

Utilizing Available Technology for Preparedness and Response: The 21st Century SOS

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Harness the power of technology to prepare yourself and your family and help rescuers find you faster. The Visual 911+ app is an easy-to-use and effective new tool that provides emergency lighting and sound to assist rescuers with locating survivors and alerts family and friends via email of your GPS location and personal safety status. The practical uses and its simplicity make Visual 911+ a modern-day SOS and a life-saving tool. Not only does it save lives, it costs nothing to rescuers or users, and it is not dependent upon external power or cellular network connectivity.

Studies indicate that more than 90% of Americans carry a cell phone or smart device with them at all times. In a sense, the majority of the population is equipped with a night-time visual signaling device, making Visual 911+ practical to deploy. Visual 911+ leverages that fact to provide users with emergency signaling capabilities which not only could save the user's life, but the emergency signaling color-coded system alerts rescuers to the type of survivor they are seeking.

Color-Coded System

Specifically, the color-coded system provides rescuers with much needed information prior to rescue (red for children, green for the handicapped, blue for an adult, yellow for a pet, and/or white as a catch all color. It also provides a steady and constant signal for "I'm OK" and a flashing signal for "I need assistance".) A legislative bill was recently introduced in Texas by State Representative Armando "Mando"

Martinez (D-Texas) in an effort to improve jurisdictional search and rescue operations. Mr. Martinez' forwarding thinking stems from his background as a first responder and emergency management professional. The legislator and his supporters hope to utilize the passage of the Texas legislative bill to improve search and rescue outcomes in their own jurisdiction, as well as utilizing it as a basis for introduction and adoption in other jurisdictions throughout the country.

Survivor Group Composition

Rescuers can utilize UAS, helicopters, airplanes, or high ground to look for the visual signals and make note of the information (location, condition, survivor group composition). Simply put, there is a difference when it comes to the rescue of adults and children. Adults are more knowledgeable about their surroundings and threats to their safety, capable of following evacuation commands, familiar with rescue operation equipment and gear, capable of self-evacuation (provided the adult is not injured) and capable of communicating vital information on other survivors, locations and threats. Children, on the other hand, are (1) less likely to take notice of the threats to their surroundings, (2) may have difficulty self-evacuating, (3) may have difficulty following evacuation commands, (4) may be unfamiliar and afraid of the sights and sounds following a disaster, (5) may be unable to communicate effectively to aid rescuers, or (6) require additional equipment necessary for evacuation. Having this information prior to attempting

a rescue allows the rescuer to focus on the needs of that particular survivor and increases the likelihood of a safe and life-saving rescue.

Had the technology been available for Hurricane Katrina survivors, for example, thousands may have been rescued sooner. During Hurricane Katrina approximately 100,000 people chose not to evacuate prior to the storm. Let us assume that 50% of them did not utilize the illuminated signaling system. Let us further assume that of those 50%, the signals of the people who used an illuminated signal during the rescues were not visible. Even so, 25,000 people would still have been locatable using an illuminated signaling system. In large-scale rescues, like rescues conducted during Hurricane Katrina, having multiple survivors utilizing a signaling system would have allowed rescuers to prioritize rescues based upon survivor group composition and/or the medical conditions of the survivor group.

Special Needs

Not only can the Visual 911+ app benefit survivors and rescuers in the examples provided above, it also recognizes the needs of the disabled community. By incorporating a specific color-code for disabled people, rescuers can be prepared to assist the specific needs of the disabled-survivor by having appropriate evacuation equipment, medical support devices, medicine or the like with them when they find the survivor. Specifically, statistics reveal that of the injuries suffered by the

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elderly, almost 49% are due to falling. These falls prevent a survivor from moving to a door or window or a landline phone to request assistance. Other situations, for example being stranded in a vehicle due to accident or weather, confused, disoriented or lost elderly could seek assistance with the touch of a few icons. The Visual 911+ app gives survivors a handheld tool to summon assistance immediately.

Field Tests of Visual 911+ App

A field test of the Visual 911+ app was conducted by the Northeast Region Unmanned Aircraft Systems Unit of the Grand Fork Sheriff's Office on Nov. 20, 2016, in Grand Fork, North Dakota. Following the field test, an interview was conducted with Professor Alan Frazier, Deputy Sheriff, who reported that "all signals from the application were clearly visible from an AeroVironment Qube UAS using an electro-optical camera at 100' AGL and 200' AGL at a range of approximately 100 yards." He further commented, "...it is my opinion that the distinct colors would help in prioritizing rescues as well as determining the potential need for additional equipment or rescuers (i.e. a disabled vs. non-disabled victim or victim with a pet)." When asked if the survivor location information was of value, he stated, "I believe it would be in a large-scale disaster in which cellular voice communications were down, but potentially digital only data communications were still up. The long[itude]/lat[itude] component is especially valuable, as a victim visiting a location that is involved in

a disaster may have no idea of addresses or nearby streets." Lastly, when asked, "Do you believe establishing a post disaster survivor visual signaling system is a good idea to improve UAS effectiveness?" he replied, "Yes. However, getting the word out to the public and the rescue community is going to be the biggest hurdle."

A second field test was conducted by C4L Tactical Operations operating out of Eldora, Iowa. The incident commander of the C4L Tactical Operations Response Unit indicated that the field test was conducted during the recent search and rescue operations following Hurricane Matthew (Sept. 28-Oct. 10, 2016). The incident commander reported seamless communication with his team throughout the operations, because he utilized the Visual 911+ application to:

- track team members during mobilization; and
- track team members who

were forced to evacuate (in some cases multiple times) as the storm moved up the east coast of the United States.

Visual 911+ also provides emergency communication to family and friends. Users pre-populate a simple profile, including up to three emergency contacts and email addresses. If the user finds him/herself in a life-threatening situation, a few taps to the cell phone or smart

device will generate an email communication to the emergency contacts containing the user's GPS coordinates and a message to call 911. Family and friends can provide that information to rescue personnel. This silent method of emergency communication could be vital in terrorist, active-shooter or lone-wolf attacks. Because the user only needs to select a few icons, and no dialing sounds or voices alert a perpetrator of the communication, users can stay safe if hiding or sheltering from threatening criminal activity.

Conclusion

It has been well documented that emergency communications are a priority during disasters. Visual 911+ provides not only that priority communication, but also provides the lifesaving signaling capabilities necessary for night-time rescue, which can substantially assist both survivors and rescuers. ▲

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