



Petrozavodsk State University
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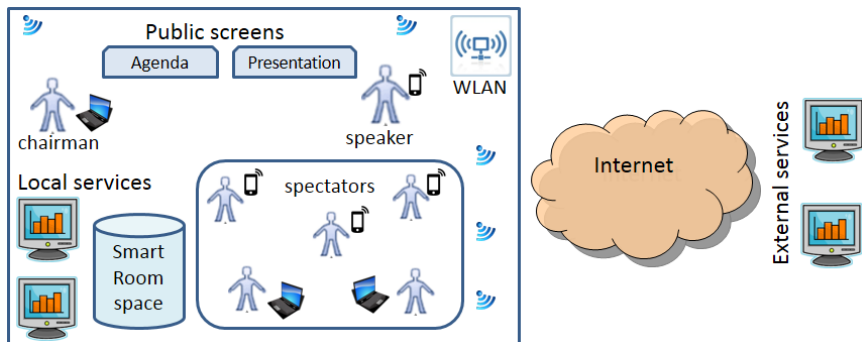
Enhancing the SmartRoom System with e-Tourism Services

The work is supported by
the Ministry of Education and Science of the Russian Federation.



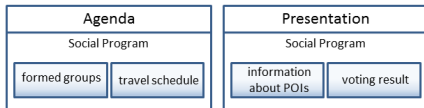
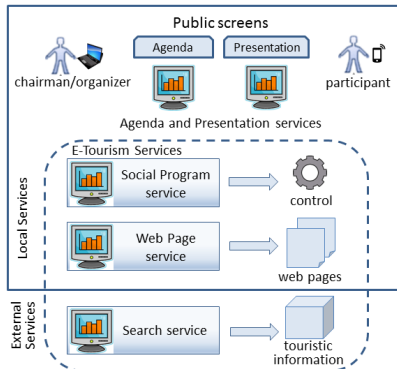
AMICT-2015 conference
May 14, 2015, Petrozavodsk, Russia

SmartRoom: Assistance for Collaborative Work

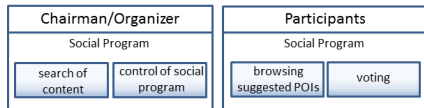


- Many services (composition, personalization)
- Participation of many users (user can be indoor and outdoor)
- Participants come with own devices and use personal clients
- Based on the Smart-M3 platform

Scenario I: Social program for conference participants

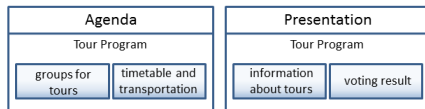
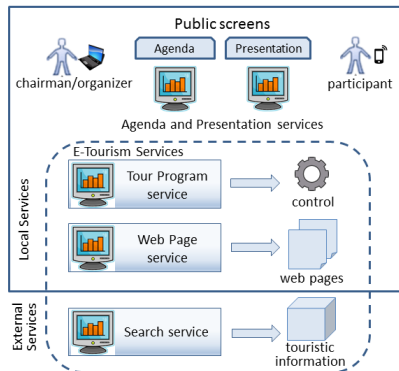


Screens of SmartRoom's components for Social Program

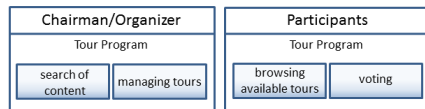


~> Social program: groups, timetable, transfer, ...

Scenario II: SmartRoom in tourist agency



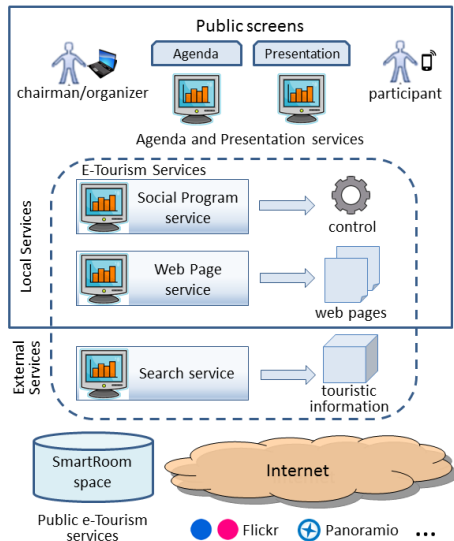
Screens of SmartRoom's components for Tourist agency



→ Tour programs: groups, timetable, transfer, ...

Our Approach

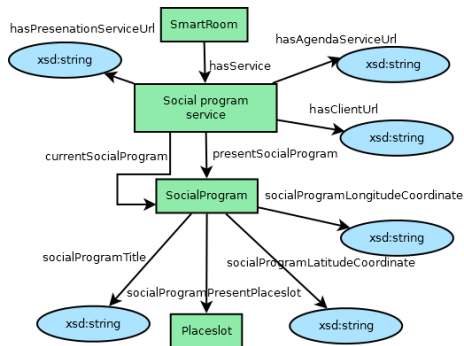
- Enhancing primary SmartRoom services with additional information: Agenda and Presentation
- Use of touristic data sources from the Internet: Flickr, Panoramio, ...
- Focus on SmartRoom users: collaborative work combined with conference activity



Implemented services

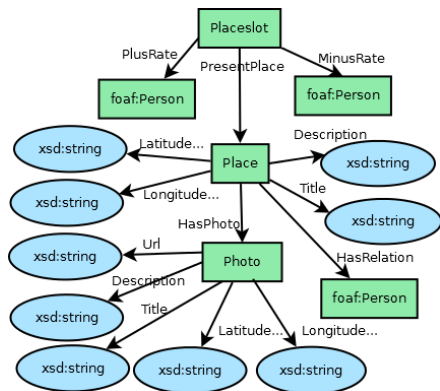
Service	Description	Tools
Social Program	Control and construction of a social program based on available POIs and tours to visit and the decisions of participants	C# .Net, WPF, SmartSlog
Search	Information search for POIs and tours in external data sources (e.g., photos in Flickr)	C# .Net, SmartSlog, Panoramio API, Flickr API
Web Page	Generation of web pages based on service templates and sharing the links in the SmartRoom space	Python, Python KPI, HTML5&JS, REST

Ontology for Social Program service



- *Social Program service individual* stores URLs for Client, Agenda and Presentation service
- Each program is in *Social Program individual*
- *Placeslot individual* is for connection with POIs individual
- Coordinate properties are for automated search

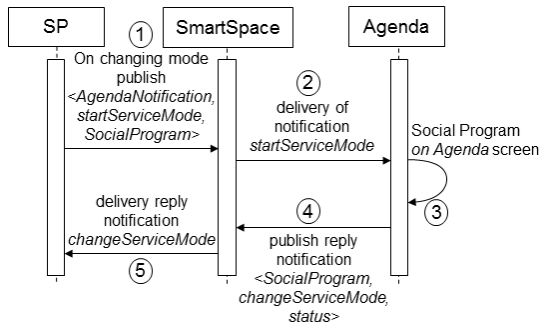
Ontology for POIs



- For each participants is known voting result on POIs
- Participants can have semantic relations with POIs (e.g., the architect of the building was from certain country)
- Every POI has many *Photo* with appropriate properties
- POI individual can be used cooperatively with other SmartRoom services

Interaction between agents: Notification model

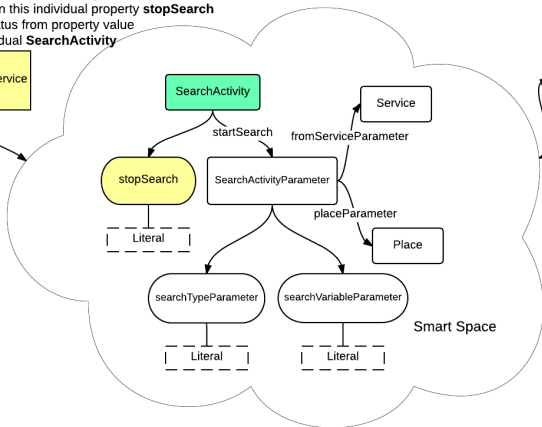
- Votes recalculation
- Update service page
- Changing Agenda and Presentation services modes
- Based on publish/subscribe model
- Simplifying interaction between agents



Interaction between agents: Activity individual

1. Insert individual **SearchActivity**
2. Subscription on this individual property **stopSearch**
7. Get search status from property value
8. Remove individual **SearchActivity**

Social_program-service

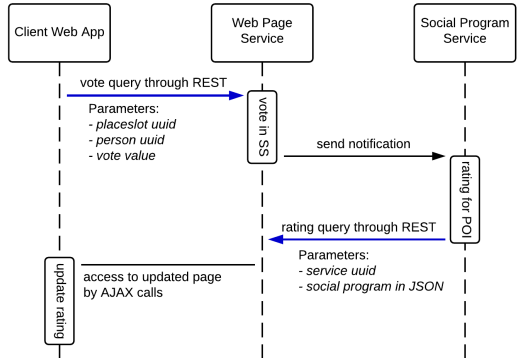


3. Subscription on **SearchActivity** class
4. Get search parameters
5. Start search
6. Set search status in **stopSearch** property

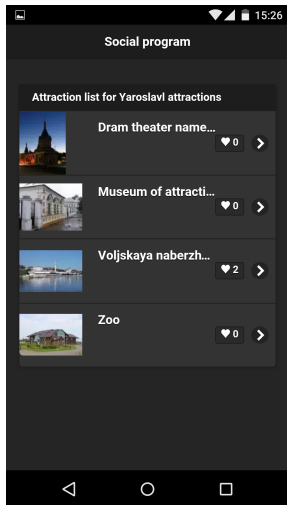
Search-service

Interaction between agents: REST query

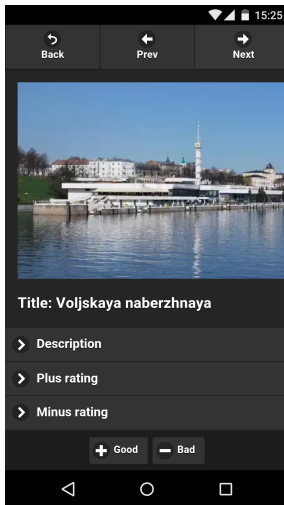
- Client interact with smart space through web app
- Web app interact through REST query with Web Page service
- POST & GET requests with special URL
- JSON object for passing individual to client



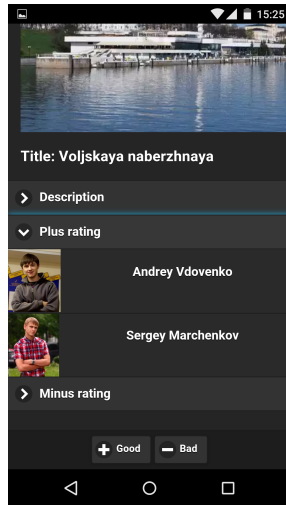
Screen examples: Clients



List of places





Place page




Who vote

Screen examples: Agenda and Presentation services

Social program

	ONEGA LAKE EMBANKMENT The embankment of Lake Onega contains a series of sculptures, many of which were presented as gifts from the twin cities. ● 1 ● 2	Sergey Marchenkov Andrey Vdovenko Dmitry Korzun
	PETROZAVODSK STATE UNIVERSITY Petrozavodsk State University (PbSU) is a classical university in Petrozavodsk, Republic of Karelia, Russian Federation. It was founded in 1940 as the Karelian-Finnish University and was renamed in 1956. ● 2 ● 3	Ivan Galov Alexander Lomov

Agenda service



Omega Lake Embankment

● 3 ● 2

The image shows a large, detailed presentation slide for the Omega Lake Embankment. It features a wide-angle photograph of the white, domed pavilion on a snowy beach under a dramatic, cloudy sky. The pavilion has a central spire with a flag. In the foreground, several people are visible on the snow, and a small boat is partially submerged in the water. The slide includes a title bar at the bottom with the text 'Omega Lake Embankment' and a progress indicator showing 3 out of 2 items, with a green bar and a red bar.

Presentation service

Conclusion

- Easy expansion of SmartRoom base system with services of different domain
- Implemented three services for supporting e-Tourism:
 - ↪ Social Program
 - ↪ Search
 - ↪ Web Page
- Several type of interaction:
 - ↪ Notification model
 - ↪ Activity individual
 - ↪ REST query
- Prototype of constructing social program by collaboration of participants

Thank you for attention

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