



BTI Institute

Borders • Trade • Immigration

A Department of Homeland Security Center of Excellence

Smart Phone Applications for Law Enforcement

Executive Summary

This document outlines a series of apps that may be used in conjunction with smart phones to create low-cost solutions and enhancements to law enforcement and security operations.

General

The term “smartphone” may no longer be appropriate for use by law enforcement, border security, and first responders. Smartphones are now personal platforms for an incredible variety of apps, sensors, linked devices, and the means to facilitate the integration of each of these elements. Consider the following:

Apps – According to statistica.com there are approximately 2.2 million Android apps and 2 million Apple apps. There are apps for law enforcement, fire, and first responders, but also a staggering variety of apps that can be employed by law enforcement and first responders. A few of the non-law enforcement/first responder candidate apps include:

- **Geocam Pro** – The app is now supported and available in the Google Play store. It is an important app because it allows the capture of Lat/Long on an image, the tilt angle of the camera, the pitch angle of the camera, and the embedding of other capture locations in an image. In addition, the captured images and associated metadata can be downloaded as a KML file for inclusion on Google Earth. It also provides a map overlay of the camera’s position and direction of focus. As you turn to face a direction, the indicator changes on the map. The map also shows the other sites where you have captured an image. [Geocam Pro](#)
- **Cargo Decoder** – Firemen sometimes cynically refer to law enforcement officers as “blue canaries”, as the officers are occasionally found passed out at a chemical wreck site. Cargo Decoder is the means to prevent “blue canaries.” It is the app version of the data in the Emergency Response Guidebook (ERG2016) as well as the ERG2012 and the ERG2008. Although the orange ERG books are provided free to every officer and first responder, too often they are not immediately available. Cargo Decoder solves this. By entering the 4-digit placard code on the tanker or container, the content is identified, the potential hazards are explained, and the proactive distances are provided. [Cargo Decoder](#)
- **Army Knife for Android** – This app includes a flashlight, unit converter, timer, stopwatch, compass, bubble level, calculator, magnifying glass, mirror, and ruler. Although each of these elements is available as separate a app or as part of other apps, this presents all of them in one place, and each of the parts is amazingly complete. As an example, the timer allows up to

ten different timers to run in parallel, and the unit converter includes almost any unit of measure. Army knife for Android

These apps represent only four of the several million that are available, MIT (Massachusetts Institute of Technology) has an app generation site that allows the creation of apps. In an afternoon, a non-coder can create an app. In a week, a complex app can be created and deployed. Sixth and seventh graders routinely use this site. [MIT App Inventor II](#)

- **Walabot** – This sensor package attaches to back of the phone, transmits radio waves, and then reads the echoes of the radio waves. Simply put, this is a handheld radar device that uses the phone as a display. It can be used to detect objects and voids in walls, vehicles, etc. It simplifies the detection of the concealment of drug loads in tires and other possible stash locations. Because it can pick very low energy vibrations, it can detect movement within containers. [Walabot](#)
- **Cellrizon Endoscope** – This is a low-cost (<\$20) waterproof endoscope that uses a phone as the power supply and display for what the camera sees. The camera is on the end of a 3-meter cable, includes a right-angle mirror for the camera, and a dimmable light mounted in parallel to the camera at the end of the cable. Mounted on a selfie stick, it allows for inspection under and behind obstructions, and the associated app can capture video or still images. This provides the means to easily look behind vehicle dashboards, inside vehicle vents, under seats, containers, tanks, and other closed or difficult-to-access areas. With a small 3 mm. diameter the camera can also be used as a simple borescope for weapon inspection and cleaning.



Figure 1 – Standard camera (1) mounts in the phone USB port, (2) 3 mm. camera with dimmable lights (image from Cellrizon)

The WiFi version of this camera includes a stiff cable that can be used without a selfie stick and a micro-WiFi transmission module to allow the endoscope to link to iOS phones, Android phones, tablets, and laptops. The WiFi version can be used remotely,

detached from the phone, and the transmission from the camera and micro-WiFi transmitter can be shared among multiple phones.



Figure 2 – WiFi equipped camera (1) 3 mm camera with stiff cable, (2) dimmer switch for lights, (3) micro-WiFi transmitter, (4) camera accessories including right-angle mirror, (5) suction cup sleeve for mounting the micro-WiFi

(image from Cellrizon)

In practical application, this means that in a situation in which no more robust device is available an officer can look under a door or through a crack in a curtain while transmitting what the camera sees to other officers. Further, the device can remain in place transmitting while the officer moves away. As applied to ad-hoc tactical surveillance, it could provide immediate “eyes-on” awareness to a situation, and potentially save lives. At under \$50 for the WiFi version, it would seem an almost trivial cost for this potential. [Cellrizon Endoscope](#)

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