WIISARD: Wireless Internet Information System for medicAl Response to Disasters

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ABSTRACT

Called the Wireless Internet Information System for Medical Response in Disasters, or WIISARD, the use of sophisticated wireless technology to coordinate and enhance care of mass casualties in a terrorist attack or natural disaster is the focus of a federally funded research project at the University of California, San Diego (UCSD). The project brings together broad-based participation from academia, industry, the military, and emergency responders from the City and County of San Diego.

WIISARD will provide emergency personnel and disaster command centers with medical data to track and monitor the condition of hundreds to thousands of victims on a moment-to-moment basis, over a period of hours to days at the disaster site. In addition, WIISARD has developed technologies to enhance communication among emergency team members and ensure their safety by tracking the "hot zone," or location and wind drift of the chemical or radioactive matter used as a weapon of mass destruction against civilians.

The WIISARD components includes:

- The provider PDA device, used to triage, track, and record treatment, destination, and other data on each disaster victim;

- the iTAG, or intelligent triage tag which allows for START triage, tracking, messaging, and data transmission throught the WIISARD system all in one electronic, wireless disaster tag

- the iMOX, or wireless pulse-oximeter used to monitor and transmit victim vital sign data to the WIISARD system

- The "mid-tier" supervisor tablet that allows for the coordination of groups of patients and providers, allowing patients to be assigned to ambulances, hospitals and tracking providers at the scene;

- The command center application, which allows a summary view of the incident, mapping and location features, as well as more specific information on patients and providers if needed

- The base hospital application, which allows coordinating base hospitals and receiving hospitals to view the incidents details, including numbers and types of victims, injuries and treatment given, and where they are being transported;

- The WIISARD self-scaling architecture with pubilsh-subscribe application

- The CalMesh 802.11 wireless nodes that create the wireless network for the WIISARD system to run on

We propose to demonstrate each aspect of the WIISARD system, provider, supervisor, incident command, and hospital, in the triage, vital sign monitoring, and treatment of victims to the assignment and delivery of these victims to the receiving hospital. WIISARD will set up its mesh network using CalMesh nodes, triage several "patients", treat them, then "transfer" them to the receiving hospital. The command center displays will show the overview of the incident, while the supervisor and provider applications will demonstrate increasing detail on the patients and providers on "scene".

Proceedings of the 5th International ISCRAM Conference – Washington, DC, USA, May 2008
F. Fiedrich and B. Van de Walle, eds.

126