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Enhancing the SmartRoom System with e-Tourism Services

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SmartRoom System

- Many services (informational, control, collaborative work)
- Many devices (diversity of IoT device and mobile platforms)
- Agenda service defines program of the conference activity
- Presentation service is controlled by speaker (slide & video show, drawing)
- Personal mobile devices are services access points
Scenario I: Social program for conference participants

Social program: groups, timetable, transfer, ...
Scenario II: SmartRoom in 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

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Program</td>
<td>Control and construction of a social program based on available POIs and tours to visit and the decisions of participants</td>
<td>C# .Net, WPF, SmartSlog</td>
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<tr>
<td>Search</td>
<td>Information search for POIs and tours in external data sources (e.g., photos in Flickr)</td>
<td>C# .Net, SmartSlog, Panoramio API, Flickr API</td>
</tr>
<tr>
<td>Web Page</td>
<td>Generation of web pages based on service templates and sharing the links in the SmartRoom space</td>
<td>Python, Python KPI, HTML5&amp;JS, REST</td>
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</tbody>
</table>
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
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**
3. Subscription on **SearchActivity** class
4. Get search parameters
5. Start search
6. Set search status in **stopSearch** property
7. Get search status from property value
8. Remove individual **SearchActivity**
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
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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