Access to Smart Room Service Set from End-User Mobile Devices

Andrey S. Vdovenko, Dmitry G. Korzun

Petrozavodsk State University
Department of Computer Science

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PetrSU Smart Room
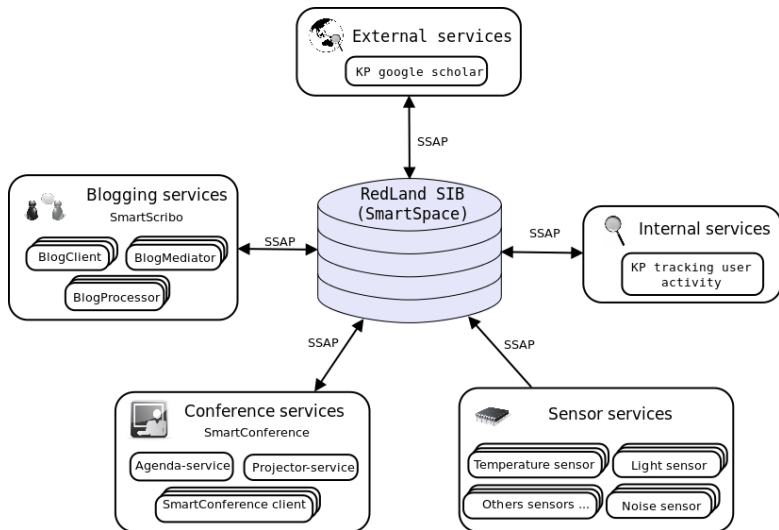
Problem

- User runs smart room client on personal mobile device
- Client is an access point for available services in the room
- Scalability and dynamics
  - # services: service selection
  - # users: context and dynamics
  - # data sources: agenda, presenter, chairman, participants, sensing&control equipment
  - # knowledge generation: service composition and accumulation

Dmitry Korzun

Access to Smart Room Service Set

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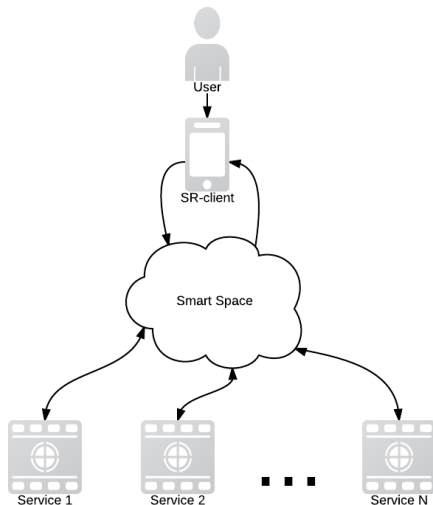
Mobile platforms

- (smart)phones
- tablets
- netbooks
- . . .

- Windows 7, 8
- Windows Phone 7, 8
- Android 2.3-4.0
- iOS 6.xx
- Symbian (Anna, Belle)
- Nokia Asha
- . . .

Analysis of available SDK

Platform	Programming language	IDE
Android	Java, partly C, C++	Eclipse
iOS	Objective-C	Xcode
Symbian platform	C++, QML	Qt Creator
Windows Phone 7	C#, Visual Basic	Visual Studio 2010
Windows 7	C#, Visual Basic	Visual Studio

- A lot of programming languages and IDE
- GUI is platform-aware
- Qt and QML?
- HTML5?

Smart Spaces SDK

The primary SDK is SmartSlog
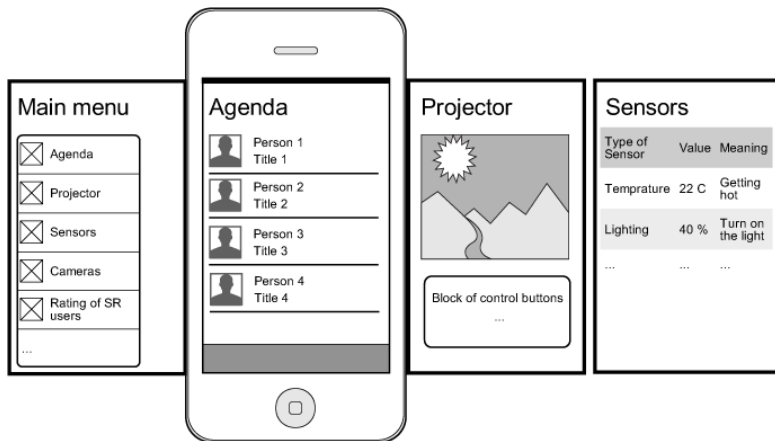http://oss.fruct.org/wiki/SmartSlog/

- ANSI C and C# version
- High-level (model-driven, ontology-based) programming
- Modest to device capacity
- Tested platforms:
  mobile Linux family, Qt/Symbian, Qt/Android,
  Windows 7&8, Windows Phone 7
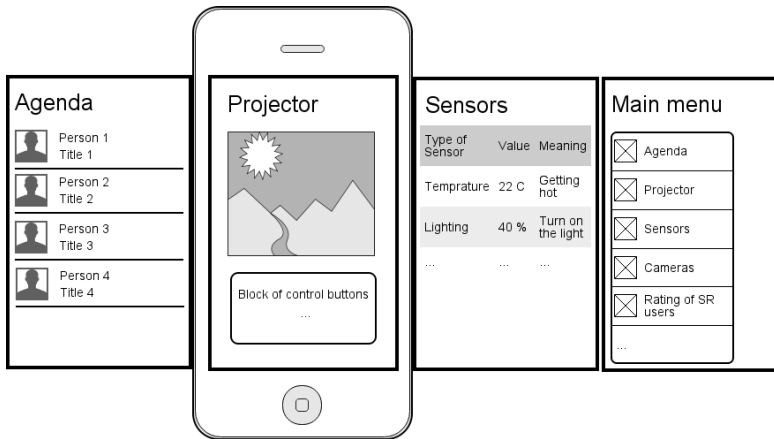
Use of native code is required for some platforms

Service Navigation (1)

Each service is a tab. User moves from one tab to another
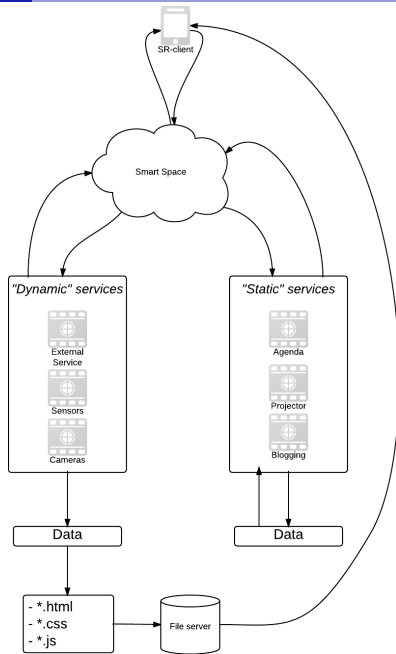
Service Navigation (2)

User joins provision of Projector service

Services classification

- Static services specialized client

- Dynamic services client is constructed on-the-fly

Options

- HTML5 application with specialized mobile frameworks (PhoneGap, jQuerry Mobile, . . .):
  - ▶ "+" one code for any platform
  - ▶ "+" application can be used in any browser
  - ▶ "-" bad performance on old mobile devices

- **HTML5+CSS+JavaScript pages**
  - ▶ "+" many platforms support HTML5
  - ▶ "+" one page for all platforms
  - ▶ "+" cross-platform
  - ▶ "-" some difficulties in implementation

Architecture
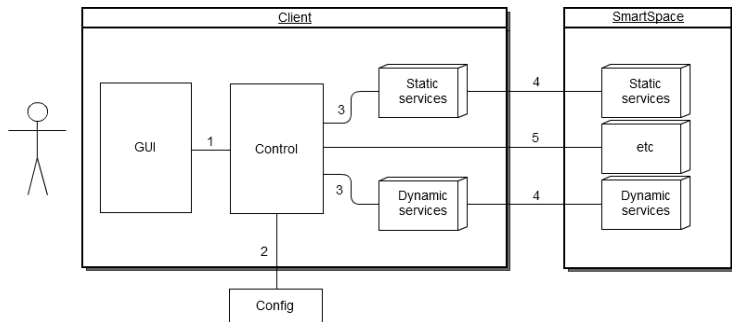
- **control**: main class, initialization and configuration (if needed)
- **available services**: handling user and smart space actions
- **config**: login, password, plugin configuration
- **services**: set of classes for available services; each sends and receives service data and transforms it to required format
- **etc.**: other knowledge

Conclusion

The development is on the initial phase
http://oss.fruct.org/wiki/SmartRoom

- Concept elaboration: accessing services at the client side
- Client architecture: cross-platform options
- Static pages implementation is started
- Dynamic page construction is at the design phase