# TECH b•e•a•t

**Dedicated to Reporting Developments in Technology for Law Enforcement, Corrections, and Forensic Sciences**

# Cruiser Smarts

*A common scenario: An officer on routine patrol sees a car run a red light and takes off in pursuit. While avoiding other vehicles and pedestrians the officer must reach for one switch that activates the car's lights, stretch for another that turns on the siren, and grab at the microphone for the radio—all of which distracts the officer when extreme attention is needed.*

*A not-so-common scenario: An officer pushes a button on the steering wheel, says a few simple commands and the lights, siren, and radio automatically activate and the vehicle registration is checked for wants and warrants.*

*Two projects sponsored by the Office of Justice Programs' National Institute of Justice (NIJ)—one in New Hampshire and one in Texas—are working to help make police vehicles smarter and turn the not-so-common scenario into a common one.*

Although the name of the New Hampshire smart car project came from the 1960s television show, *Car 54 Where Are You?*, the resemblance ends there.

Project 54 began in 1999 and deployed its first vehicle in 2001. Today, the system is used on 497 patrol vehicles belonging to New Hampshire law enforcement agencies and on another 200 in other New England States as well as in Maryland and California. Lt. Mark Liebl, assistant unit commander for support services with the New Hampshire State Police, drove that first test vehicle in 2001 and still is the lead tester for improvements. (A group of six troopers also tests innovations before full-scale implementation.)

"Cruisers were getting smaller and smaller, and loaded with more and more equipment. Each piece of equipment had its own controller, and that takes up a lot of space inside the cruiser," Liebl says of the project's inception. "By providing a means of accessing equipment with fewer distractions, Project 54 creates an environment that is safer for officers and for everyone else on the road."

Developed by the University of New Hampshire's Consolidated Advanced Technologies Laboratory (CATLab), Project 54 is a fully integrated system that works with most manufacturers' equipment and can be activated via voice commands, an LCD touchscreen, a keyboard, and/or the original controls. The modular system can be easily installed, modified, and repaired at low cost.

"One of the nicest features about the project is that the speech technology is very, very tolerant of accents," Liebl says. "With many speech technologies, you have to talk into the computer for 15 to 20 minutes [before] it starts to understand your voice function. I could take

## CHICAGO'S VEHICLE OF THE FUTURE

At the mayor's direction, the city of Chicago is working on the "Patrol Vehicle of the Future" customized to law enforcement needs.

The prototype was unveiled at a press conference in February 2006, just 6 weeks after Kevin Campbell, automotive engineer for the city's Department of Fleet Management, learned of this top-priority project. According to Campbell, the project started with a Chevrolet Tahoe (the only nonsedan that is police-rated for pursuit) and an ad hoc committee of officers to provide feedback. This prototype unit is now in daily use, and its success, he says, led to the development of four more vehicles, one for each of Chicago's five policing areas.

Campbell says the most expensive technology added to the vehicle has already proved to be its most valuable— a database and camera system that reads the license number of every vehicle it passes. If the system finds a license number that matches a stolen vehicle warrant, it alerts the patrol officer. Use of this technology was cleared through the city's legal department. Commander Jonathan Lewin, who oversaw the vehicle's initial weeks of use, says this technology resulted in the recovery of 48 stolen vehicles and 2 stolen handguns between March 1 and April 18, 2006.

anyone out to my cruiser, and it would understand that person right away."

Project 54 works with almost any voice and with almost every manufacturer's equipment. CATLab continually works on improving that capability. Liebl explains, "The last thing we want to tell an enthusiastic individual is, 'oh, by the way, it only works with particular equipment.'" He notes that some State police departments have 500 to 800 cars. If they have to change their light bars or video systems, what starts out as affordable (approximately $1,500 for a cruiser already outfitted with a Microsoft® Windows®-based operating system) may become too costly.

In addition to turning equipment on and off, Liebl says, Project 54 allows officers to run license plate checks verbally, switch channels on radios, activate radar or mobile video equipment, and obtain certified copies of driving records. CATLab is working on adding the ability to operate its features off a personal digital assistant as long as the officer remains within 300 feet of the cruiser.

Two thousand miles away at the University of Houston, the university's police department also is evaluating and testing smart car technologies. The department has been evaluating a Ford Expedition and a Ford Crown Victoria equipped with TACNET™ technologies since June 2005.

Gordon Dilmore, director of the university's Southwest Public Safety Technology Center, has been helping evaluate the project. Dilmore notes that as equipment has proliferated, police cars' front seats have grown more cramped. "Most have anywhere from two to five different radio heads, a mobile data terminal, siren and light controls, plus gunracks, radar, and other equipment," he says. The goal was to move the control heads from the front seat to the trunk, where a computer would control all the functions.

Preliminary results indicate that officers like the de-cluttering, having one control mechanism for all vehicle functions, and particularly the voice-activated component, Dilmore says. Their constructive criticisms were incorporated into TACNET units deployed with other police departments around the country.

Originally developed using NIJ funding, TACNET offers voice command, touchscreen, and push-button controls on a centralized control center for lights, sirens, radios, radar, video, mobile data functionality, and more. Its voice-control system operates on 39 device commands and 76 application commands, including license plate lookup. A unique heads-up display provides information to officers and allows them to keep their eyes on the road instead of looking down at a laptop. The system can receive and transmit up to five radio transmissions simultaneously and serve as a crossband repeater linking up to five radios.

*For more information about Project 54, contact Lt. Mark Liebl at* mliebl@safety.state.nh.us. *For more information about the TACNET evaluation project, contact* Gordon Dilmore at gdilmore@att.net.

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*Chicago's Vehicle of the Future* (continued)

Other features include—

- A plug-and-play wiring harness that allows incorporation of devices made by various manufacturers (e.g., lights and sirens).

- LED lighting to improve vehicle visibility.

- A work area, including a light, a computer, and a pullout tray, in the rear cargo area.

- A night-vision camera installed on the spotlight. These devices can be used in tandem or separately.

- Molded plastic rear seats and a rubberized floor with drainplugs, so the rear seat can be washed out and kept clean.

- Ballistic-resistant lamination on the windows.

Enhancements under consideration include—

- Gunshot location technology.

- Biometric vehicle access (e.g., fingerprints).

- Interoperability technology, such as TACNET™ or Project 54.

*For more information on Chicago's Patrol Vehicle of the Future, contact Kevin Campbell, 312–744–5228.*

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