# WellBean

## IoT Project to Track Workplace Quality

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# Logo

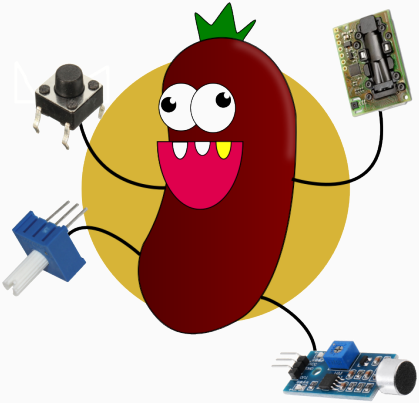

**Figure 1:** The Official WellBean Logo (Designed by Pascal Kiser)

# Idea

- Monitor and Assess Workplace Quality Parameters (Subjective and Objective)
  - $CO_2$ Concentration (ppm)
  - Temperature (°C)
  - Humidity (%)
  - Interruptions
  - Subjective Well Being (1..100)
- Collect and Visualize Data to Gain Insight

# Architecture

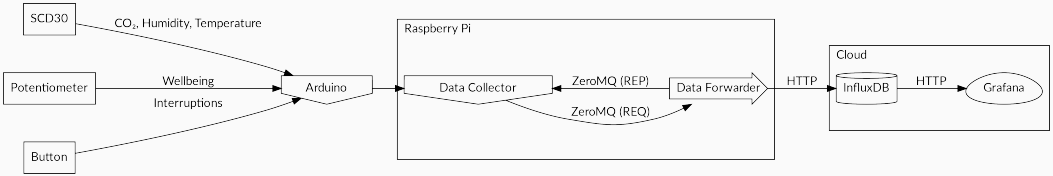


**Figure 2:** The Architecture of WellBean

# Sensors

Example Configuration:

1. SCD30: $CO_2$, Humidity, Temperature
2. Potentiometer: Subjective Well Beeing
3. Button: Interruptions

The system can handle any combination of sensors.

# Protocol

Arduino to Raspberry Pi (UART):

```
key=value,key=value,key=value
```

For example:

```
co2=1024,temp=25.49,humid=47.39,interrupt=0,wellbeing=7
```

Measured every 2 seconds (interrupt either happened or not)

# Processing

1. Data Collector
   1.1 String is Parsed into Python Dictionary
   1.2 Dictionary is «Pickled» and Sent over ZeroMQ Socket as a Message
2. Data Forwarder
   2.1 Message is Received and «Unpickled» into a Dictionary
   2.2 Dictionary is Converted into JSON
   2.3 JSON is Sent to InfluxDB

Using a publish-subscribe pattern (instead of request-response) allows to combine `m` collectors with `n` forwarders.

# Visualization

Grafana (Live Demo)