Akka Smart Home System

Overview

Smart Home system developed with akka

- The user send it preference through the Panel
- The Panel send the preference to SmartHome
- SmartHome handle the requests and forward them to the relative Room
- The Room handle each request, sending it to the correct appliance
- Both the Rooms and the appliance can fail without problem

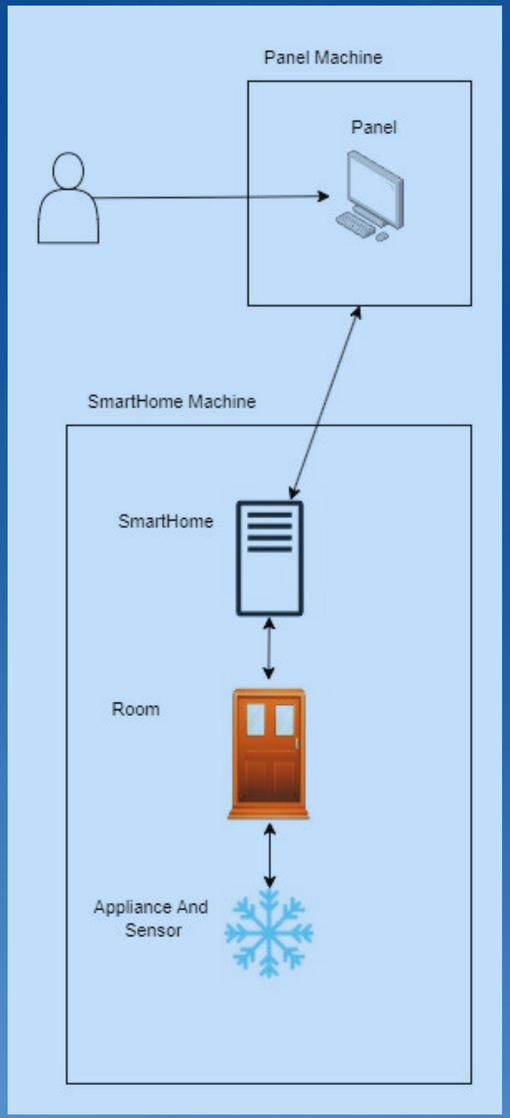
Why Akka

- Panel, SmartHome, Room, Sensor and Appliance can be seen as Actors
- Easy way to implement communiation
- Help to handle faults
- Easy to configure and distribute

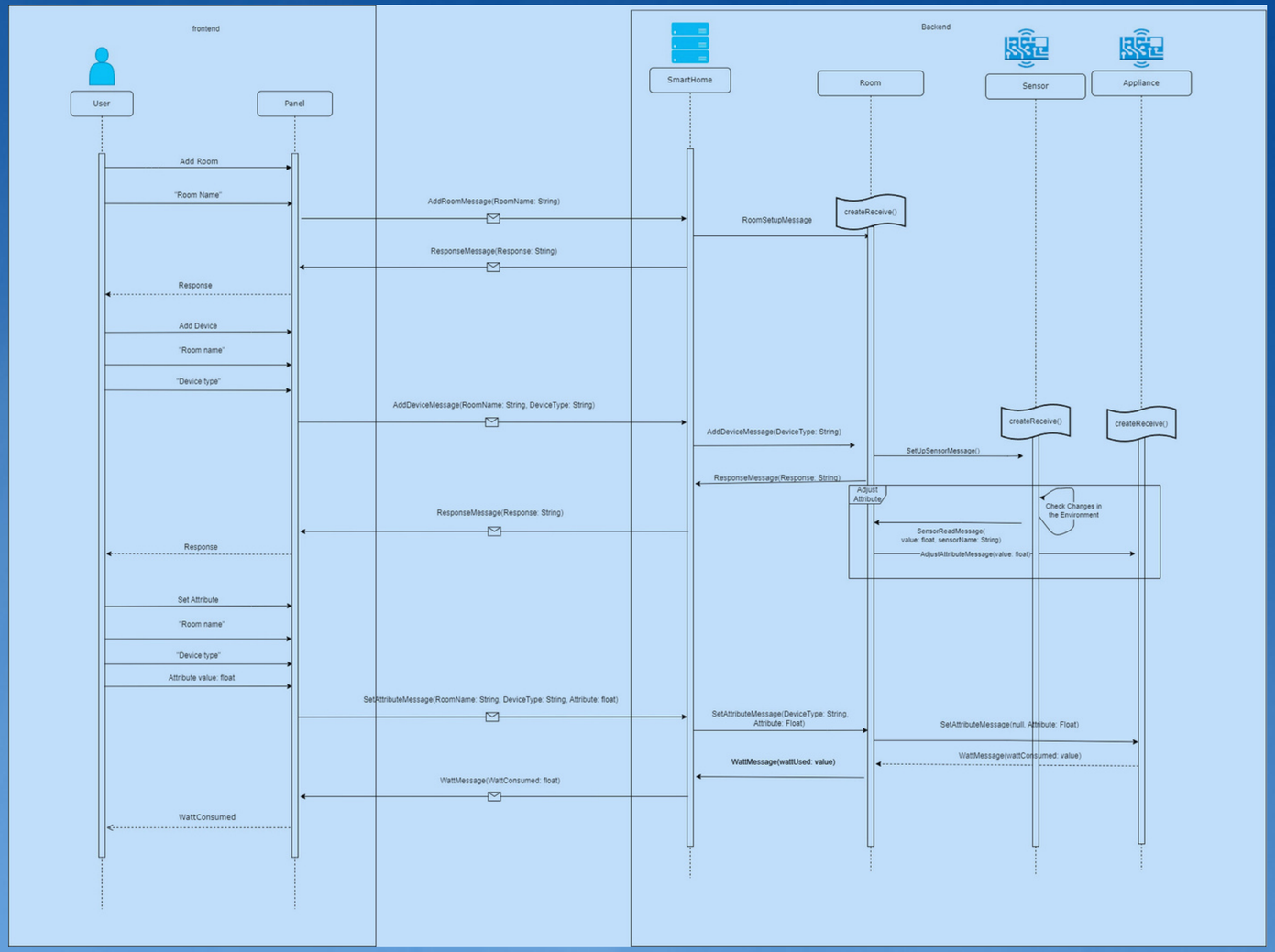
Assumptions

Only the Panel and the server that receive the command are configured to work in a distributed setting

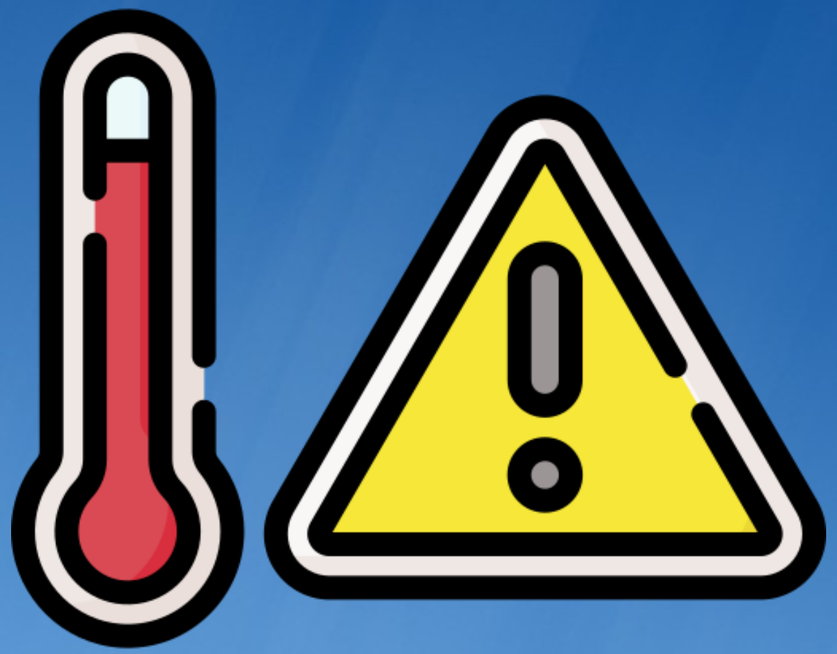
All the appliances and the sensors are simulated on the same machine of the SmartHome



Interactions



Operational Time



The Appliance come and go from the system simulating an overheat. When to hot the applience discard the messages

After a while it become cold and restart to operate normally

This is implemented using become(), a method that allow the Actor to change their behaviour

Fault tollerance

Both Rooms and Appliances can fail

When a Room fail its supervisor (SmartHome) apply a resume Supervision Strategy to recover its state

When an Appliance fail it works the same, but in this case the supervisor is the Room where it is located

The SupervisionStrategy is of the type OneForOne, meaning that only the failed Actor is affected