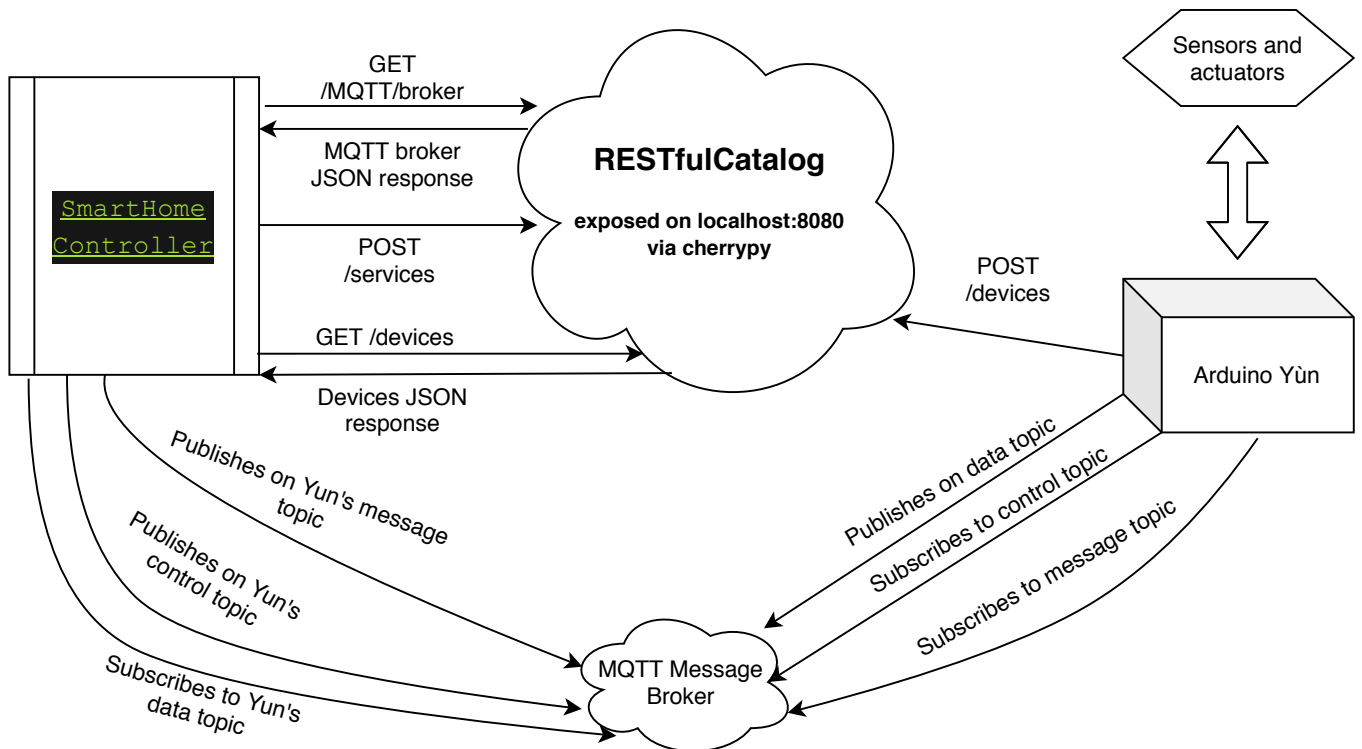# GENERAL COMMUNICATION SCHEMA

Upon inizialization the Smart Home Controller Client (SHCC) fetches the address and port of the MQTT broker used by the system, registers to the catalog as a service and fetches the Arduino's MQTT topics to which it will publish or subscribe after the connection to the broker.

Similarly the Arduino registers to the catalog as a devices, connects to the MQTT broker and starts reading data from the sensors, publishing them on the data topic. It also subscribe to the control topic and the message topic

Both Arduino Yun and the Smart Home Controller client periodically refresh their registration to the RESTful catalog.

DATA FORMATS

JSON data published on MQTT topics is formatted according to the **SenMl** both by the SHCC and the Arduino.

```
{
    "bn":"Yun"/"shcc",
    "e":[
            {
                "n":"temperature"/"presence"/"fan"/"heater",
                "t":0,
                "v":0,
                "u":"Cel"/null
            }
        ]
}
```

Presence is expressed through 0 or 1 without unit of measure while temperaure is represented through a signed float and its unit is Celsius degrees.

Data sent by the SHCC (fan and heater data) are in range [0, 255] and correspond to the value to be written to the Arduino's PWM pins.