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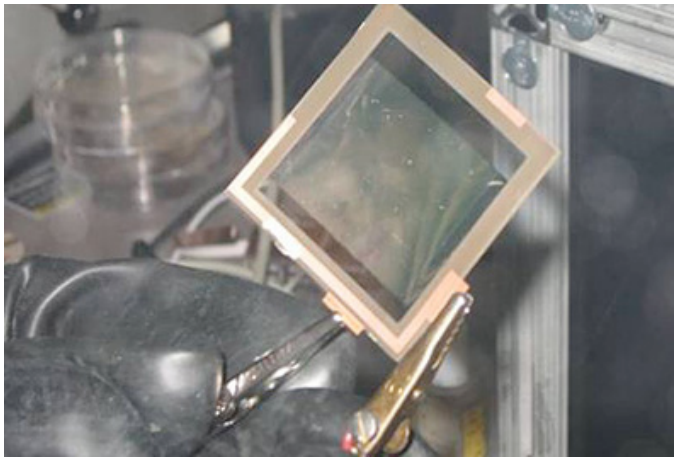

Active Networked Tags for Disaster Recovery Applications
Departments of Electrical Engineering and Computer Science, Columbia University
Professors Gil Zussman, Peter Kinget, Ioannis Kymissis, Dan Rubenstein, Xiaodong Wang

The project focuses on the design of disaster recovery system that will enable locating people trapped by fires and survivors of structural collapse. The key components of the system are Active Networked Tags that will be embedded in the building structure and carried by the users (for example, attached to their clothing). Other components will include cell phones and wireless mobile devices.

The active tags will be small and flexible device that will harvest energy from the environment (for example from light or movement) and will have ultra-low power communications capabilities. They will be attached to objects that are traditionally not networked and adapt their communications and networking mechanisms to satisfy their energy constraints.

In case of emergency, they will move to a special mode in which they form a network and transmit information (for example, last known location) to receivers which will be deployed by the rescue forces around the disaster site. In a long term emergency (a structural collapse), the tags will optimize the energy consumption for continuous and efficient operation.