

# Digital Assistance Services for Emergency Situations in Personalized Mobile Healthcare: Smart Space based Approach

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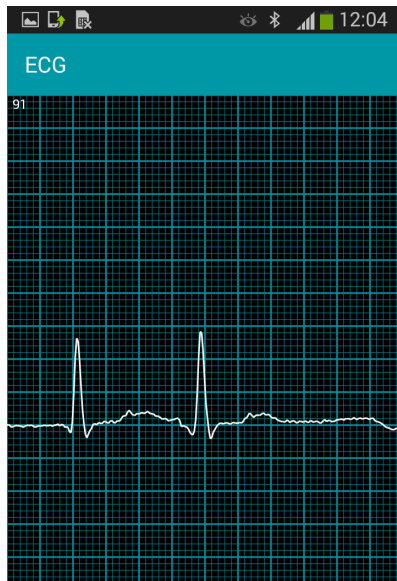
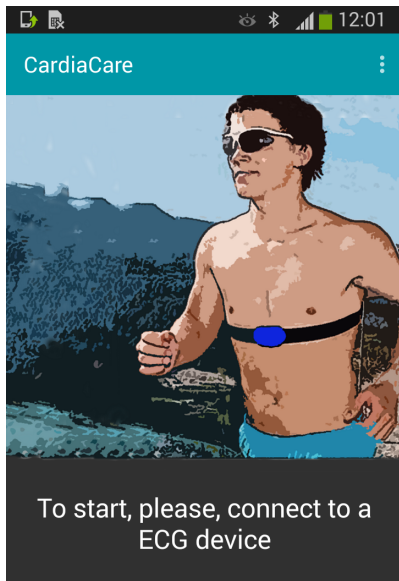
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# Motivation

- IoT + HealthCare market is estimated in \$117 bln. by 2020
- Governmental programs in most developed countries
- Continuous health monitoring and personalized medicine.

# CardiaCare app: an example of continuous health monitoring



Simple continuous health monitoring is useful, as well



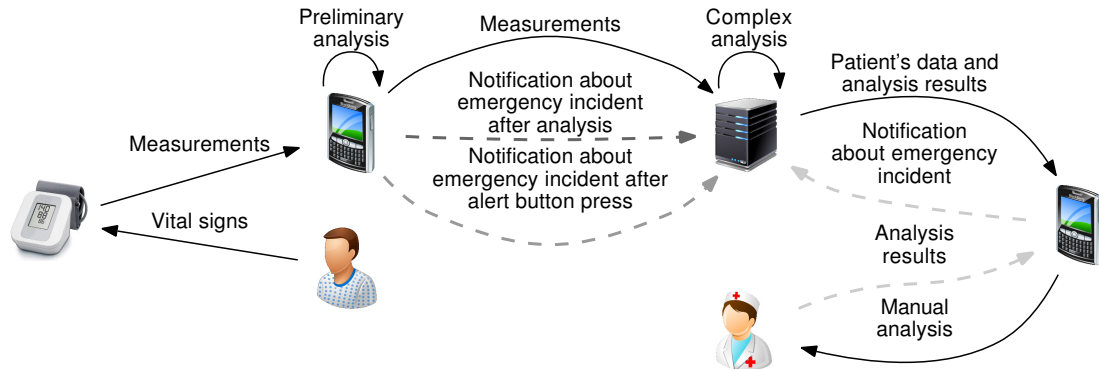
# Intelligence of m-Health services

Attribute	Description
Service ubiquity	Digital healthcare services are available anywhere and anytime. Patients are mobile clients, which can be out of hospital.
Multisource data	Services can apply various data sources; medical and non-medical, personal and collective.
Context-awareness	Services exploit contextual and situational information obtained from various medical and environment sensors.
Knowledge reasoning	Services utilize knowledge deduced from a large data collection, which can be dynamic and fragmented.
Service construction	In contrast to pure transfer of a fixed healthcare service from MIS to a remote user, available healthcare services are discovered and composed into a service to best fit the situation.

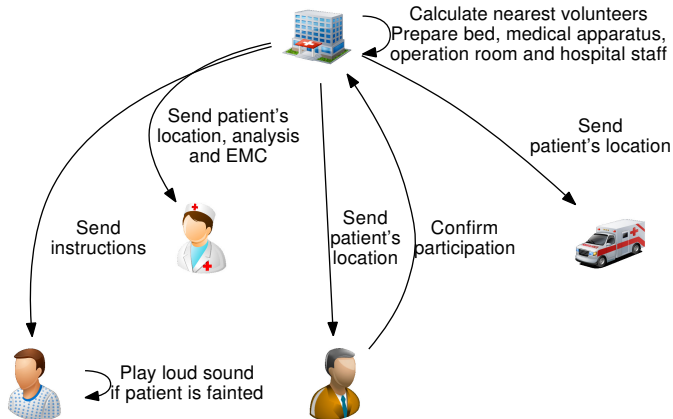
# Personalized assistance: the scope of the system



# Scenario of emergency case detection

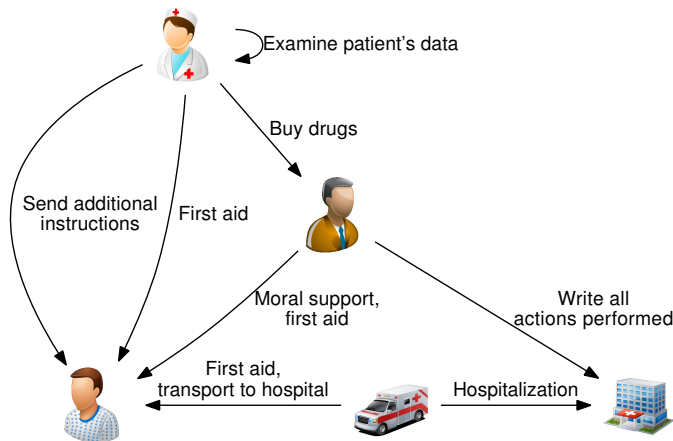


# Scenario of emergency case notification

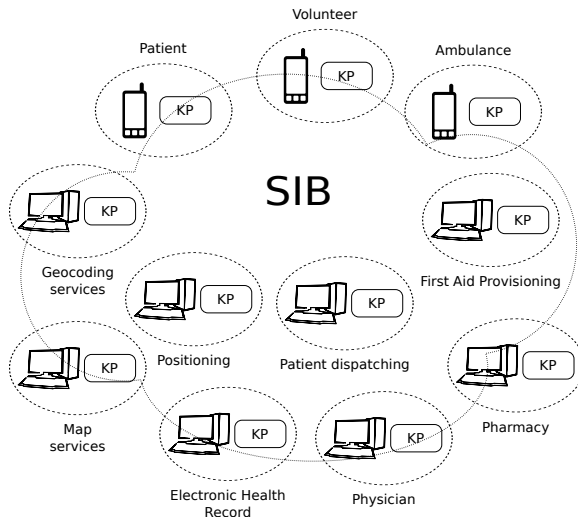




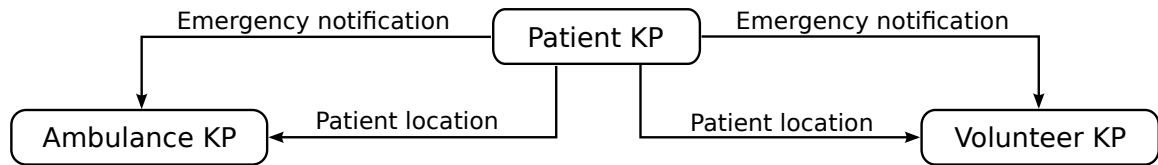
# Scenario of first aid and accompany care



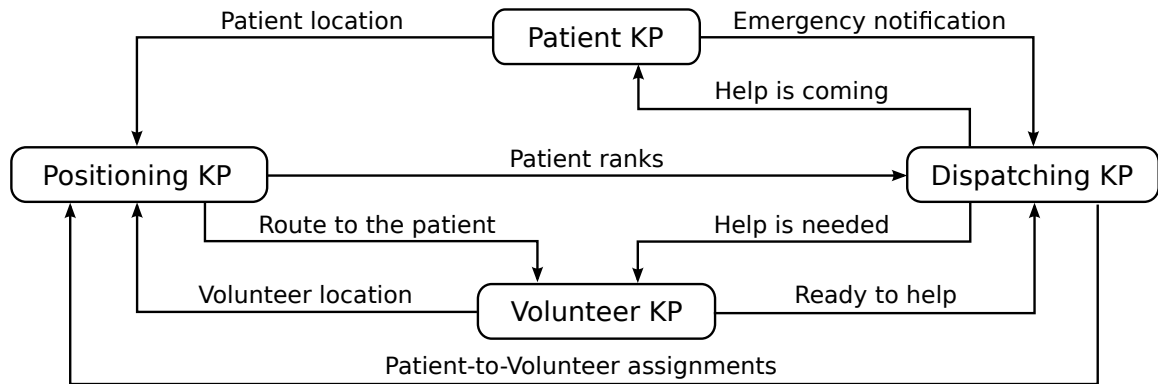
# Multi-agent m-Health system architecture



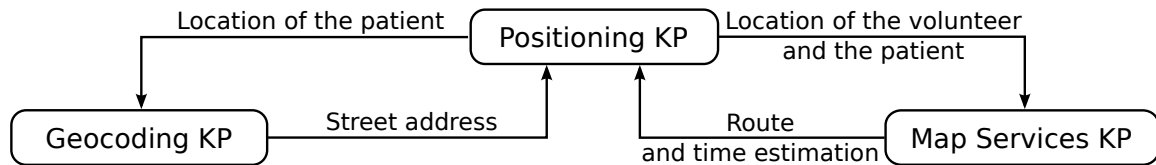
A volunteer is rushing to reach the patient:  
construction of the basic service.



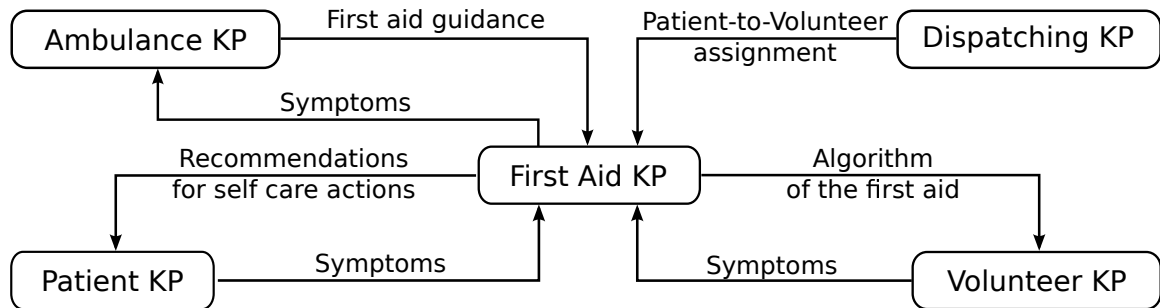
A volunteer is rushing to reach the patient:  
construction of an advanced service.



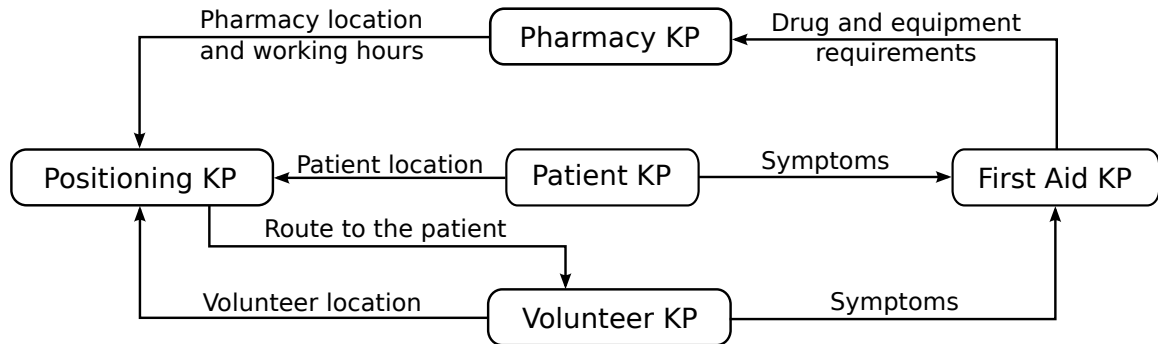
## Querying external geolocation services



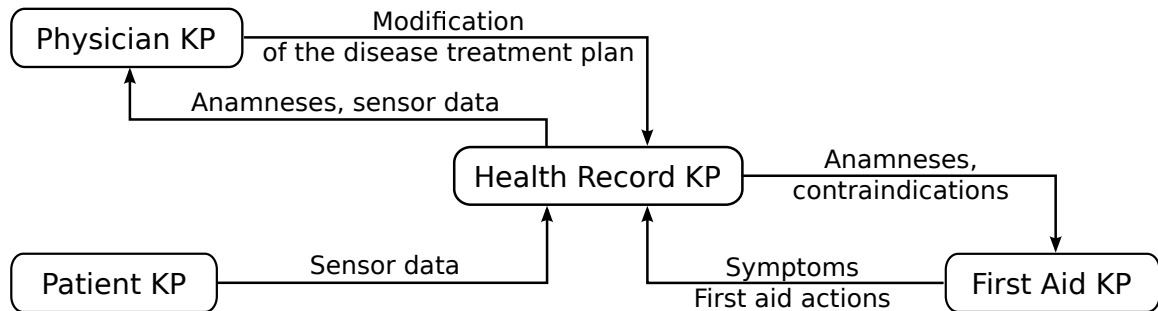
## Construction of the first aid service



## Assistance in taking medications: information on nearby pharmacies



# Integration with the Electronic Health Record





# Conclusion

- 1 The role and evidence of the service intelligence in m-Health scenarios have been identified
- 2 A generic vision on a smart m-Health service has been proposed
- 3 Several reference m-Health scenarios have been introduced where such services become evident and demanded
- 4 The services support personalized digital assistance in emergency cases with remote and mobile patients
- 5 And smart space based solutions have been proposed for implementing the reference scenarios in modern IoT environments