

## Statement of Work

Trace Research & Development Center  
University of Wisconsin – Madison

## Scope of Work

### Background:

The work to be carried out under the subaward is part of an overall effort to develop a Cross-Disability Access Knowledge Network (CDAKN), which is based on extensions to the Tango Interactive Technologies. In particular the Trace Research & Development Center will be providing expertise and some components of the research plan dealing with the development of specific access strategies to address the access needs being posed by the evolving telecollaboration environments. The purpose will be to allow individuals who have disabilities to be able to participate side by side in telecollaboration environments. The Center will also be providing its expertise as part of the knowledge network whose topic is “providing access by individuals who have disabilities to evolving interactive environments.” Thus, the work will both provide knowledge and work on accessibility in interactive environments, and simultaneously be a test bed for a model of such accessible collaboration.

In general, the Trace Center will be developing specific access strategies to address the access needs in telecollaboration environments. These will be extensions of techniques developed for information (World Wide Web) and computer access, combined with more recent techniques that are being developed to address telecommunication or access issues. The Center will also provide laboratory space, usability testing and alpha and early Beta level testing. The Center will form a major component in the knowledge network around accessibility. And, finally, the Center will participate in the evaluation activities for the technologies and the products.

These activities will draw heavily on parallel activities being carried out in the Information Technology, Telecommunication, and Telerehabilitation Rehabilitation Engineering Research Centers. Each RERC is focused on different components and are key to addressing the proposed problem.

Some specific program deliverables include:

## 2. Knowledge Opportunities in Cross-Disability Access

Also early in the grant, we will release the first draft of a document outlining potential places where having a parallel knowledge base can be used to help increase accessibility of information which must be translated across sensory modalities. This is a new area, which has not been explored in the past except in extremely rudimentary ways (e.g., a vocal pronunciation for “smileys” to treat them as if they were words). The goal is to figure out whether ancillary information can be used to disambiguate information, which would otherwise be incomplete when viewed through only sensory modality. Work on this aspect of the program will be lead by Dr. Al Gilman, who is working as a part of the Trace Center under subaward for a number of Trace activities. Dr. Gilman is located in Virginia. (See separate subaward.)

## 3. Cross-disability Information Access Strategies for Distributed Collaboration – Release 2.0: Exploratory.

Not later than Quarter 4, we will release a document which will summarize at a functional level strategies which the team expects will improve cross-disability access to groupware. This document will be designed to provide a map of techniques and strategies, which will be implemented or experimented with as a part of the overall project. This document will supplement and not replace the first document, which may also be updated at this point. Since this document relates closely with the overall deliverables of all of the project teams, its development will be carried out in very close conjunction with the full team.

## 4. Knowledge Opportunities: Sources and Strategies

In Quarter 4 or 5, we will be releasing a document looking at specific techniques which might be implemented to incorporate knowledge bases as a mechanism to filling gaps for information which would otherwise be unavailable to individuals who do not have full multisensory access to the collaborative interactions. Knowledge sources, both human and archival, will be considered as candidates. In addition, strategies employing different kinds of knowledge representation and applications will be compared: XML markup vs. metadata vs. rulesets, as well as the client-side vs. service-side knowledge application, etc. The focus in this analysis is on retained knowledge and people participating in real time in order to provide what is missing in the knowledge gaps identified in the earlier document.

environments as compared to the information transaction machine strategies. The strategies will also be evaluated in terms of their ability to allow individuals with disabilities to participate, follow, comprehend and to contribute in collaborative interactions with individuals who do not have disabilities, as well as with individuals who have disabilities and do not have the technologies and support being proposed and studied.

#### 6. Operational Evaluation – Work Tasks

This phase will involve an operational evaluation of the accessible collaboration elements in actual work tasks. This will include use within the regular operating meetings of this grant team, as well as other real interaction sessions (standards meetings, World Wide Web workgroups, etc.) where a person with a disability is acting as both participant and leading the session. One application, for example, is interactive discussions between the team at Trace and remote webmasters whose sites are being reviewed.

#### 7. Interface Strategies Report

In Quarter 11 a report will be released on cross-disability information access strategies adapted for distributed collaboration. These strategies, identified and tested through the grant, will be updated and thinned based upon the results of the team evaluations and their prototype experiments. The report will provide practical information on the strategies, which have been found to be successful, as well as the identification of key issues and areas where further information, development or research is needed. All of this will include the work on interface design, cross-modality, translation, interaction, facilitation techniques (sensory modality and dependent) and the knowledge, capture and use to provide context to disambiguate or facilitate understanding of the information being presented in collaborative sessions.