Mobile GUI

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Challenge

- GUI is most important part of a modern program
- Succeed of the program very much depends on GUI

Analysis of the usability of GUI is very important challenge for all modern IT companies
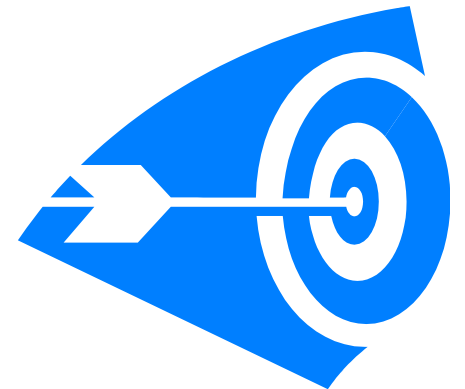
Look-and-feel UI for mobile

- Small monitor
- Small number of UI elements
- Need of quick access to information
- Limited opportunity keyboard

Conception

Automatic analysis of the usability for mobile devices.

- Eye tracking
- Physiological research
- Machine learning

Current technologies

- Experts values
  - ★ expensive
- Users feedback
  - ★ need to update product after release
- Web design technologies
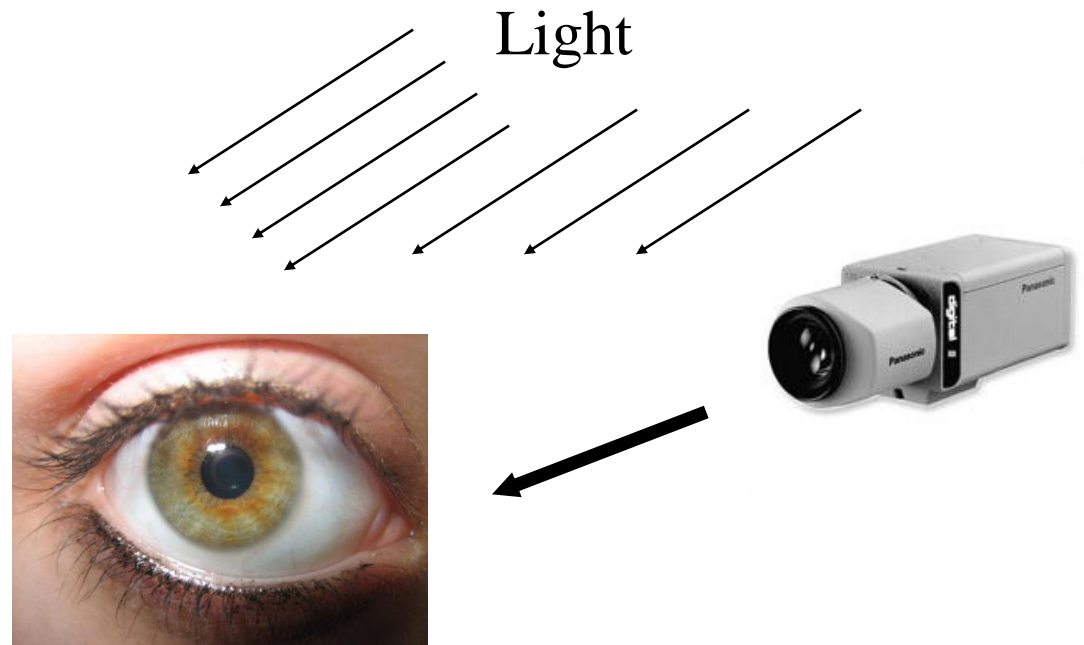 - ★ not adapted for mobile devices

Steps

- Eyes tracking
  - ★ experiment
  - ★ algorithm
  - ★ effectiveness
- Medical research
  - ★ MUI usability rules
  - ★ algorithm validation of the MUI
- Machine learning
  - ★ coding input information
  - ★ automatically gives eyes trajectory

Eyes tracking

- Scheme of the experiments

Light

Fixed

Medical research

- Contacts with Nizhniy Novgorod state medical university

- Analysis of the experiments results

- Analysis of the medical books and papers

Current state: formalization rules

Machine learning

- Problem: coding input information
  - ★ Can't use bitmap for input
  - ★ What output to use?
  - ★ Optimization size of learning samples

- Choose algorithm for Machine learning

Current state: observing of the algorithms and papers

Team

- Diana Il'ina , student at UNN
- Mikhail Smirnov , student at UNN
- Il'ya Lysenkov , student at UNN

- Consultation:

Mukhina I.V., Professor at NGMA

Summary

Automatic analysis of the usability for mobile devices

It system will be base on:

- eye tracking
- physiology research
- machine learning

Main opportunities:

• automatic testing GUI

• less cost of the testing

• exclude people-factor