

Real-Time Out of Vehicle Tracking System for Paramedics

Next-Generation Situational Awareness Through Wearable Devices

INTRODUCTION

A Canadian Paramedic Chief recently set a critical response mandate:

“At any time, our Paramedics need to be tracked and communicate with Operations and Dispatch in real-time with accuracy and security”.

Operations and Dispatch must be able to maintain location awareness and communications with Responders in all conditions (bike, marine, all-terrain vehicles, foot patrols, etc.). Live-event field testing by 35 Paramedics during Canada Day and a Marathon event were conducted to evaluate the usability and effectiveness of an advanced technology tracking and communications system utilizing mobile and wearable (Smart Watch) devices.

Objectives

- Reduce Call for Service response times (efficiencies);
- Assist operational decision-making (effectiveness);
- Increase personnel safety (safety); and,
- Improve communications (reliability).

METHOD

Study design was based upon collecting user experiences, assessments and evaluations during events which required out-of-vehicle responder tracking and communications.

Responders were outfitted and deployed with a rugged, low-cost Smart Watch device configured with the CommandWear software application which communicated through the Cloud (via cellular) with their existing Android or iOS Smartphone device that they normally carry. GPS location data from the Smartphones was updated and transmitted every 10 seconds (with an ability to adjust the update frequency on the fly).

Multiple Commanders in the Operations Centre and field utilized laptop/tablet devices with an internet connection to track:

- 11 Bicycle Teams
- 8 Foot Patrols
- 5 Marine Units
- 1 Jet Team (Special Unit)

Researchers were located both at the Ops/Dispatch Centre and in the field to support both Responders and Commanders. Data communications over 3G, LTE and Wi-Fi networks were monitored and recorded through the application server to measure results. All communications and locations auto-logged and played back graphically for review and reporting (as depicted in picture to the right).

SOLUTION FOR HIGHLY MOBILE RESPONDERS



CONCLUSIONS

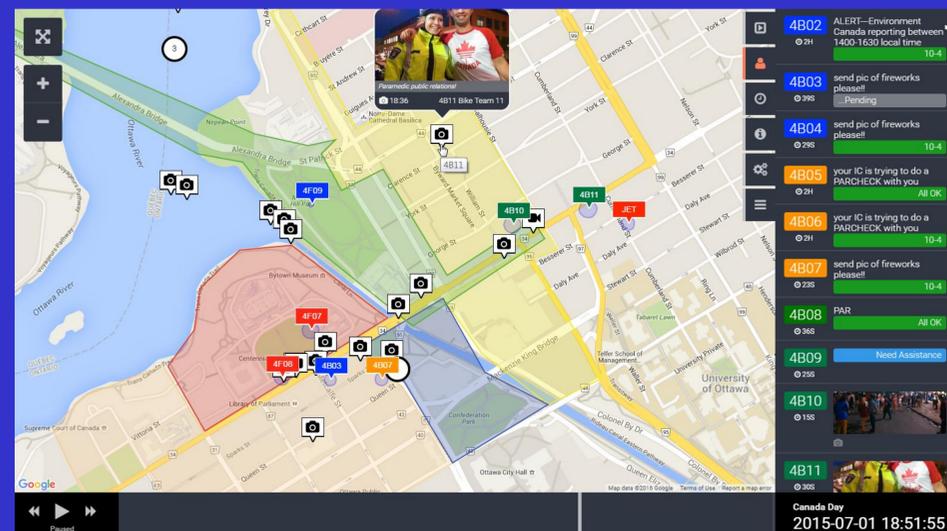
Out-of-vehicle remote responder monitoring with secure text-based communications in the field provides increased tactical situational awareness and de-confliction in the field.

Remote monitoring actions together with bi-directional Communication messaging provide real-time information with increased reliability improving both decision making and the recognition of emerging incident requirements.

RESULTS

- Reduced dispatch times by up to 20 seconds per call (by giving dispatch real-time locations of all paramedic resources).
- Alerted Ops/Dispatch of dismantled units traveling outside of assigned colour-coded zones.
- Increased re-integration of assets tracked to original tasking.
- Enhanced safety of personnel through maintaining accurate, real-time locations.
- Reduction in overall radio traffic using text communications via cellular data channels; freeing up airwaves for critical communications.

COMMAND / DISPATCH SITUATION MAP



FUTURE DIRECTIONS

- Internet-connected Advanced Wrist Device (smart wearables with no smartphone required).
- Responder Vitals continually monitored through CommandWear.
- Streaming video from the scene overlaid on map.
- Real-time group chat and IP voice communications.
- Indoor tracking.

AUTHOR

Michael Morrow, CEO
CommandWear Systems Inc.
604.761.3647 | mike@commandwear.com
www.commandwear.com