

FY 2010 RESEARCH PROBLEM STATEMENT

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ODOT Research Unit
200 Hawthorne Ave. SE, Suite B-240
Salem, OR 97301-5192

Office Phone: (503) 986-2700
FAX Phone: (503) 986-2844

TITLE ([more info](#))

Validation Study for Real Time Emergency Communication and Information for Sensory Impaired Travelers

PROBLEM (Description of need) ([more info](#))

There is a need to conduct a study to test the effectiveness of new real time speech to text information and communication technologies deployed in multimodal terminals. In particular, there is a need to examine the use of real time speech to text systems for conveying emergency information to the general public as well as people with sensory impairments traveling through passenger terminals. The speech to text technologies have matured to the point where they can be evaluated for deployment in public spaces such as multi-modal terminals.

Passenger communication and information systems are more effective if the information is presented in two sensory modalities. In emergency situations, the ambient sound levels can be very high, it is even more important that information reaches the intended audience in both audible and text formats.

Currently, the most common method of conveying emergency information is through a public address system. These systems are difficult of all people to understand. New real time speech to text technologies have now matured to the point where they are ready to be evaluated in public spaces.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY ([more info](#))

The proposed development project will test and evaluate the effectiveness of real time speech to text information technology for conveying emergency information in real life operational conditions of a multi-modal terminal. The multi-modal transit facility located at Portland International Airport (PDX), provides a living laboratory to test the technology, and effectiveness of real time speech to text systems for use in public spaces. Several of the most sophisticated passenger information display systems are currently installed in the airport terminal.

The real time speech to text technology is a technological quantum leap forward from the Visual paging technology that already exists. Visual paging requires the use of preset messages or manual typing in of messages. Real time speech to text technologies are much more sophisticated and translate real time spoken word into text messages for presentation on passenger information displays. Real time speech to text technology can assist emergency management personnel in conveying evacuation information to all passengers in a timely manner as well as targeted to specific zones or areas in public spaces.

Real time speech to text technology is finally mature enough to be used in an operational test in a multi-modal terminal. The proposed project would entail the following activities: Coordination with emergency management personnel to identify the most likely types of emergencies and the corresponding type and content of the messages. This step is important for developing an human factors framework for the deployment and testing of the technology. Coordinate with terminal operators to develop test scenarios and test plans.

The proposed demonstration project will evaluate the effectiveness of real time speech to text technology for use in traveler communication.

BENEFITS [\(more info\)](#)

All travelers benefit from real time communication and emergency information that is presented in two sensory modalities(text and audible). Advanced real time speech to text technology has the potential to reach sensory impaired passengers with targeted information and will facilitate an appropriate response to an emergency situation.

Oregon is a leader in the deployment of advanced technologies to assist passengers with disabilities. The Portland International Airport is one of the most accessible and traveler friendly airports in the world. This project would be the first in the world to take real time speech to text technology and deploy it in public spaces. The potential benefits of this project are very far reaching and if successful, will impact all modes of public transportation. Specifically this project would assist public transportation entities (Bus, Rail and Air) to improve regular and emergency communication to all passengers during a major storm event. In times of stress, all passengers including those with disabilities benefit from having information repeated in more than one sensory modality. In addition, if the ambient conditions are noisy, text messages are much more effective than audio messages.

The benefits of this project highlight Oregon and ODOT's leadership in the deployment of ITS systems. The communication technologies that will be deployed advance to a new level Oregon's leadership in both accessible and advanced passenger communication technology deployments.

Improved communication systems prevent mistakes, save lives and ultimately reduce resource consumption. State of the art speech to text passenger communication and information systems take advanced traveler information systems to a new level and showcase, Oregon's current and future achievements in accessible passenger transportation systems.

CONTACT INFORMATION:

Name ¹ :	<input type="text" value="Kate Hunter-Zaworski"/>	Name ² :	<input type="text"/>
Address ¹ :	<input type="text" value="National Center for Accessible Transportation
Owen Hall 220
Oregon State University
Corvallis, OR 97330"/>	Address ² :	<input type="text"/>
Email ¹ :	<input type="text" value="hunterz@engr.orst.edu"/>	Email ² :	<input type="text"/>
Phone ¹ :	<input type="text" value="541-737-4982"/>	Phone ² :	<input type="text"/>

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Problem Statement Number: