TECHNISCHE UNIVERSITÄT DRESDEN

Application Development for Mobile and Ubiquitous Computing

QR Gossip

Adaptation Concept Presentation

Presentation Group 1
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DRESDEN concept
Exzellenz aus Wissenschaft und Kultur

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QR code (abbreviated from Quick Response Code) is the trademark for a type of matrix barcode first designed for the automotive industry in Japan.

A QR code consists of black squares arranged in a square grid on a white background, which can be read by an imaging device such as a camera.

The required data are then extracted from patterns that are present in both horizontal and vertical components of the image.

Application Idea

Imagine as you reach library, class room or some public places, the phone volumes automatically decrease. Once you are at home, it turns on Wi-Fi and connect to your home Wi-Fi. These are just a few scenarios for our situation based profiler.

QR Gossip lets you change volume, wireless and other phone settings quickly and easily. Simply scan and forget!

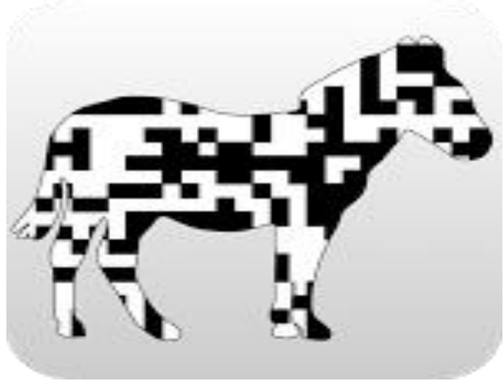
User can efficiently adjust a series of system settings at a time based on the arrival or departure of commonly visited locations.

Development:

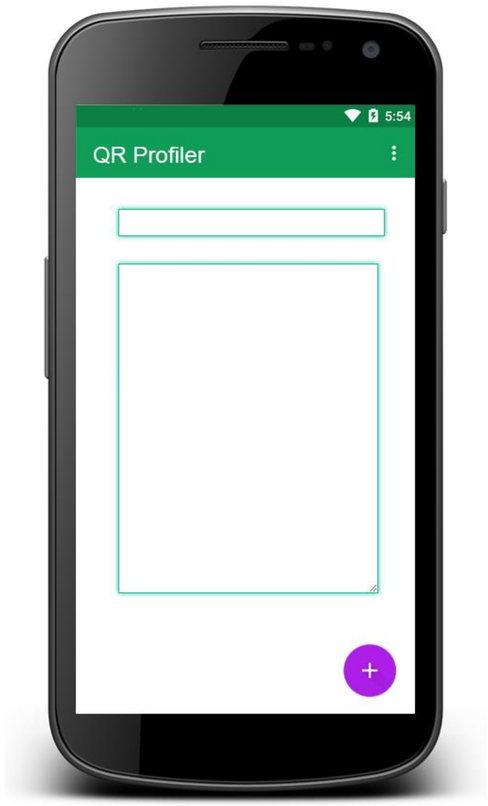
- Android SDK (API level 19 and Up)
- Java SE
- Android Studio IDE

Resources:

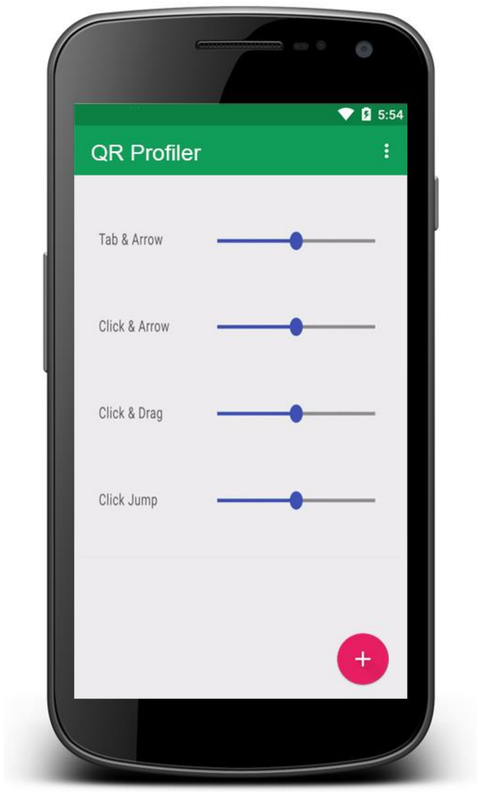
- Shared Preferences object containing key-value pairs
- ZXing ("zebra crossing") library
- Android Audio Manager
- MediaStore Image meta data
- PrintedPdfDocument Object



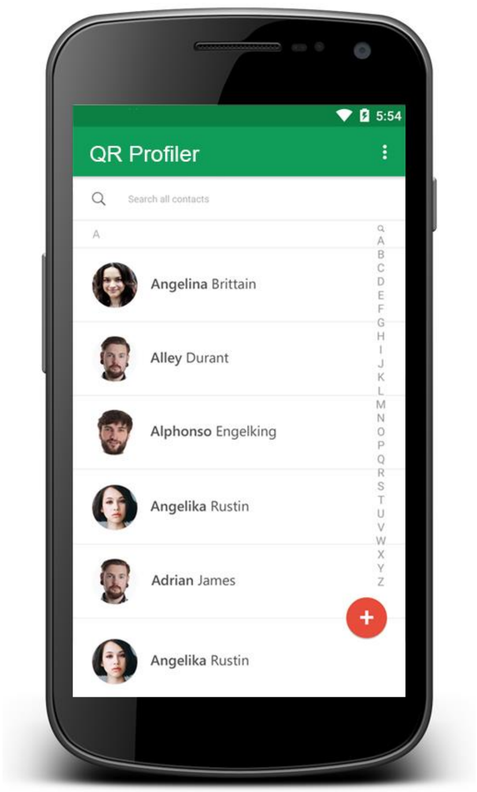
Interface



Text / Clipboard Sharing

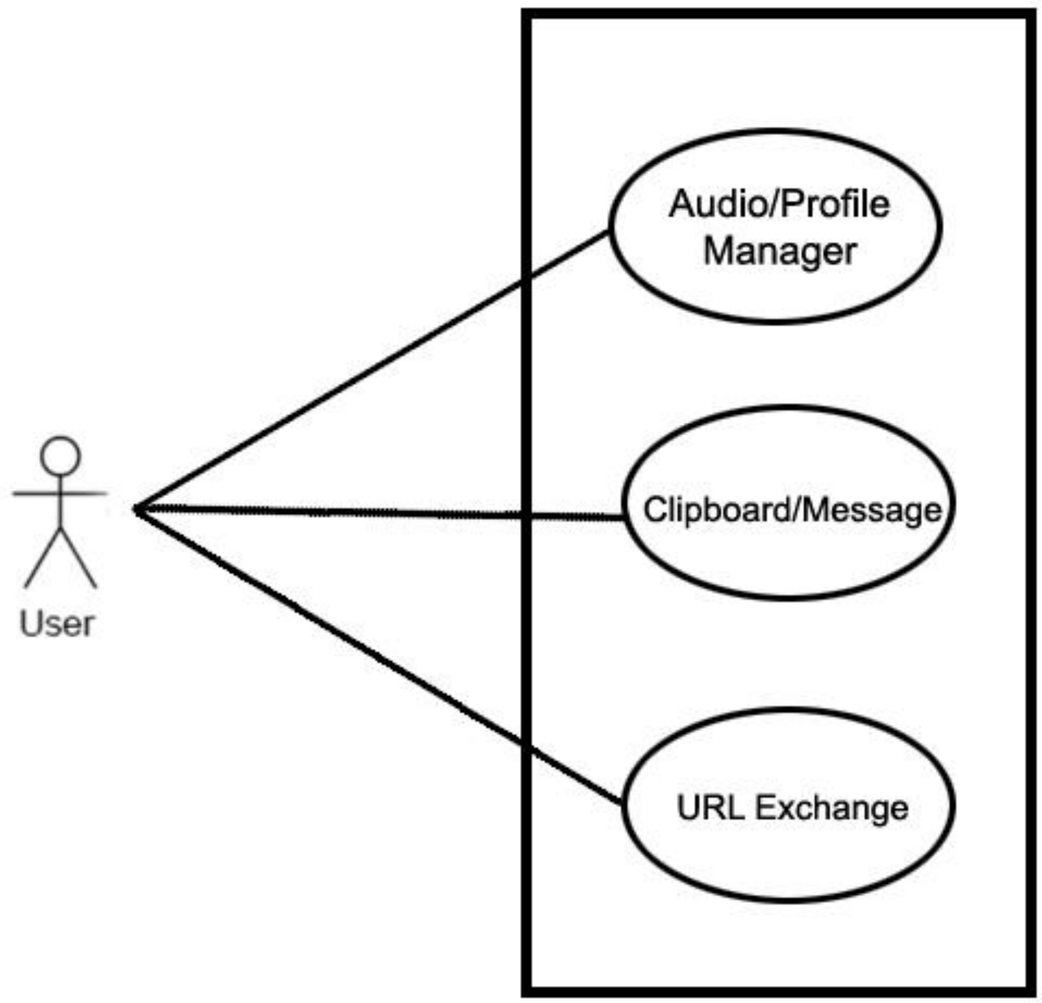


Settings Exchange



Contact Transfer

User Cases


Audio/Profile Manager
Clipboard/Message
URL Exchange
User

Form Factor Challenge

- Layout adapts to different resolutions and screen sizes
- Custom layout for each orientation
- Heterogeneity and limitation of resources for different sizes

Usability Challenge

- Intuitive user experience
- Easy menu navigation

Energy Challenge

- Camera intensive request processing
- Better energy usage with limiting camera capability
- Efficient background processing

Transformation

- Coding: BitMatrix – BarcodeEncoder – byte[ ] – QR
- Format:
  - Clipboard/Message transferred to another device by QR representation (avoid incompatibilities, increase efficiency)
  - Change text representation to image format

Adaptation

- Message can be transferred easily into another device
- Possible to send long URL to another device
- No change of data content

Structure

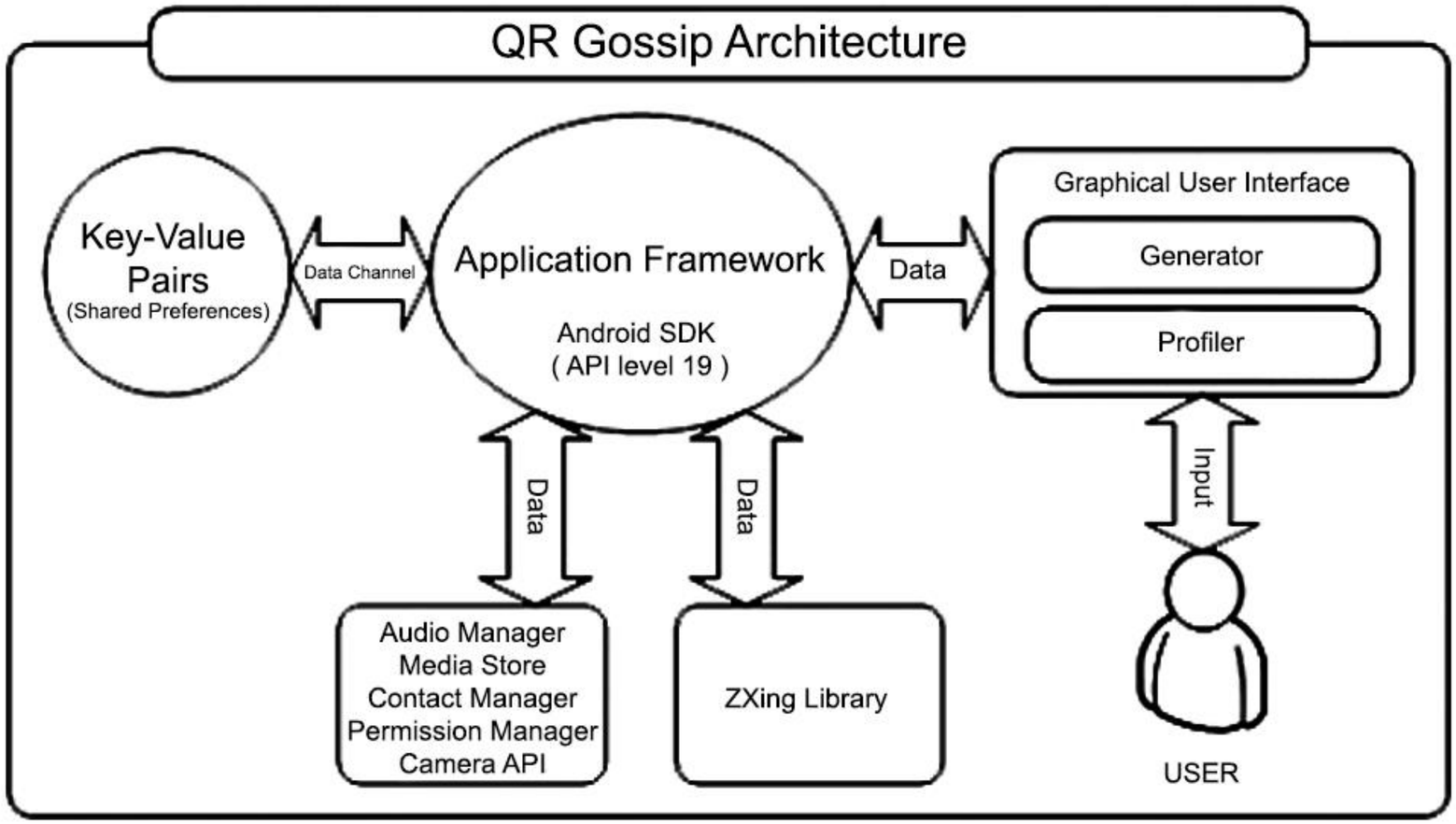
- Operation on structured data(Audio Manager) to change Audio Settings
- User settings transferred to another device
- Different media source with different flag (`MODE_CURRENT, FLAG_VIBRATE`):

  `adjustStreamVolume(int streamType, int direction, int flags)`

Adaptation

- Translate QR mapping to system sound settings
- Define each streamType and set accordingly
- AsyncTask and Data validation

Application Architecture



Work Plan

04.11.2016: First presentation

Completed

- Resource collection & Knowledge gathering
- Design application outline
- UI Design
- Start project prototyping
- Feature Implementation

16.12.2016: Adaptation concept presentation

TBD

- Fine Tuning
- Testing
- Bug fixing
- Final output

27.01.2017: Final presentation

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Thank you for your attention