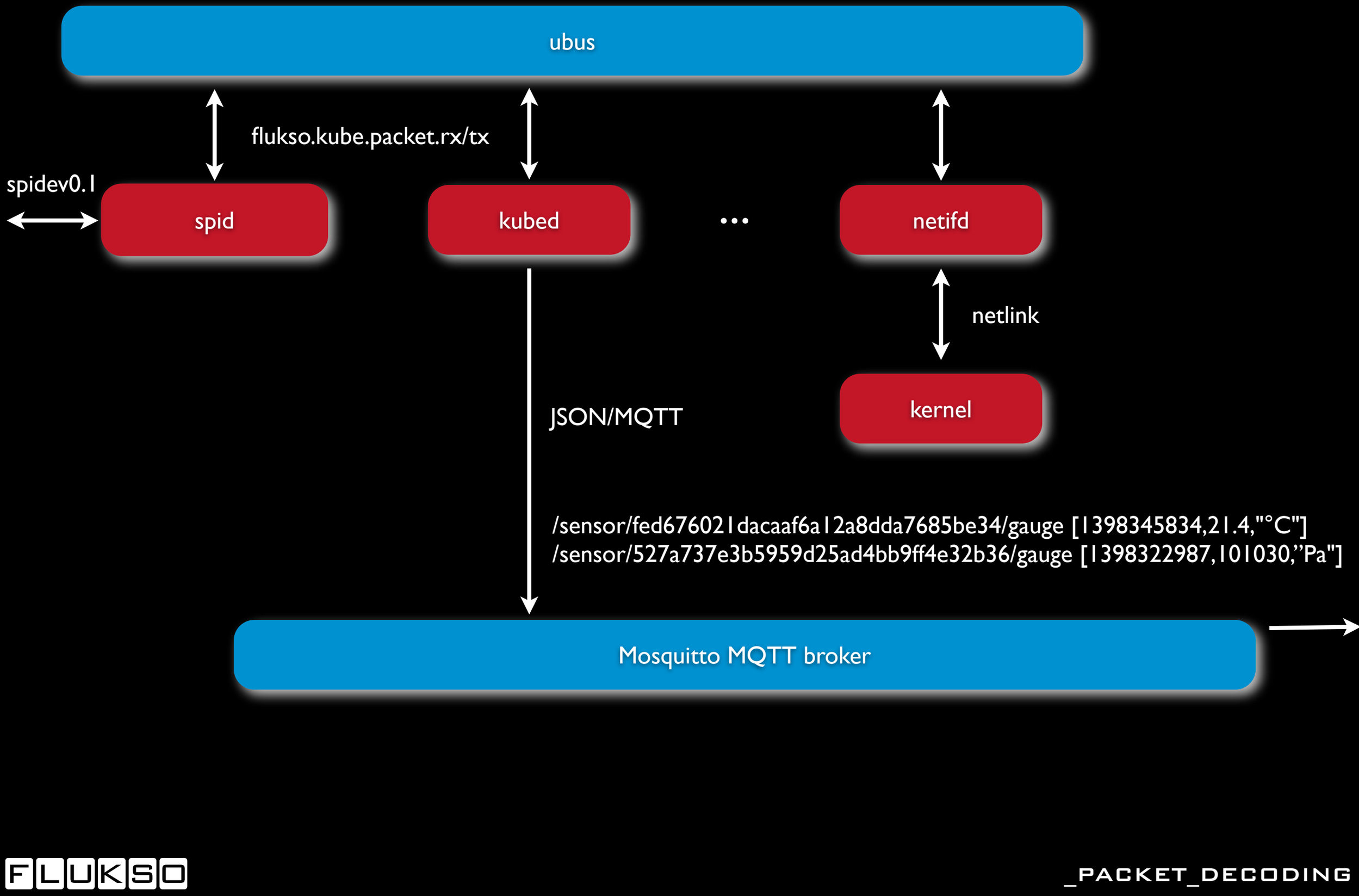


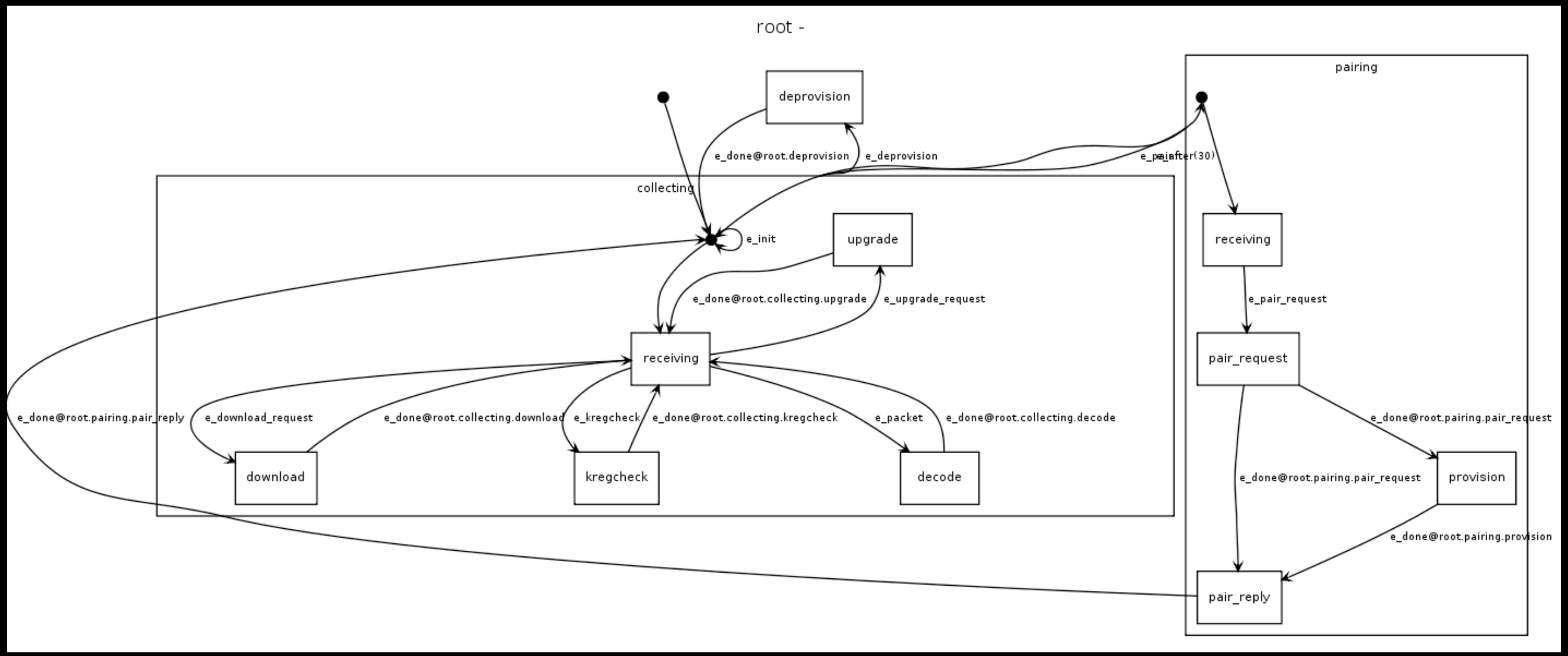
* FastCGI Process Manager


Fluksometer v2
?
Flukso daemon
JSON/MQTT(S)
OpenWRT AA
Atheros AR2317
802.11b/g + MIPS
SPI
Sensor Board v2.2
sensor
sensor
...
RFM12
wireless
actuator
wired
sensor
...
actuator
TTL
serial

- pairing with Fluksometer + auto-provisioning of sensors
- over-the-air firmware upgrades
- packet descriptions in JSON format
- kubed packet decoding/encoding based on packet description
- sensor readings published to embedded MQTT broker (Mosquitto) on FLM

ubus send flukso.kube.packet.rx '{"hex": "d410048b540f01d259"}'




root -
deprovision
e_done@root.deprovision
e_deprovision
collecting
e_init
upgrade
e_done@root.collecting.upgrade
e_upgrade_request
receiving
e_done@root.pairing.pair_reply
e_download_request
e_done@root.collecting.download
e_kregcheck
e_done@root.collecting.kregcheck
e_packet
e_done@root.collecting.decode
download
kregcheck
decode
pairing
e_pair
after(30)
receiving
e_pair_request
pair_request
e_done@root.pairing.pair_request
e_done@root.pairing.pair_request
provision
e_done@root.pairing.provision
pair_reply

```
{
"513": {
    "description": "Roomnode",
    "controller": "Atmega328p",
    "radio": "RFM12B",
    "1" : {
        "decode": {
            "type_bits": 0,
            "4": "< light:u1 [1| humidity:u7 motion:b1] [2| x5 low_battery:b1 temperature:i10]",
            "sensors": {
                "light": {
                    "unit": "",
                    "data_type": "gauge"
                },
                "humidity": {
                    "unit": "%",
                    "data_type": "gauge"
                },
                "motion": {
                    "unit": "",
                    "data_type": "gauge"
                },
                "low_battery": {
                    "unit": "",
                    "data_type": "gauge"
                },
                "temperature": {
                    "scale": "x/10",
                    "unit": "°C",
                    "data_type": "gauge"
                }
            }
        },
        "encode": {
        }
    }
},
}
```

- repo: https://github.com/flukso/kube
- forum: www.flukso.net/forum
- dev mailing list: flukso-dev-join@lists.flukso.net
- freenode: #flukso