

January 2007 preliminary discussion, this will be updated very soon

## **Crash n' Drag Solutions**

General discussion of the Crash n Drag solutions: First, I apologize for a series of random thoughts; there are many different solutions, which vary with the area, cell tower coverage, personnel and support. The cell phone solution is the best solution and the easiest one, <<IF>> the coverage in the area needed is OK. I got the Boost system, which works due to the Java programming allowed and then drove from Colorado through new Mexico and half of Texas, discovering the coverage is poor at best and some of the larger cities only had central populated coverage, no coverage in the country, The robber only has to get outside of the city limits to escape detection. The Verizon has much better coverage in the area but I did not check out the ability to individually program the phones. Verizon does have a Parental control cell phone for the kids so that the parents can monitor the kid's location. It should be simple to plug one of these kid's phones into an ATM and program to call home when it is turned on (power is disconnected). In the UK the ability to track cell phones has been allowed for years and should be easy to incorporate with [www.192.com](http://www.192.com) (track a mobile).

## **UV**

Consider adding a UV dye in a non-obvious container outside the safe such that trying to break in will spill a colorless fluid that can be later used to identify and track down the thieves. A dual-purpose dye would be needed, as the first 'leak' could be a controlled release so that a UV light spotlight could track the ATM trail as it is being hauled away. This UV Dye would break down after a few days (biodegradable). A second release system could stain the area used to break into the ATM and the equipment and hopefully the thieves. This dye would need to be more permanent. Two different systems with a safety container that would remain sealed during installation and transportation and yet delicate enough for release upon break in and non-obvious to alert the thieves to the possibility of being tracked (powder instead of a liquid?). The purpose is to catch the thieves within the hour time slot they need to break into the safe.

## **E911 and SAR**

Also needed for the system is the tracking coordination in any event. The security officials tracking need to be trained in the Search and Rescue techniques, be able to respond and coordinate tracking within 10 minutes, know the area (their town, not a half day away). In the case of using GPS and cell phone, a central computer such as the 911 operator that can coordinate the Lat-Long coordinate and give an address to officials. Also needed would be the history of where the ATM was taken and an official way to document the trail that would be admissible in court. Again the purpose is to stop the attack before the criminal gets too good.

**NBCs TODAY** (February 2, 2007) showed several different techniques of crashing into the building and some methods to haul the ATM off. The criminal is instructed on how to perform this crime. According to the show, the crime is only a robbery, while a bank is a Federal offense.



**Today's show February 2, 2007** <http://www.msnbc.msn.com/id/3032633/>  
<http://video.msn.com/v/us/msnbc.htm?g=a9735f5d-98d6-4f36-9a24-c82c997ae362&f=05&fg=rss>

### **RFID (Future)**

RFID is another method of a simple transmitter. The most common RFID does not require batteries and is generally passive; the area covered is only limited by the power of the transmitter (transponder) and the visibility of the passive unit attached to the package. A better alternative would be an active RFID, which contains a battery and could be switched on if a vibration alarm is tripped. This unit would allow greater range and tracking. A larger dual antennae and increased receiver sensitivity should allow tracking from a quarter mile away. The military has similar tracking capability for its personnel.

### **Cell phone**

Cell tracking alternative. There are many spy-tracking devices available at spy shops, which will display the location of a tracked automobile on the WEB and only needs a minimum monthly cost. This unit could be turned on with a simple weight that would close a switch is the ATM is set on its side. All radio and cell devices should be placed inside the protected area and have a battery that will last for a long time. The shelf life or running time needs to be considered. The power monitoring can be dual purpose, charging the battery and turning on the equipment if the power is disconnected (and the ATM is disturbed to stop false alarms.)

### **Mobile tracking**

Imagine a Radar detector with a screen that tells the strength of the signal (distance to the transmitter), and if the signal or laser gun is in front or in back. A design similar to a radar detector can indicate if the signal is coming from the right or left, if it is behind, and what is the strength of the signal (how close is the ATM.)

## **RDF (Radio Direction Finding)**

Amateur Radio operators have held 'FOX HUNTS' for many years to locate illegal transmitters and interference. They have manuals on direction finding, radio techniques and antennae construction. The boating industry has used LORAN (now obsolete) for locating ports and bearing and positions in the ocean with only radio locators. They have used AM radio stations as alternative position locator. Planes still land with ILS, which is an instrument landing system and is nothing more than a position radio receiver in every plane that will tell the pilot the exact location within the glide slope.



There is a Personnel locator for skiers so that they may be found if covered by an avalanche, this transmits a 406 signal to a satellite and also a 121MHZ local beacon so that the SAR (search and Rescue) can quickly find them.



An Example:

### **Accutracking.com**

AccuTracking software turns your Motorola iDEN i58sr, i88s, i325, i355, i265, i285, i605, i710, i730, i830, i850 or i860 cell phone carried by Nextel, SouthernLINC (US) or Telus (Canada) into a GPS tracking device. The free online GPS cell phone tracking service provided by AccuTracking.com lets you see locations, speed, and headings of your mobile clients, family members or valuable assets

## Frequencies

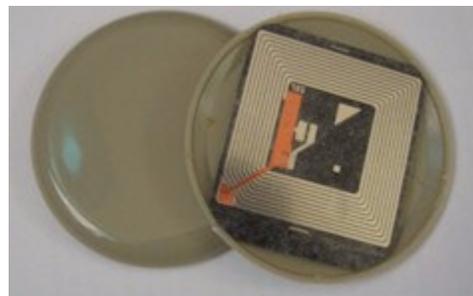
The frequency of the transmitter is a consideration when selecting the equipment, lower frequencies will travel further and will bend over the earth curvature, but requires longer (bigger) antennae's and more power. 440 bands will use about a 6-inch antenna while a 960 radio (lower cell phone frequency) only needs about 3 inches. The digital cell phones (2 gig) use about a one-inch antenna. The secret of a cell phone small size is that the receivers on the towers are extremely sensitive. This is important when trying to locate an ATM that might be pulled into a garage and the cell tower might not be in range. A local locator (transmitter) would still be needed and a system like the personnel locator could be needed. In any event major considerations are what personnel or security would be available to track down and what cooperation would be needed with police department. What experience would be needed to locate the ATM and will the right kind of documentation and evidence trail will be needed for a conviction.



Antennae discussion. In any event, the ATM has to have antennae's on two sides with both powered and protected by a coating or plate that will allow the RF and not be scraped off in a 'drag down the street'. Also, not be damaged if struck intentionally with a hammer. The material sold as floor sliders / protectors (Teflon and hard plastic) is an example. Suggestion is to place three identical sliders on each side of the ATM (only one on each side 'hot') so that the RF will be exposed no matter what side the ATM is resting upon. The method of inserting the antennae's probably has to be done on installation with a simple striping the wire and inserting into the slider. In the case of the cell phone installation, a Dual antennae could be used, one for the cell and one for the GPS.

**CAUTION: this ATM Safe may be equipped with tracking and recording equipment. We will find you if you steal it!!**

The caution label might be placed on every slider!!



An Example:

### **Environmental-studies.de**

The unique **GPS PRO Dog** collar tracking system is an universal and completely new technology for finding, pursuing or tracking your dog: A GPS receiver and a GSM modem with special software is incorporated into the dog collar. Allows you easily and remotely monitoring the location of your dog via your cell phone/mobile phone anywhere in the world with suitable GSM coverage. Two versions are available:

- **GPS collar** (250 g weight, without collar belt, the belt is included in the price)
- **GPS backpack** (200 g weight) to fit on a harness

**The principle:** You simply call the telephone number of the GPS PRO Dog collar with your handy /mobile phone /cell phone. The GPS receiver of the collar, estimates the position of the dog and sends the coordinates **immediately** as SMS (Short Message service) over the Global System for Mobile Communication (GSM) directly on your mobile phone display. The accuracy of the positioning amounts to the average less than 15 meters.



Do a search on google for vehicle tracking, or asset tracking gps:

[gpsfleetsolutions.com](http://gpsfleetsolutions.com)

[Bluewatersecurityprofessionals.com](http://Bluewatersecurityprofessionals.com)

[Traceamobile.co.uk](http://Traceamobile.co.uk)

[Celltrack.spv-developers.com](http://Celltrack.spv-developers.com)

[Travelbygps.com](http://Travelbygps.com)

[Verilocation.com](http://Verilocation.com) (fleet management)

[Ramseyelectronics.com](http://Ramseyelectronics.com) (Direction Finding equipment)

Another Example:

An interesting thread on Google Answers, regarding what services are available to track the current location of a cell phone. (via del.icio.us).

For about \$200.00 ICU, Inc. offers to locate a cellular telephone by pinging the phone – a kind of triangulation process similar to the one I mentioned earlier. Ms. Landers explained that the cell phone appears as a ‘blip’ on a screen. They provide the service 24 hours a day, 7 days a week in order to help locate missing persons, fugitives, cheating spouses, etc. They regularly serve bondsmen, authorities, investigators and many others. You will receive the results within 7 to 10 minutes of a successfully completed ping that will indicate within approximately 50 feet, where the phone was located at the time of the ping.

I.C.U. Inc.

<http://www.tracerservices.com/cpl.htm>

<http://www.tracerservices.com/cplfaqs.htm>

Aside from the cell phone tracing, the list of services on the I.C.U. Inc web site makes for fascinating reading. Update: 08-15-2005 23:59 - Came across the CellTrack project, which is developing a free, open source cell phone tracking system (presently for GSM). It requires installing a client application on the phone