

Facilitating Teacher-Student Communication and Interaction in Large-Scale Lectures with Smartphones and RWTHApp

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RWTH Aachen University



~42,000 Students



~5,000
Internationals from
117 Countries



~9,000 enrollments
in winter term
2014/15



~500 Professors



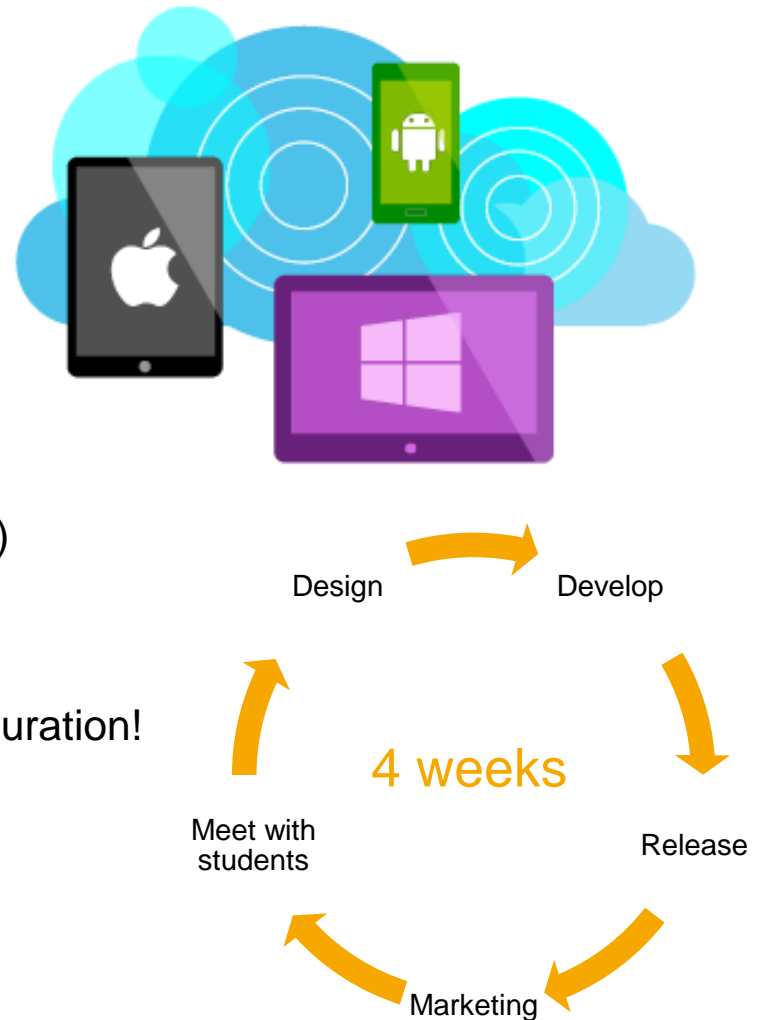
~8,000 Employees



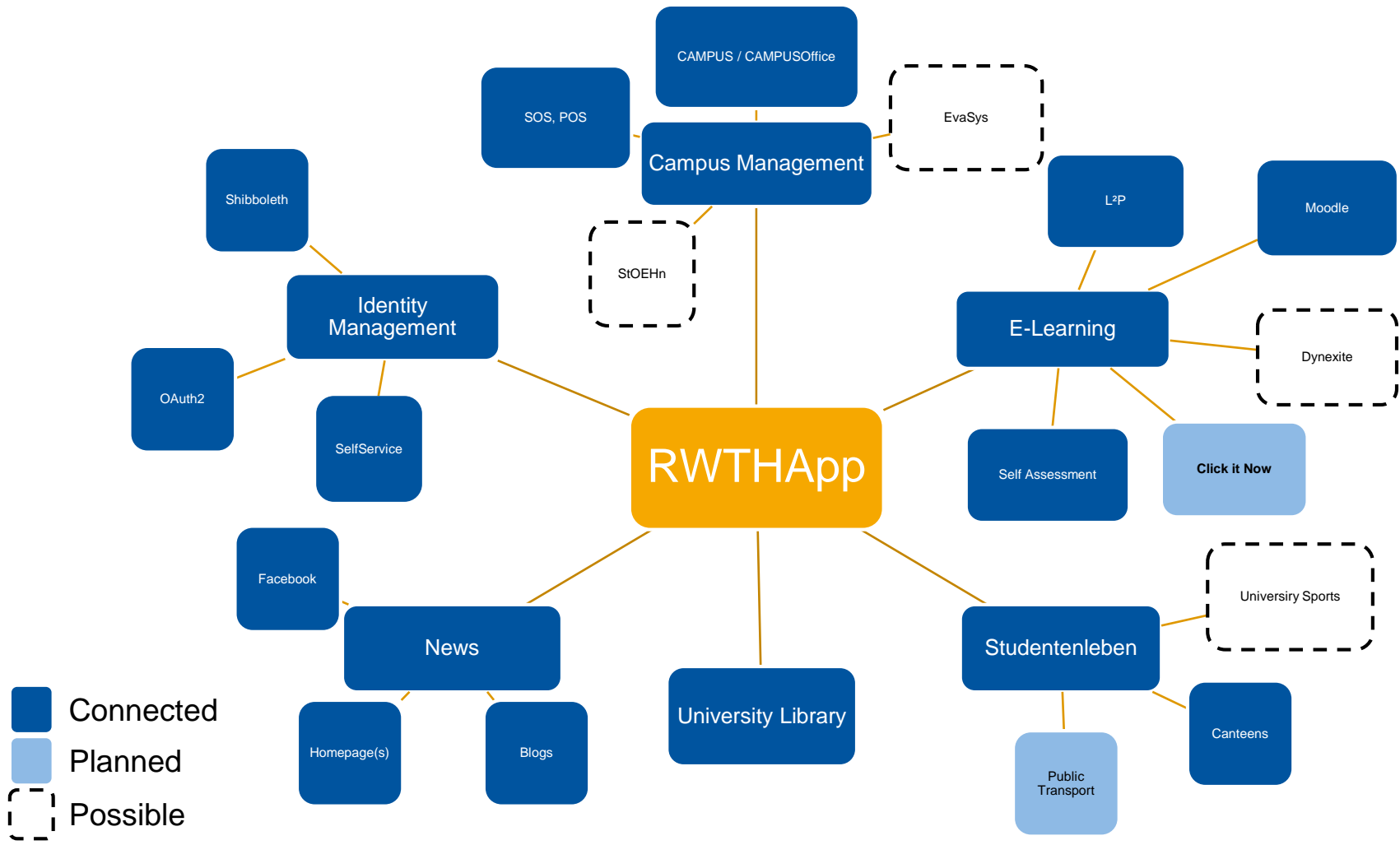
9 Faculties
115 Courses of
study

Requirements

- Platform Independent
 - Cordova (HTML5, JavaScript, CSS)
 - Native functionalities using Plug-ins
- Personalization
 - Anonymous or authenticated mode
- Security
 - No user credentials given to the app (OAuth2)
 - Fully encrypted communication (SSL)
- Data sources
 - Use existing data sources. No double data curation!
- Development
 - RWTH „In-House“
 - Flexible an independent, feature driven



Systemlandscape in June 2015



Timeline

v0.2 Release

- Person-Search
- Lecture Hall-Finder
- Feedback
- My Lectures
- OAuth2v0.3 Release



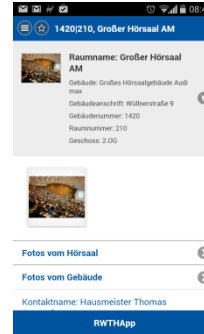
v0.4 Release

- My Timetable
- RWTH-News



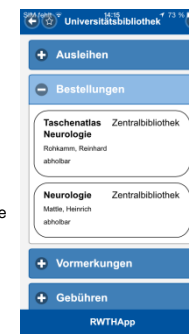
v0.6 Release

- Directfeedback: Text



v0.8 Release

- Quiz2Go: Moodle Self Assessment



v1.0 Release (Planned)

- Canteens
- UI Redesign



v0.3

- L2P: Materials
- Lecture appointments



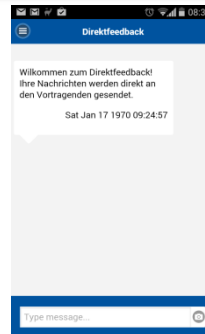
v0.5 Release

- Lecture search
- L2P: Recent activities



v0.7 Release

- Directfeedback: Images & Polls
- Lecture Hall Images
- Ersti-Infos

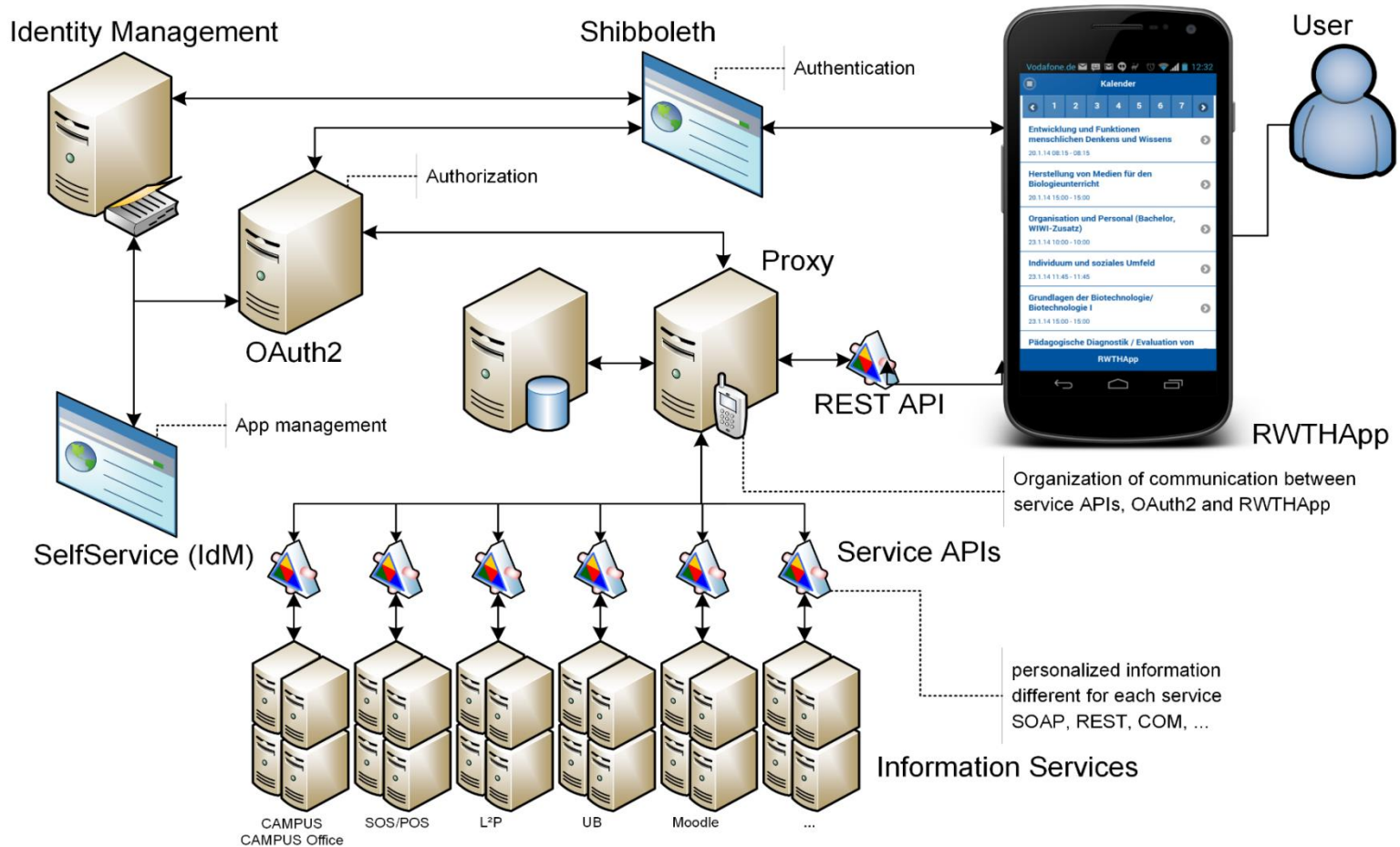


v0.9 Release

- University Library



RWTHApp Architecture



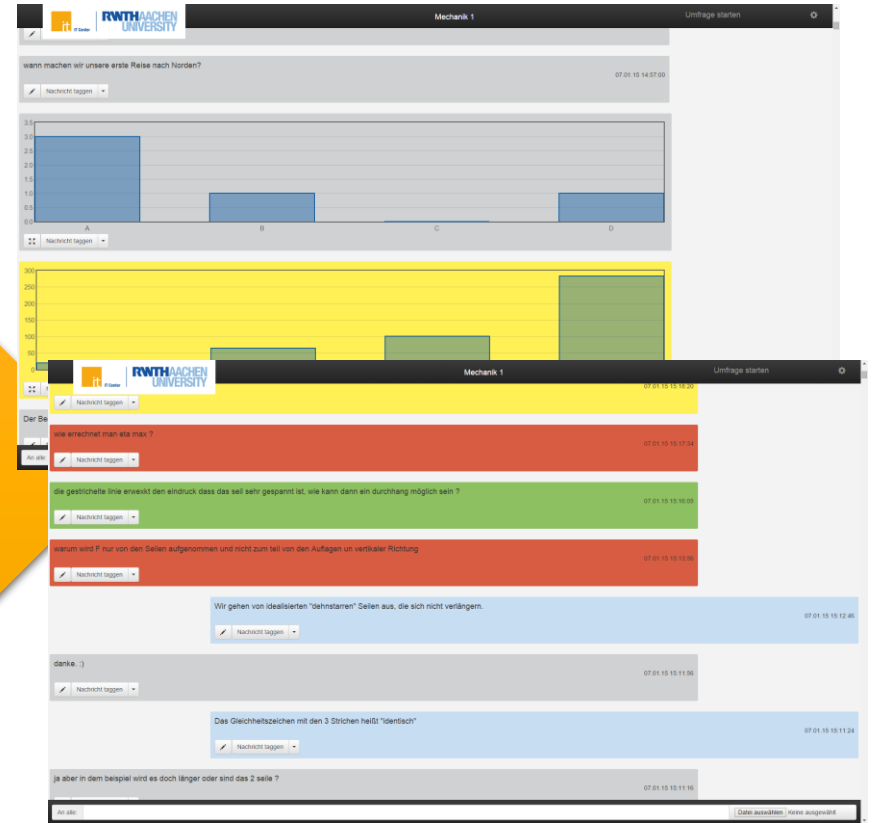
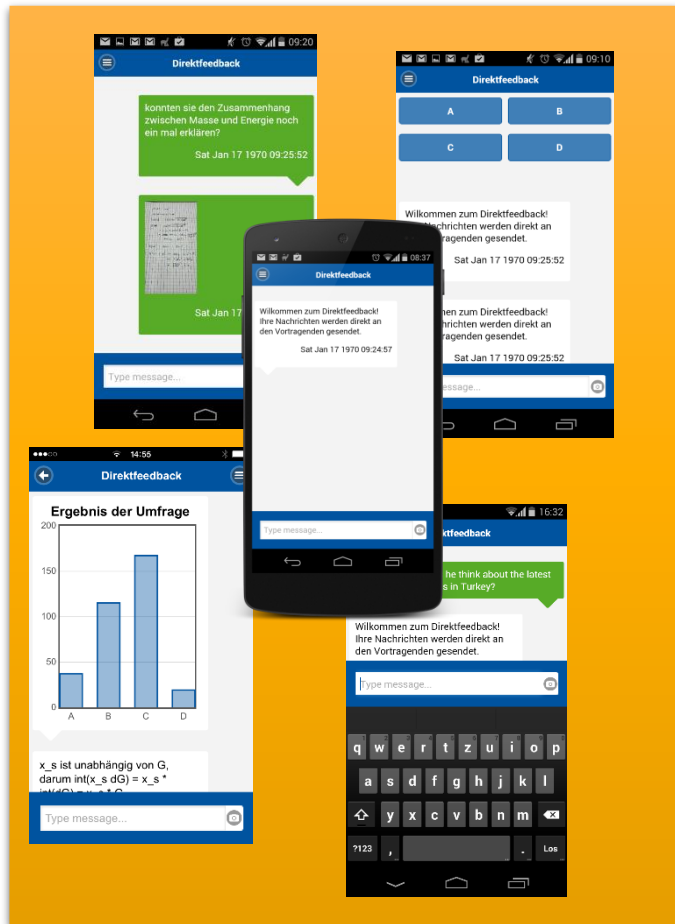
Requirements from Students and Teachers

Directfeedback: An audience response system using Smartphones

- Get Feedback from students in large-scale lectures (1000+ students)
- Acoustics in big lecture halls is usually too bad to understand questions
- Students do not dare to ask
- Lecture is streamed to multiple room so students have no physical contact with the teacher
- Low threshold: easy to use for students and teachers



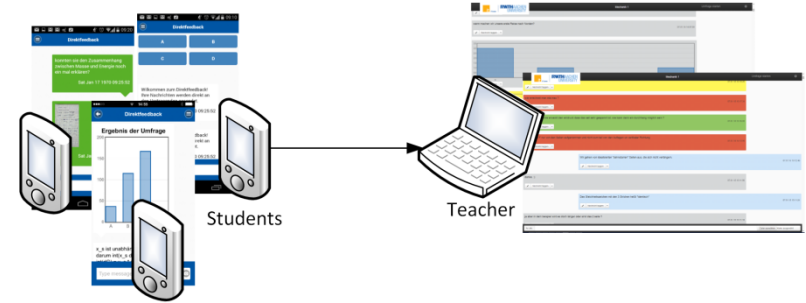
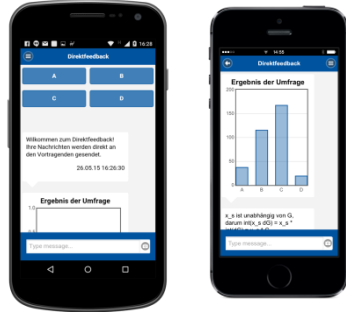
Directfeedback General Idea



Directfeedback Core Features

Interactive Polls

Classic „Audience Response System“ to evaluate and discuss multiple choice questions during the lecture



Filter and categorize

For better evaluation and handling so the focus can stay on the topic of the lecture.



Exchange Textmessages between teachers and students

Send messages from smartphone to the teachers notebook and respond to students questions.



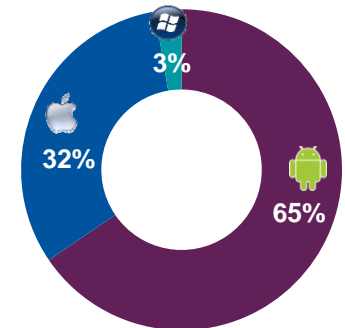
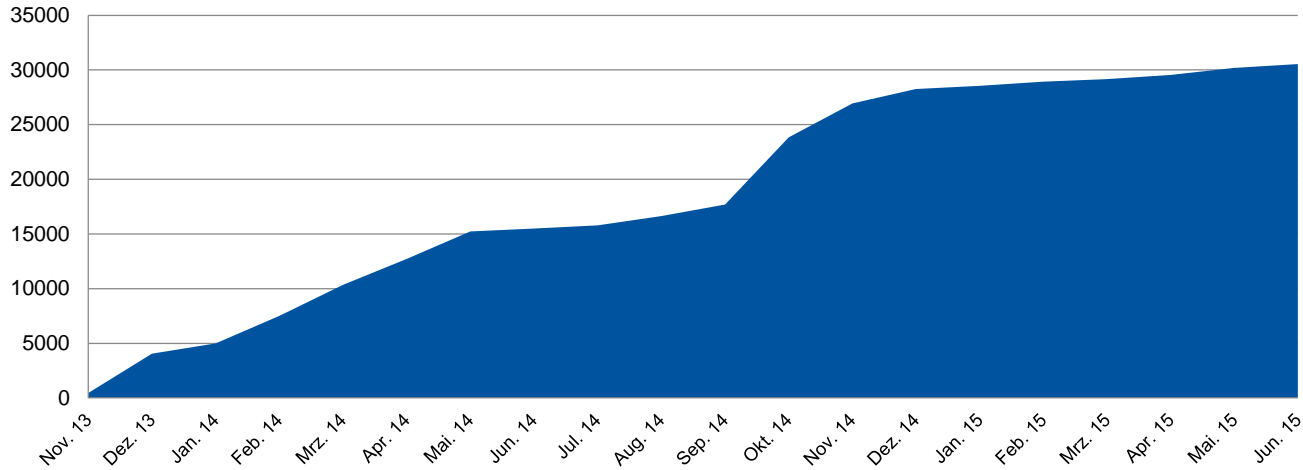
Handwritten Formulas and Drawings

A picture is worth a thousand words: Exchange images with the teacher

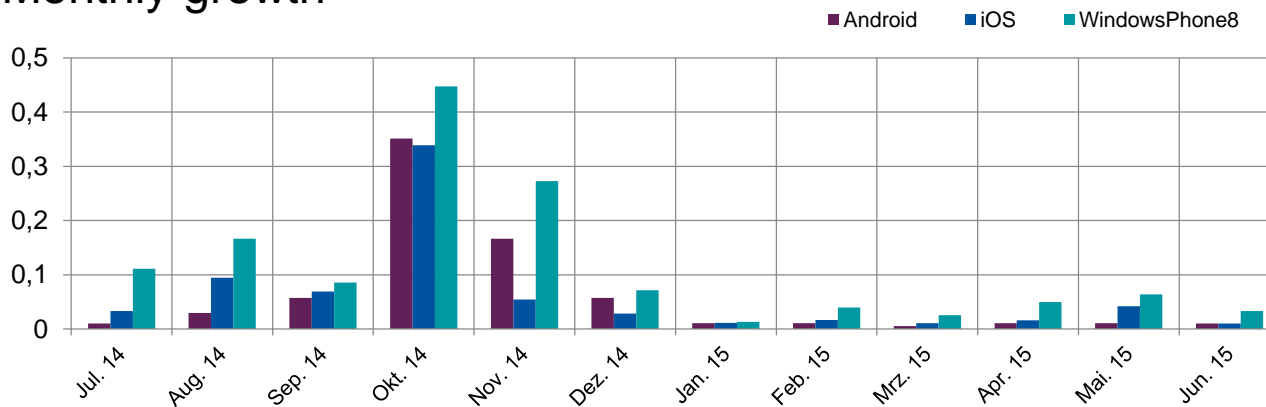


RWTHApp Overall Statistics

Downloads



Monthly growth

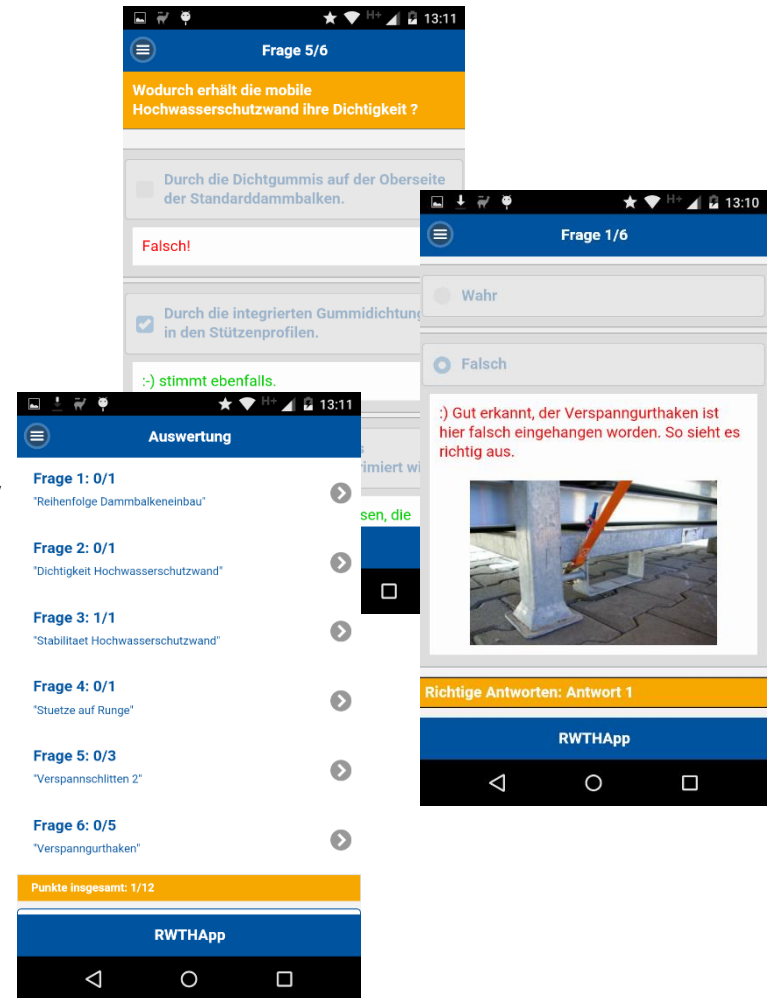


Direktfeedback Statistics

- Already used by 42 lectures and other events
- 25 lectures during the current term
- 100 – 1000 students
- single lecture hall or using live broadcast to a second room
- During large events: max. 1 question / second, avg. ~3 questions / minute

Future Work

- Check contexts with remote peers where no physical contact is possible
- Usage outside of learning context e.g. for IT and Library support
- Independant web application for students for ad-hoc usage
- Integration with Quiz2Go (prepared Moodle quizzes)





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