Multimodal Generation in the COMIC Dialogue System

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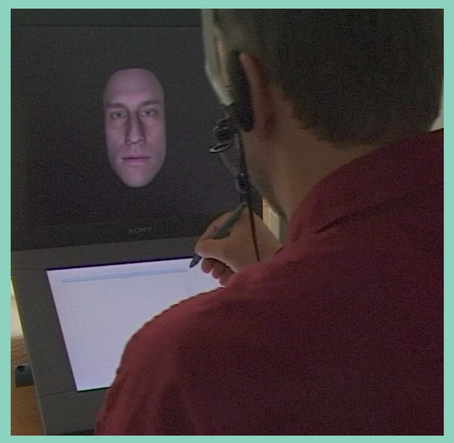
The COMIC System



Multimodal dialogue interface to a CAD-like application for bathroom redesign

Phases
- Specify blueprint of room
- Place sanitary ware
- Browse tiling options
- 3D walkthrough of room

Input
- Speech recognition
- Pen gestures
- Handwriting

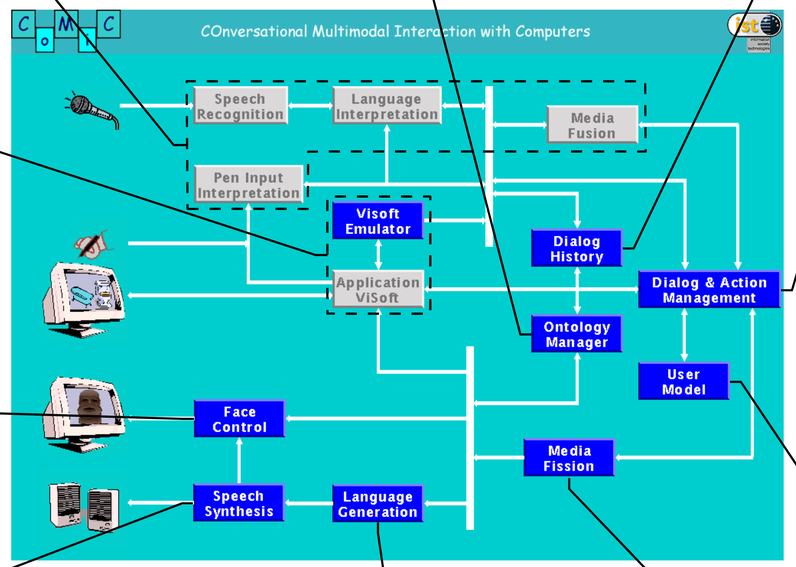
Output
- Speech synthesis
- Talking head behaviours
- Control of application
- Deictic pointer gestures

Details and publications
http://www.hcrc.ed.ac.uk/comic/

Input processing and fusion – not in the demo

Design application – emulated for the demo

Talking head – demo uses RUTH (DeCarlo *et al.*, 2004)



- Represented in DAML+OIL
- Stores information about all tile designs

- Which designs have been described
- What has been said about them
- Used by DAM and Fission

- Decides what to show and say in response to user input
- Input: multiple scored hypotheses
- Output: high-level output specification
- Domain-specific information stored in *Dialogue Action Forms* (DAFs)
- Dialogue state stored on stack
- Details: (Catizone *et al.*, 2003)

- Based on Multi-Attribute Utility Theory
- Stores features user likes and dislikes
- Used by DAM and Fission

- Client to Festival synthesiser (Clark *et al.*, 2004)
- Uses custom-build Festival 2 voice with support for prosodic mark-up

- Creates prosodically annotated text for synthesis
- Works in “anytime” mode
- Uses statistical language models to select highest-scoring output
- Based on OpenCCG (White, 2005a;b)

- Selects content to meet specification
- Coordinates output across channels
- Prepares and executes plans in parallel
- (Foster, 2005; Foster and White, 2005)

References

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