

# SmartHeart

## Mobile Arrhythmia Detector

Yuliya V. Zavyalova, Alexander V. Borodin

Petrozavodsk State University  
Department of Computer Science



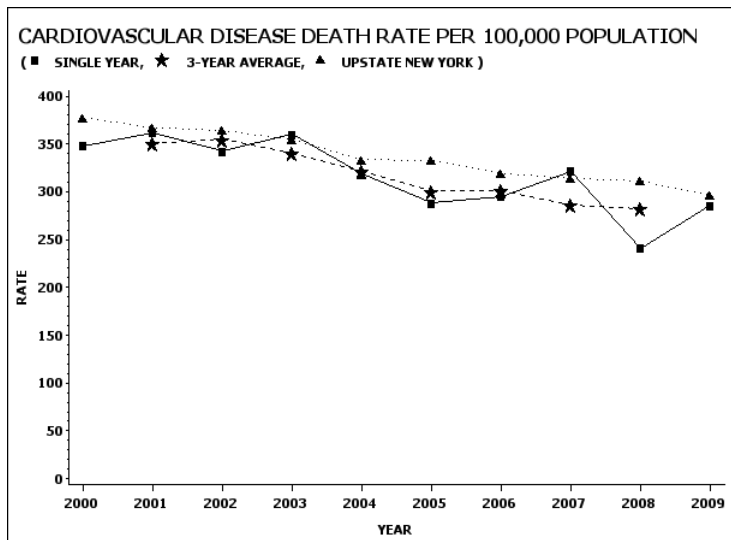
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# Introduction



# Connection with device



# Connection by Bluetooth



# ECG data stream format

- Channels Single channel
- Recording Resolution: 8 bit
- Recording Sampling Rate: 300 samples/sec
- Dynamic Range: 5.3mV Peak to Peak
- Bandwidth 0.5Hz – 90Hz

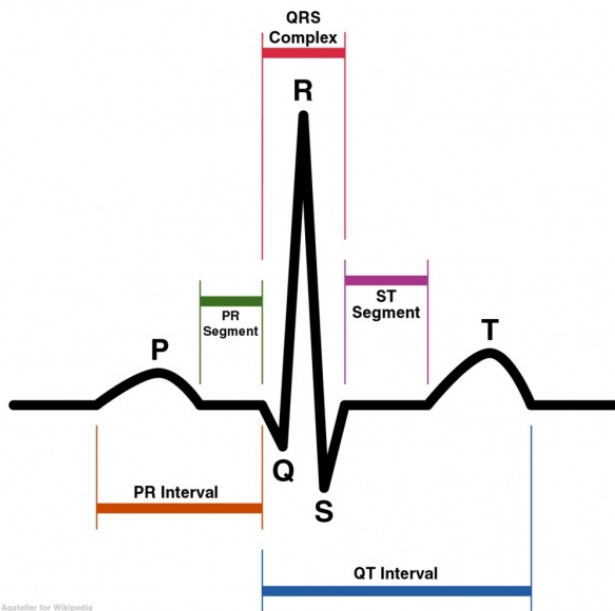


# Active mode



[cs.karelia.ru](http://cs.karelia.ru)

# ECG structure



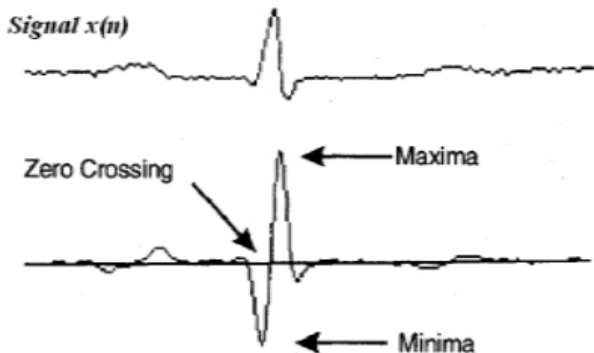
# Type of Arrhythmias

- Tachycardia
- Bradycardia
- Sinus Arrhythmia
- First-Degree Heart Block
- Second-Degree Heart Block
- Ventricular Tachycardia
- Ventricular Fibrillation
- Ventricular Flutter

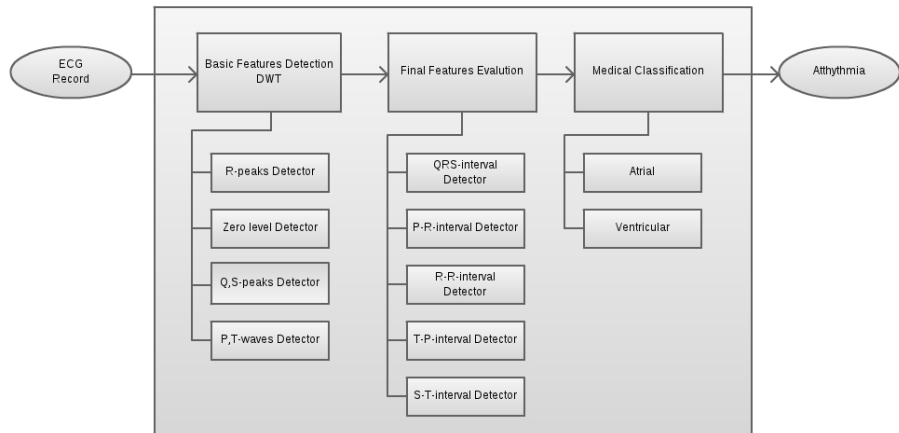




# Wavelet transform



# Arrhythmia classification



# Heart rate

- Normal beat segment
  - ▶ Heart rate: 60-90
- Tachycardia
  - ▶ Heart rate: 90-170
- Bradycardia
  - ▶ Heart rate: 40-60



# User data

NOKIA

13:03

*User data*

Login

Height

Weight

Age

Phone number for  
emergency communications

Save Cancel

←

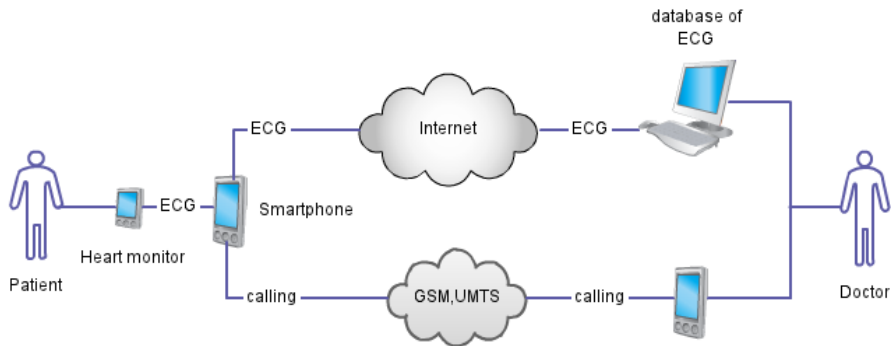


# Emergency SMS



[cs.karelia.ru](http://cs.karelia.ru)

# Transmission to database



[online diagramming & design] 



# State of the project

Metric:

	h	cpp	qml
The number of rows	447	1075	504

Project page:

<http://redmine.cs.karelia.ru/projects/mad>

Source code:

<ssh://kappa.cs.karelia.ru/groups/repos/git/mad>



# Thanks for your attention!

