## MAPS - Memory Aiding Prompting System An empowering tool and aid to independence for adults with cognitive disabilities

**Challenge:** Individuals with cognitive disabilities are often unable to live on their own because of limitations in memory, attention, and executive functionalities. These limits can create an inability to *consistently* do normal domestic tasks like cooking, taking medications, performing personal hygiene, and using public transportation. Computationally enhanced prompting systems can provide a bridge to independence.

## Contact Information:

Stefan Carmien...... carmien@cs.colorado.edu

Website:www.cs.colorado.edu/~13d/clever/projects/maps/

L<sup>3</sup>D Center......<u>www.cs.colorado.edu/~l3d</u> MAPS is part of the Cognitive Lever Project (http://www.cs.colorado.edu /~l3d/clever), a research project of the Center for LifeLong Learning and Design with support from the Coleman Initiative.



## The CLever/L<sup>3</sup>D approach to computationally supported prompting:

- Involve all stakeholders The user with cognitive disabilities, the caretaker, the Assistive Technologist, all participate in design and evaluation. This approach addresses the high abandonment rate commonly encountered with assistive technology. <Inclusion>
- Design a tool that creates solutions equal focus on the prompt user and the script creation tool. <Empowerment>
- Aid community involvement by informed system design repositories of prompting scripts can be shared, extended. <Socialization>
- Implement personalization Use logging to enable adaptive prompting, caretaker feedback, research objectives. <Socialization>

**Research:** The MAPS project is built on a survey of research in assistive technology techniques and approaches, interviews with domain experts, a review of existing technologies, and collaborations with assistive technologists and users.

**Methodology:** Prototypes, derived from research and collaboration with experts in platform technology, using task centered design techniques, will be produced in a staged, iterative fashion with evaluation at each stage and feedback into design improvements. Proof of concept studies using wireless networking, RFID (radio frequency identification), and vision recognition technologies are also planned.





**MAPS:** MAPS uses a PDA platform to display verbal and pictorial prompts in a sequence that comprises a script. The PDA provides error correction functionality via dynamic, situated scripting and 'panic button' functionality (using wireless connectivity). As a script is played the events and context are logged, providing information for script refinement and analysis as well as immediate alternate prompts for breakdown situations. A PC based application provides tools for script creation, modification and sharing with other users via a web-based repository of scripts. The web repository has a browser based search, storage, and retrieval engine facilitating sharing and building of a body of successful scripts.

**MAPS EXTENTIONS:** The MAPS prompting and script building system is designed to integrate into the Mobility for All, TEA, and LifeLine CLever projects as a personalized front-end. It could also be used as a scheduler and a platform an Augmentive Communications device.



Center for LifeLong Learning & Design University of Colorado at Boulder

**CLever** Building Cognitive Levers to help people help themselves An L3D Project funded by the Coleman Initiative

