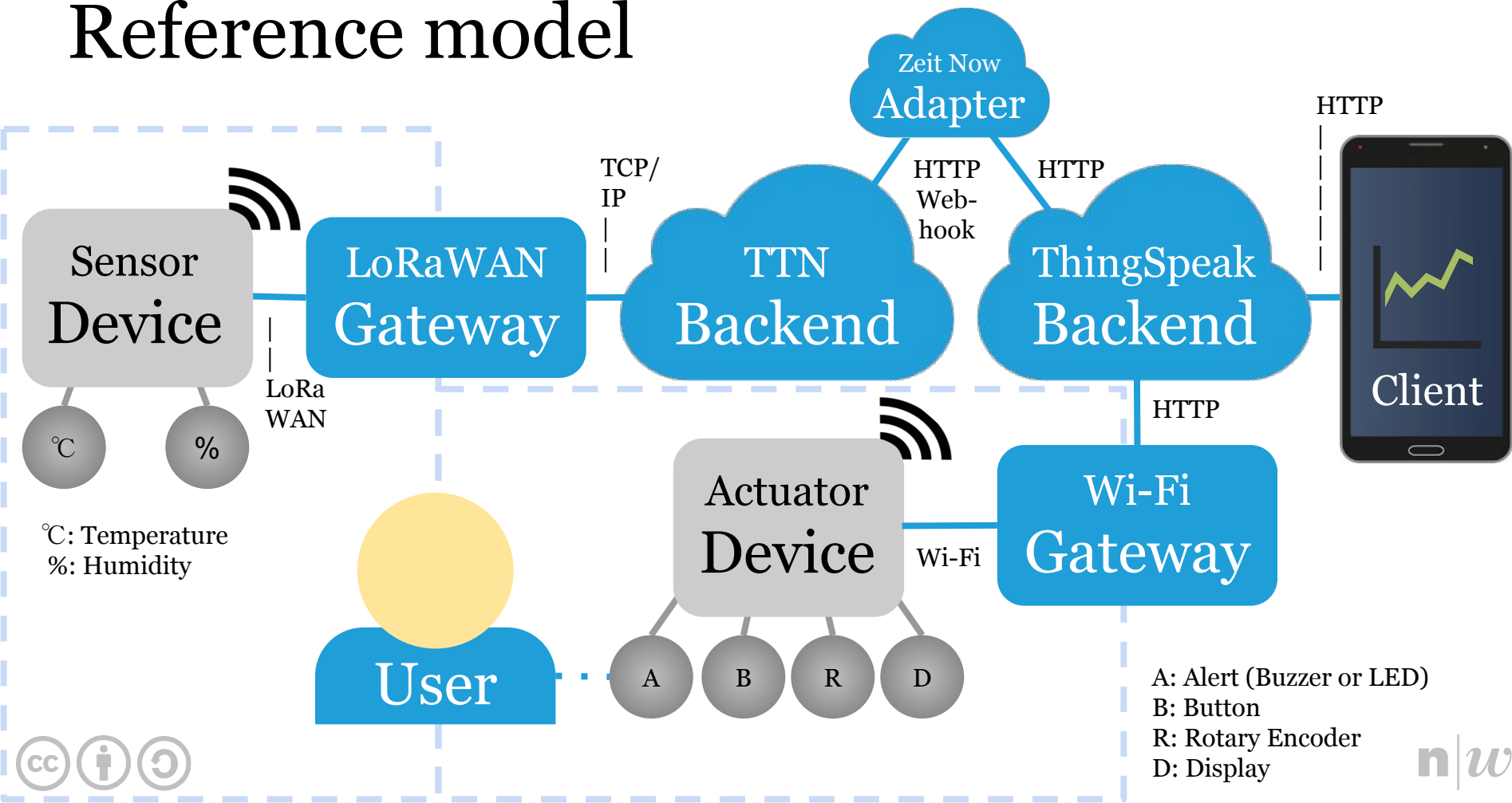


IoT Engineering Project Example

CC BY-SA, Thomas Amberg, FHNW
(unless noted otherwise)

Reference model



Use cases

Measure temperature and humidity.

Display (historic) measurements.

Set a temperature or humidity alarm threshold.

Get a temperature or humidity alarm.

Confirm an alarm.

Why? "Cellar is too humid", "Oven is ready", ...

Interface documentation

HTTP API to write to ThingSpeak

```
$ curl -vX POST  
https://api.thingspeak.com/update --data  
'key=WRITE_API_KEY&field1=23&field2=42'
```

MQTT API to read from ThingSpeak

```
$ mqtt sub -t 'channels/CHANNEL_ID/subscribe/  
json/READ_API_KEY' -h 'mqtt.thingspeak.com' -u  
'DEVICE_ID' -P 'MQTT_API_KEY' -p 1883 -q 0
```

Issues

ESP8266 programming works *without* adapter only.
Pin collision, D5 used by *both*, DHT11 and RFM95W.
Connecting to ThingSpeak MQTT API, -u, -P, QoS 0.
Getting the state machine right on actuator device.

For details, see [issues on GitHub](#).