W3C Workshop on Multimodal Interaction

Ramalingam Hariharan, Akos Vetek

Nokia

NOKIA

Outline

- Multimodality from a mobile perspective
- W3C Multimodal Standardisation
- What we would like to see addressed in the future

Multimodality from a mobile perspective

- Evolution of mobile devices and usage scenarios
  - Increase in processing power
  - Decrease in size
  - Used for a variety of tasks other than just voice communication
  - Inherent mobility: access services anytime, anywhere, under any circumstances
  - Availability of various modes: speech, keypad, pen

- New challenges for designing usable yet robust user interfaces: utilise all available modalities and context information

NOKIA

Use case: Multimodal Map Navigation

Mark is on a holiday with his family in Barcelona and is staying at a hotel in La Rambla. He decides that day to visit the famous La Sagrada Familia Church and wants to get the directions to go to that place. He connects to the map navigation application. A small map of the central Barcelona city map is shown on his terminal with his *current location* at the centre. Noticing the church on the far right side, he *clicks at that point and says* ”show me the directions from here to this church”. A list of directions is displayed now in his terminal. *Parallely* the application also *outputs through speech* that the distance is around 3 km and has good walking paths. It also asks whether he would like to get a local copy of the directions to be saved. He saves a local version in his terminal and starts to prepare for the sightseeing.

Multimodality from a mobile perspective

- Some of the issues to consider:
  - Potential unreliability of available modes
  - Graceful error handling
  - Advantages/disadvantages of certain modes for certain tasks or under certain circumstances
  - User preferences for interaction
  - Change in user's state/environment even within a session
  - Changing device capabilities even within a session
  - Combination of local and remote resources

W3C Multimodal Standardisation

- We support the important standards-related efforts undertaken by the W3C Multimodal Interaction Activity group
- We feel that most of the issues for enabling multimodal interaction are tackled by these efforts

  - Multimodal Interaction Framework
  - Extensible Multi-Modal Annotation (EMMA)
  - System and Environment (S&E)
  - Modality interfaces
  - Composite input
  - Interaction management
  - InkML

W3C Multimodal Standardisation

- We see especially the following work items important form our perspective:
  - *EMMA* for standard interchange format to express interpretations
  - *S&E* to provide interface to dynamically adapt application according to changes in device capabilities, environmental conditions
  - *Modality interfaces* between UI components for different modalities and host environment

What we would like to see addressed in the future

- Work on a standardised way of authoring multimodal applications
  - Future-proof when it comes to integrating/ supporting new modalities
  - Approaches?
    - A multimodal markup language
    - Rely on existing mark-up languages (eg: XHTML, VoiceXML, XForms)

What we would like to see addressed in the future

- Pen is an emerging modality in mobile devices
- InkML only data format for representing ink entered with electronic pen/stylus

- Need for standardised way of representing pen interaction-related information
  - Available gestures
  - Interpretation of gestures based on context

NOKIA

Division between OMA and W3C

- W3C primary source of authoring standards
- Mobile-related issues tackled by OMA