CardiaCare.
Mobile System for Arrhythmia Detection

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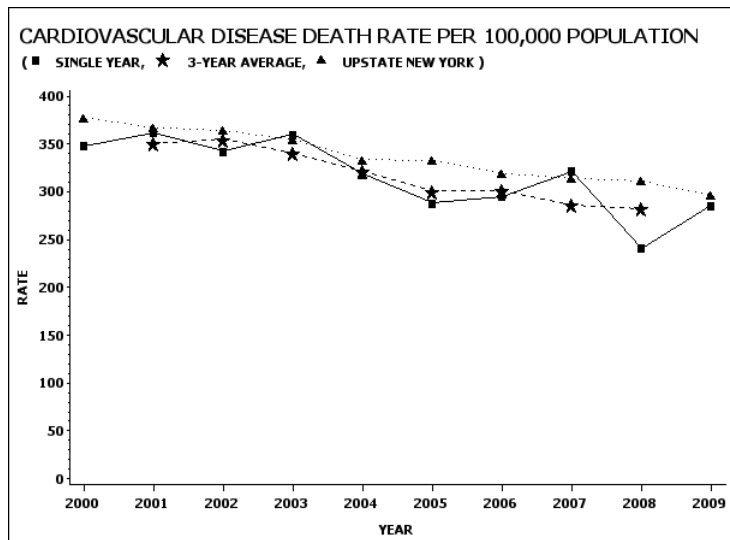13ᵗʰ FRUCT conference
April 22–26, Petrozavodsk, Russia

Agenda

- Cardiovascular diseases
- Heart function monitoring devices
- Obtaining and visualasing ECG recordings
- Arrhythmia detection
- Conclusion

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Cardiovascular diseases

CARDIOVASCULAR DISEASE DEATH RATE PER 100,000 POPULATION
(■ SINGLE YEAR, ★ 3-YEAR AVERAGE, ▲ UPSTATE NEW YORK)

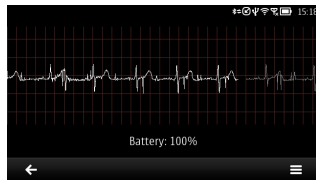# Connection with device

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Analog monitors

- Visual assessment
- Delayed treatment
- Subjectivity
- The Human Factor
- Stationarity

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Automatic monitoring

- Accuracy
- Efficiency
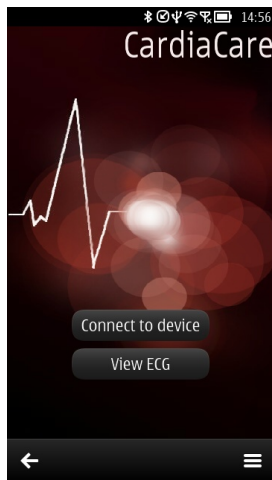- Objectivity

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CardiaCare

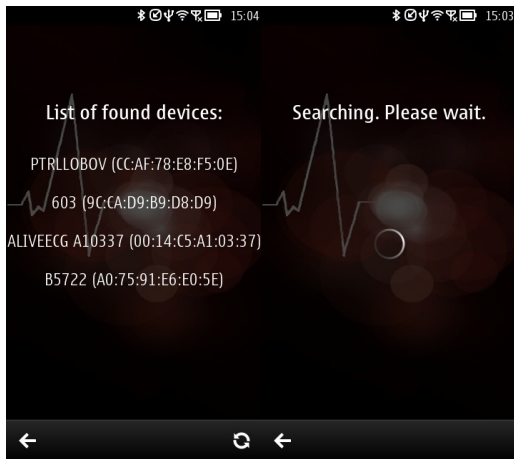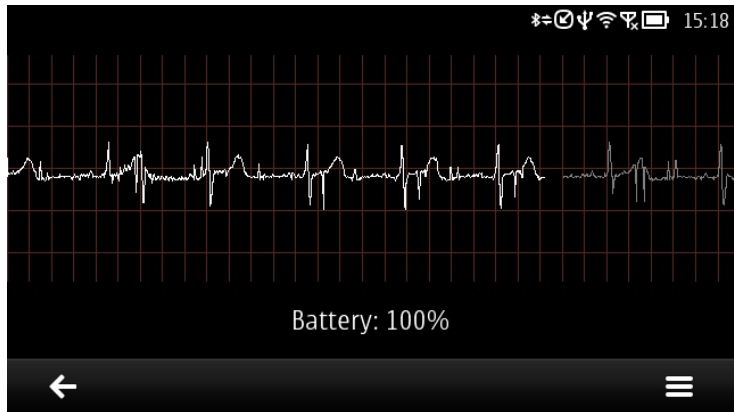- Alive Heart and Activity monitor
- Smartphone
- CardiaCare application

Benefits

- Constant monitoring
- Customizable ECG viewer
- Emergency call
- Ease of Use

Bluetooth selection

Active mode

User data

Emergency SMS
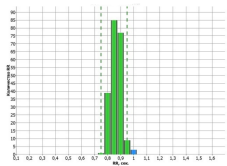
Transmission to database
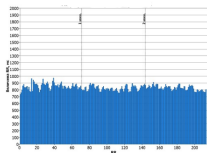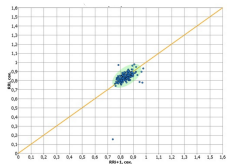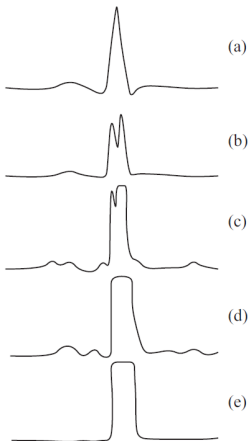
CardiaCare application

Arrhythmias to be detected

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

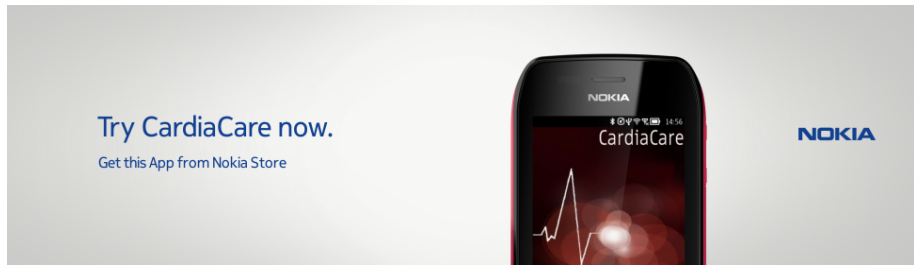# Arrhythmia classification

Platform and toolbox

- Qt framework
- QML (GUI)
- Android SDK
- ASP.NET

Future plans

- Support of other platforms and monitors
- Improve the algorithm
- Server side application and database

Thanks for your attention!

Project page:

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

Source code:

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

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