System for mobile monitoring of vital functions and environmental context

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Introduction

MOTIVATION:

1. **Lack of widely accepted mHealth solutions** that can provide improved medical care with reduced costs. Weakness of current solutions - **majority of attention is focused on the technology**.

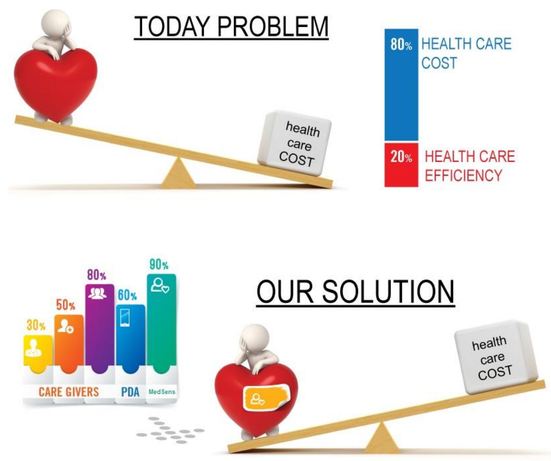
2. Acceptance of mHealth solutions can greatly be increased by an **extensive involvement of users and their caregivers.**

3. High added value and great market potential of mHealth products, services and networks.

The developed system must be CE certified as a medical device before commercialization, which represents a significant effort in terms of investment and human resources.

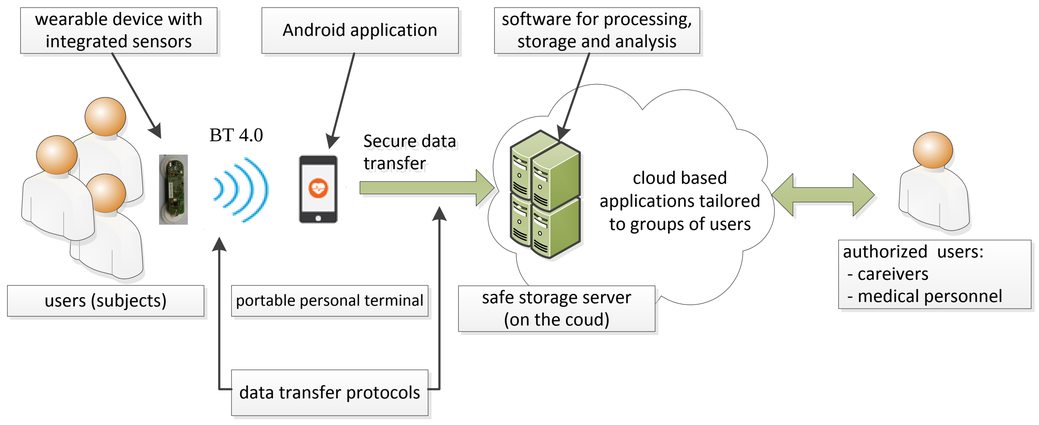
EXPECTED IMPACT:

Increased health care efficiency & Reduced health care costs

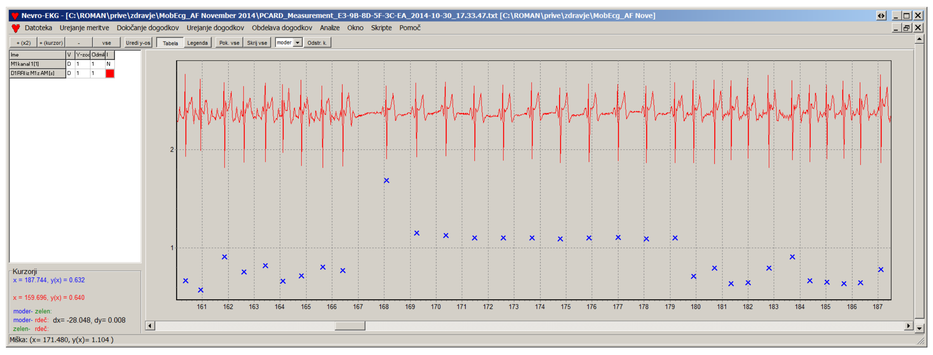


Solution

Technology platform for follow-up of patients



Personal computer software for processing & analysis

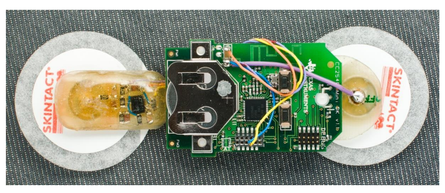


- Measured ECG channel (red curve) & detected individual heart beats (blue x-es)
- The example shows atrial fibrillation

WIRELESS BODY SENSOR EVOLUTION

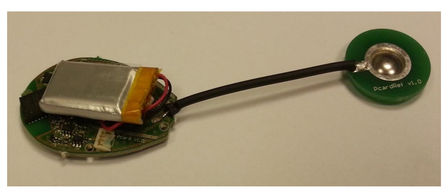
2009 — **2012** — **2014** — **2015** — **2016** — Year

- Measures ECG
- 2.4 GHz radio
- SimpliciTI wireless protocol



- Measures ECG
- Low energy Bluetooth 4.0

- Measures ECG
  + temperature sensor
  + accelerometer



- New flexible design

- Final product with casing

→ lightweight, unobtrusive, low cost ←

Pilot studies

Requirements/performances	POAF - University Medical Center Ljubljana	Personal doctor - Community Health Centre Ljubljana	Monitor – Health Resort "Terme Dobrna"	Muscular Dystrophy Association - Rehabilitation Izola
Number of concurrently monitored users	6	3	3	2
Measurement length per user	6 days	3 days	up to 5 days	up to 5 days
Number of medical experts involved	6	3	3	2
Study of performance	**Atrial fibrillation warning sign recognition**	**Palpitation detection**	**Short or long term health state assessment**	**Short or long term heart condition assessment**

TARGETS:

- Near zero obtrusiveness and intuitive operation with the sensor
- Ease of use of the software
- Minimal overhead for the medical personnel
- Data security and safety

Technology transfer

Technology provider:

Institut "Jožef Stefan", Ljubljana, Slovenija

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In final CE Certification phase for **medical device**:
Directive: **MDD 93/42/EEC**
Standards: **EN 60601** and **EN ISO 14971**

Production and sales:

Saving d.o.o.

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