Ambient Assisted Living - Phase 2 – Task for Implementation and Guidelines (v1, 18 Feb 2020)

In the second phase of this assignment, you are tasked to create an implementation of your architecture for the Ambient Assisted Living case (see Case Description).

The main objectives of this phase are:

- to learn to use the architecture design as part of the implementation
- to learn to monitor that the implementation follows the architecture
- to keep the architecture description and the implementation consistent ('in sych') - while sometimes insight from the implementation require updates to the architecture description.
- to get practical experience in implementing architectural styles and patterns

For practical reasons, we will not actually create an actual house or use actual sensors and people. Instead, you are asked to create mockups for the following:

- A component (implemented as a separate process) that 'simulates' one (or more) person(s): this/these person(s) 'walks' around in a virtual house.
  This process should generate data for movement, heart-rate, steps and glucose levels.
- A component (implemented as a separate process) that simulates a 'smoke sensor' and e.g. randomly, but rarely indicates that it senses smoke.
- a component (implemented as a separate process) that simulates the status of windows and doors
- A component (implemented as a separate process) that implements a dashboard – this process may be deployed on a laptop/desktop or on a mobile phone device.
- A component (implemented as a separate process) that simulates 'face recognition'; i.e. it does not contain any image processing algorithms, but can be asked to produce a 'name' or 'identify' of a person in front of a camera.
- A component (implemented as a separate process) that implements the photo-carousel; i.e. uploading of photos by external parties should be supported
- A component (implemented as a separate process) that is responsible for executing composite logic. You may define your own concrete syntax for scripts (see main assignment text under (7)).
- A component (implemented as a separate process) that 'simulates' security – in particular, authentication services

A mock-up simulates the functionality of a component (e.g. produces data / responses to requests) without actually implementing the algorithms that are needed to compute the output.

The software components must be deployed on at least 3 different compute nodes.

In your documentation, please document key information about the design, such as API's and data-structures and MQTT-'topics' that you have designed.