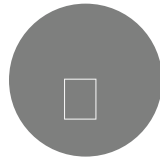# Kind Heart Cloud

a cloud-based system of remote long-term ECG analysis
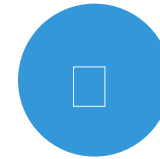
Facts&Figures

a cloud-based system of remote long-term ECG analysis
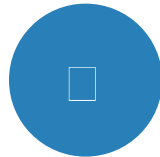
History

- Launched in 2017
- 2 versions has been released
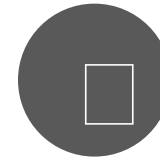- 1 installation
- **~10 000 long-term ECGs analyzed**

Project scope

- Architecture design & development
- UX/UI design
- Software engineering
- Quality assurance
- Project management

Technologies

- PHP
- AngularJS
- MariaDB
- Bootstrap
- Docker
- Google Cloud
- GitLab
- **ECG Analysis Server (developed by IMESC)**

QA

- Unit testing
- Coded-UI testing

IMESC

How it works - Pipeline

A
patient
goes to
a doctor

A technician
applies
electrodes
and Holter
monitor

The patient comes
back, the long-term
ECG is transmitted
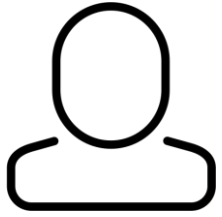to IMESC Medical
center **via web site
load.holter.com.ua**

The ECG is analyzed
and the report is
generated by highly
qualified staff

The report (along with all
previous ones) is available at
load.holter.com.ua. ECG
analysis and report
preparation takes a
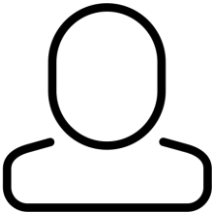maximum of 24 hours. In
emergency cases - 4 hours.

How it works - Roles

Customer
- loads ECG
- receives PDF reports with analysis results

Operator
- checks ECG analysis results
- corrects it if necessary
- prepares report
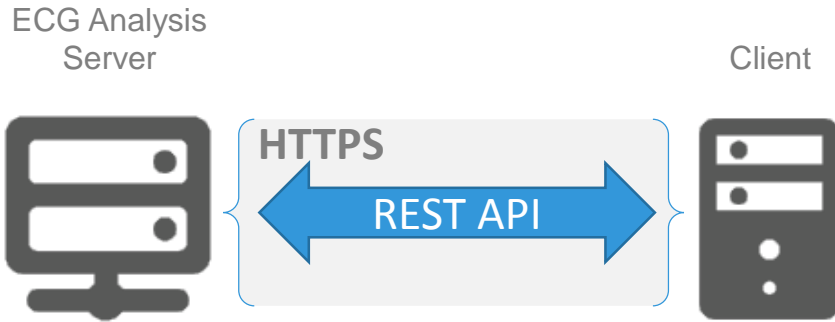- reviews statistics

Administrator
- has full access permissions, i.e.
  - adds customers/operators/supervisors
  - removes customers/operators/supervisors
  - blocks customers/operators/supervisors
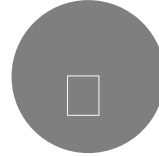 - reviews all statistics
  - changes system setting
  - etc.

Supervisor
- can work as an operator
  - + can check any report prepared by any other operator
  - + can assign particular ECG to particular operator/supervisor
  - + has access to some administrative functions

IMES

Technological stack

CLIENT (Customer)	SERVER (back end)	CLIENT (Operator)
• AngularJS • Bootstrap	• Docker • PHP • MariaDB	• Special version of ECGpro Holter

ECG STORAGE
• Google Cloud

HTTPS/REST

ANALYSIS SERVER
• C++/C#
• Azure

• Security

• Scalability

• Mobility

• Automatic updates

• Collaboration
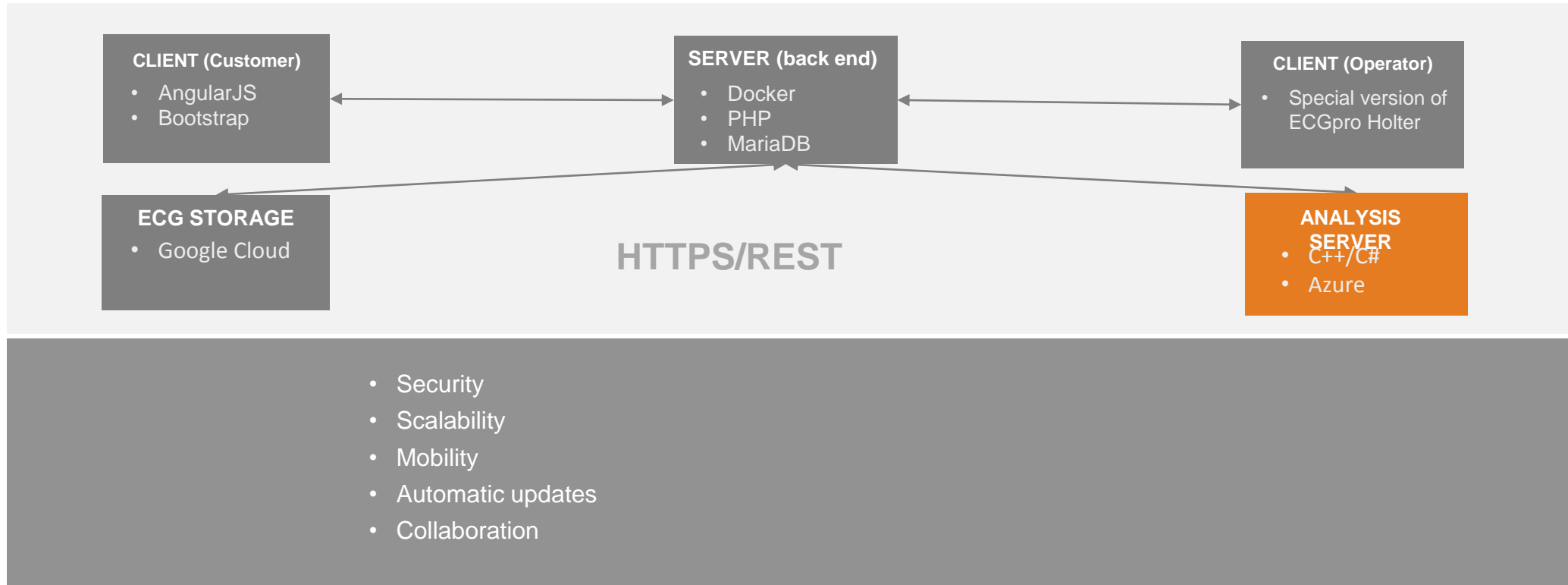
IMESC

ECG Analysis Server

a cloud-based server for AI-powered ECG analysis used in Kind Heart Cloud

ECG Analysis
Server

HTTPS

REST API

Client

History
- Launched in 2019
- 1 version has been released
- 1 installation
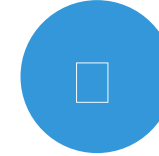
Project scope
- Architecture design & development
- Software engineering
- Quality assurance
- Project management
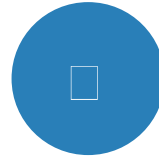
Technologies
- C#
- C++
- Azure Applications
- Azure Batch
- MS Team Foundation Server
- **Deep QRS (developed by IMESC)**

QA
- Unit testing

An Azure-based cloud server backed by **IMESC Deep QRS ECG** analysis algorithm allows to send long-term ECG for analysis and receive analysis results back via simple and reliable REST API.

- Simple and reliable REST API
- Scalability
- Security
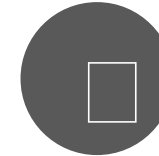
Deep QRS

an AI-powered ECG analysis algorithm

History

- Launched in 2017
- 1 version has been released
- 1 installation
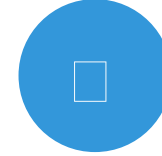
Project scope

- Software engineering
- Deep Learning
- Quality assurance
- Project management
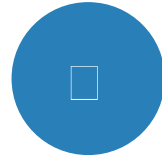
Technologies

- Python
- C++
- Bazel
- Keras
- TensorFlow
- MS Team Foundation Server

QA

- Unit testing

A next generation AI-powered ECG analysis system based on neural network and deep learning.

- More accurate than the vast majority of the current analysis algorithms
- Deep learning algorithm allows continuous accuracy improvement
- Any length ECG analysis

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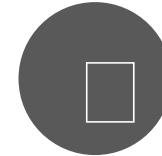
Look&Feel
Customer's Account - Dashboard

Look&Feel
Customer's Account – New Patient

Look&Feel
Customer's Account – Statistics

Look&Feel
Supervisor's Account – Dashboard

Look&Feel
Supervisor's Account –Statistics

Look&Feel

Administrator's Account – Customer details

Look&Feel
Administrator's Account – Customer's List

Look&Feel
Administrator's Account – New operator

Look&Feel
Administrator's Account – ECG dashboard

Thanks For Watching

if you have any questions please do not hesitate to contact:

office@imesc.com

+380 44 5858245

IMESC