Collection of existing approaches for context description

What are current practices of describing context information such as: environment, situation, time, location?

What is the relevant literature?

What research projects can we learn from?

- UsiXML
- MyUI

What are relevant standards?

- (by Christophe Strobbe) RFC 4480: “RPID: Rich Presence Extensions to the Presence Information Data Format (PIDF)”:
  - this standards defines elements such as activities (with values such as away, busy, meal, meeting and tv), mood, place-is (with the values noisy, ok, quiet, unknown; for video: toobright, ok, dark), privacy (with the values audio, text, unknown and video), etcetera.
- (by Christophe Strobbe) RFC 4589: "Location Types Registry":
  - with locations such as airport, automobile, bicycle, bus, hospital, hotel, library, office, outdoors, place-of-worship, public, and public-transport.
- Schema.org
  - Maybe for location information?
- ISO 9241-11
  - General information on usability?
  - Annex A: Table on user context
- W3C IndieUI
  - Events Model & Context Model
  - Proposal will be submitted around AccessForAll3

WHO ICF

(by Jim Tobias)

I wonder if WHO’s International Classification of Functions is relevant to this task force:
http://apps.who.int/classifications/icfbrowser/

ICF is a recognized categorization of 4 dimensions (BODY FUNCTIONS, BODY STRUCTURES, ACTIVITIES AND PARTICIPATION, and ENVIRONMENTAL FACTORS) that is intended to explain the concept of disability in terms of roles and participation.

The last 2 dimensions capture at least some of what we may be looking for; for example:

- d3500 Starting a conversation
- d3501 Sustaining a conversation
- d3502 Ending a conversation
- d3503 Conversing with one person
It's not principally technological in its orientation – in fact, it could be criticized on how it treats the use of technology – but it is the conceptual framework most used in international disabilities research, and thus has a certain amount of credibility and familiarity. Even if ICF does not become our main schema, we might do well to develop at least some parallel references to it.

Input by Vassilis

First, it is important to share a common understanding of the notion of context. The attached Table presents a quite common classification of the types of context proposed by Stefan Poslad. In essence, 6 types are identified related with the questions: what, who, where, when, how it is accessed and why it is useful. At a higher level, the Table groups the above questions into four categories, i.e.: Physical, Human, ICT, Goal.

In accordance with this categorization, we defined a similar subclass hierarchy for the Condition class of the User Profile Ontology (http://wiki.gpii.net/index.php/File:Conditions_v4.png - more details:http://wiki.gpii.net/index.php/Ontologies).

With respect to context description per se, a recent review paper on context modeling (and reasoning) is the following: http://dx.doi.org/10.1016/j.pmcj.2009.06.002
If you do not have access via the above link, you may find a pre-print version here: http://www.perada.eu/documents/articles-perspectives/survey-context-modeling-reasoning-techniques.pdf

In summary, the major modeling approaches are: key-value models, markup models, domain-focused models, object-role based models, ontology-based models and hybrid context models.

For the ontology-based model, notable are the SOUPA ontologies (Standard Ontologies for Ubiquitous and Pervasive Applications - http://cobra.umbc.edu/ont/soupa-ont.tar.gz) - although quite old - which may be considered as an upper-ontology framework for developing context-aware systems.

Next steps

HDM: Create a table in the GPII Wiki for collecting context-describing properties from various standards, technologies and projects.

- Columns:
  - Property global name (URI, ending with local name)
  - Value space
  - Default value
  - English description
  - Reference (standard and property local name, project)
  - Is Core?
  - (For registry entry) Description in other languages
  - (For registry entry) Localized labels for presentation to user

- Major sections for:
  - Environment
  - Situation
  - Time
  - Location

Action Items

Fill table at http://wiki.gpii.net/index.php/Context_Properties with information from other projects and standards:

- Vassilis: User Profile Ontology, paper on context modeling, SOUPA ontologies
- Claudia: ISO 9241-11 Annex A
- Christophe: RFCs 4589 & 4480
- Andy: Schema.org & ISO/IEC 24751
- Gottfried: Contact somebody from MyUI
- Andres: UsiXML & ISO/IEC 24756
- Gottfried: WHO ICF, ISO/IEC 24752

See also: ISO 8601, XML Schema Definition - Part 2

Future Meetings

Tue Jul 3, 12-14 UTC = 14-16 CET
Future Agenda Items

Bridge

Be sure to set AUDIO to Mic and Speaker (VoIP) - a headset is recommended.

2. Or, call in using your telephone.

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