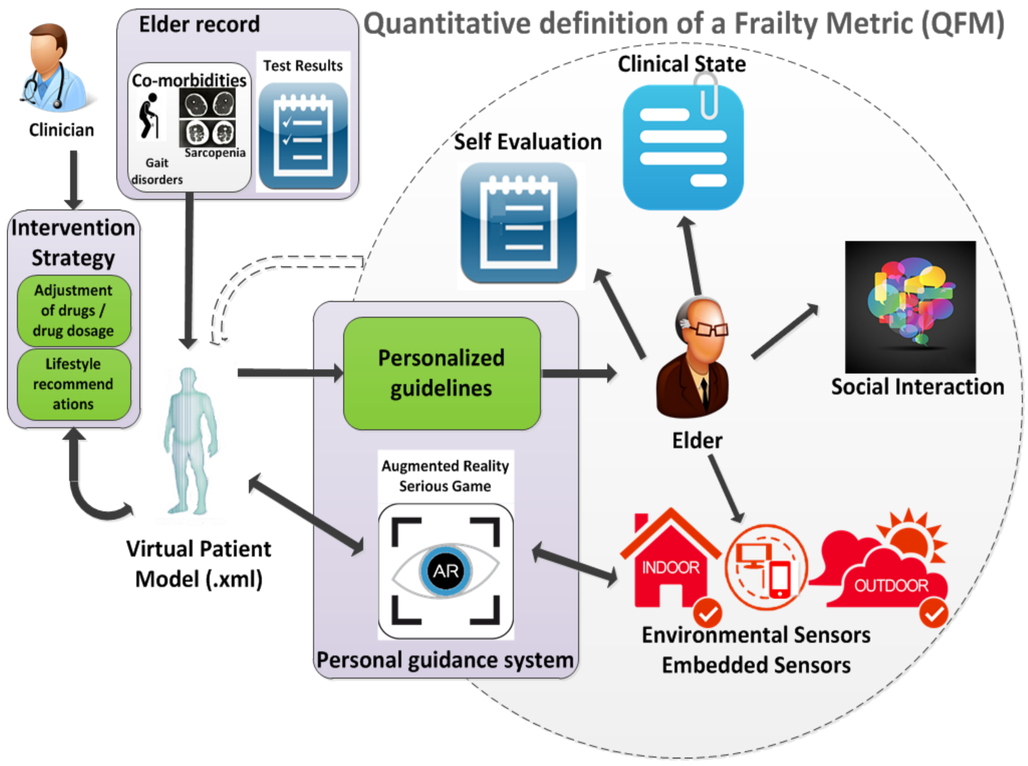
frailsafe

Frailty is "*a syndrome characterized by diminished strength, endurance and reduced physiologic function that increase an individual's vulnerability for developing increased dependency, and/or death"*. Dynamic and not an irreversible process; it seems preventable, may be delayed or reversed.



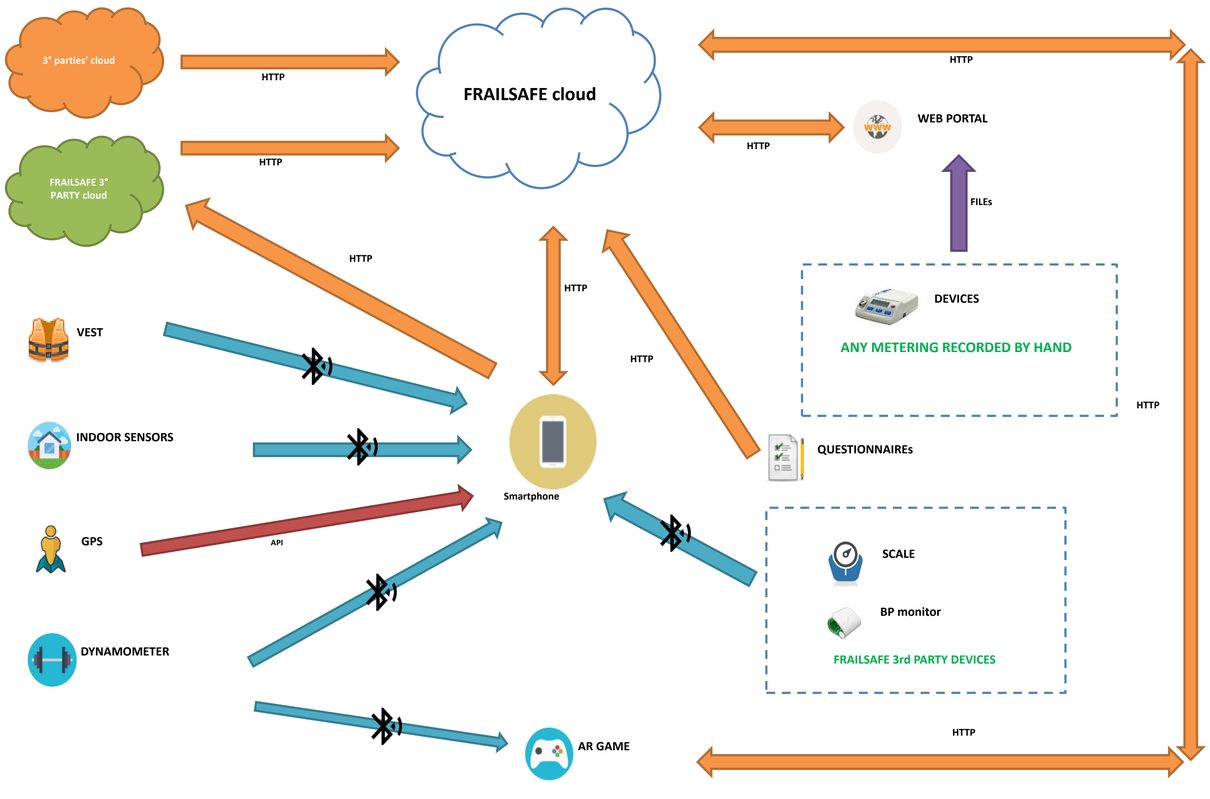
FrailSafe will sense both physiological and behavioural parameters of the individual in an unobtrusive manner both in indoors and in outdoors. It will employ a combination of existing unobtrusive body-worn and ambient sensors and, novel sensing mechanisms for monitoring a multitude of physiological, behavioural and lifestyle data driven by the practicality of using such sensors with older people.

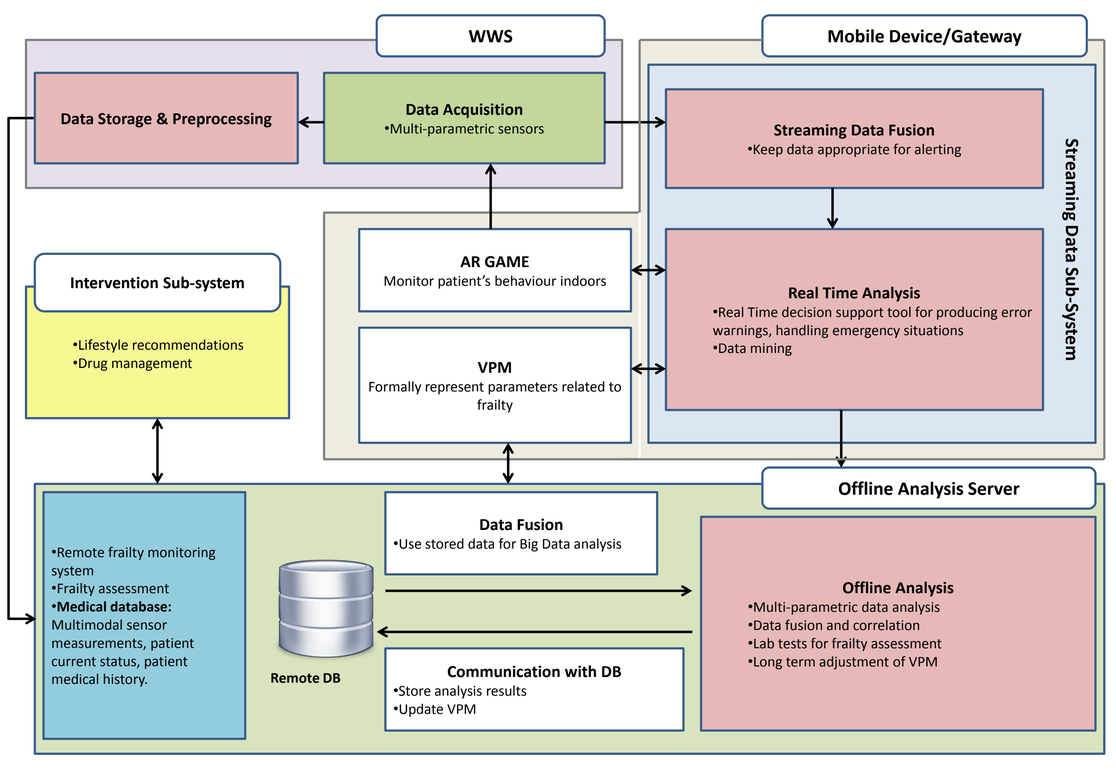
Based on the assessment of physiological reserve and external challenges, i.e., state of an elder at a specific time, a specific intervention strategy will be adopted based on a pool of potential interventions carefully designed by sociologists and healthcare professionals and implemented in the context of the proposed project. Thus, commitment and compliance to the intervention will be by definition guaranteed since the user will do nothing more than typical everyday activities, while **FrailSafe** will take over the dynamic development of a serious game based on the real world interactions of the user.

Development of a personalized, predictive, physiological and environment-aware virtual patient model will be performed that will help to appreciate and formally represent frailty and aging related disorders including major co-morbidities.

This model will be able (a) to associate the adopted dynamic parameters with ageing related risks and (b) to assess the proximity of an individual's behaviour to the goals set by a supervising health professional. In this process we will estimate, analyze and model the relation of specific co-morbidities emphasizing on gait disorders, social behaviour, sarcopenia and frailty.

System Architecture





FrailSafe will estimate the influence of specific interventions in the users' quality of life, propose metrics to analyse it and evaluate methods for future interventions. The interventions will be through:

- *An augmented reality serious game that will be dynamically synthesized and adapted to the specific individual.*
- *Recommendations using advanced HCI conversational agents regarding lifestyle, daily activity, exercise, nutrition, etc.*
- *Providing assistance to comply with medical recommendation*
- *Adjustment of drugs or drug dosage by the physician based on the objectively measured parameters by **FrailSafe***

Horizon 2020
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