

RESCUENET

Suresh Singh, Ph.D. Professor
Department of Computer Science
Maseeh College of Engineering and Computer Science
Portland State University
PO Box 751
Portland, OR 97207
503-725-5402

Summary of Research

When buildings collapse, the primary challenge facing rescuers is determining the interior structure as well as the location of survivors. Dr. Singh's work examines the potential of using ultrawideband (UWB) radios and ultrasonic sensors to map the interior. The approach is to (1) Build a database of UWB propagation measurements in various types of rubble; (2) Develop more precise algorithms for identifying locations using UWB in rubble; (3) Algorithms for combining UWB propagation measurements and ultrasonic soundings to create a 3D map of the interior of the collapse; and (4) establish design for use with UWB in such environments.

Potential for Commercialization and Job Creation

RESCUENET has the potential to develop CT-scan like technology to map the interior of a building by only using external synchronized ultra wide-band radios. This research demonstrates how useful it is to map out the interior of fallen buildings or for law enforcement to map out the interior of a building hiding criminals.

Total Research Funding

Dr. Singh has received \$1,000,000 from the National Science Foundation, 9/2003 - 9/2007 for this project.

Student Involvement

The research involves four graduate students and two undergraduate students. One undergrad student will pursue graduate studies after experience with the project.

Website

www.cs.pdx.edu/~singh/currentprojects.html

http://www.cs.pdx.edu/~singh/itr2004-3_files/slide0001.htm