# 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 deficiencies in memory, attention, and executive functionalities. These deficits can create an inability to *consistently* do normal domestic and work related tasks such as cooking, taking medications, and using public transportation. Computationally enhanced prompting systems can provide a bridge to independence.

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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 Institute.
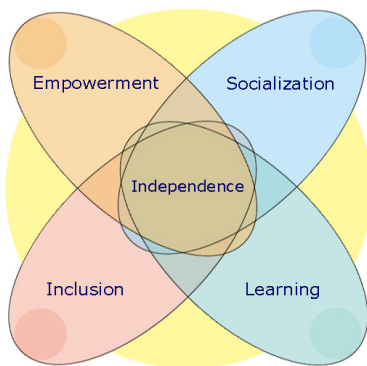
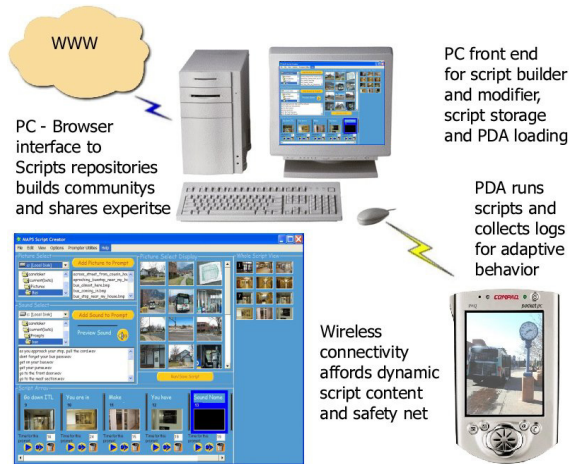## The CLever/L3d approach to computationally supported prompting:

- <Inclusion> Involve all stakeholders – the user with cognitively disabilities, the caregiver, and AT professionals in design and evaluation, addressing the high abandonment rate commonly encountered with assistive technology.
- <Empowerment> Design a tool that creates solutions – equal focus on the prompt user and the caregiver script creation tool.
- <Socialization> Implement personalization - Use logging to enable adaptive prompting, caregiver feedback, research objectives.
- <Empowerment> Dynamic prompt generation & error detection/correction - Make the whole system contextually aware.

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. Prof of concept studies using wireless networking, RFID (radio frequency identification), and vision recognition technologies are also planned


Pick a head of lettuce and put it in the cart

WWW

PC - Browser interface to Scripts repositories builds communitys and shares experitse

PC front end for script builder and modifier, script storage and PDA loading

PDA runs scripts and collects logs for adaptive behavior

Wireless connectivity affords dynamic script content and safety net

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 will be designed to integrate into the 'Mobility for All' and 'PITA-board' CLever projects as a personalized front-end. MAPS and the LifeLine project are integrated to support wireless context awareness and panic button functionality; caregivers can be notified of problems via cell phone (see www.cs.colorado.edu/~l3d/clever/projects/lifeline) .
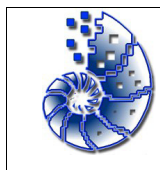
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CLever
Building Cognitive Levers to help people help themselves
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