In the Hot Zone

Next Generation Video-Gaming Technology Boosts HazMat Training for FDNY

Four firefighters from Engine 44 rush to a call at a subway station at 58th Street and Fifth Avenue. The officer on duty thinks it is suspicious that nobody is coming out of the station and tells his unit to put on their SCBA gear.

The firefighters descend the steps to the underground station, which is smoky, and they find several civilians coughing near the exits.

They send the civilians to the street and then proceed toward the trains. There, they see a heavy green gas emanating from a barrel, a fire in a trash bin and numerous straphangers convulsing on the platform.

After checking some of the patients, assessing the situation and calling for backup, the unit begins to evacuate. Yet just as they are about to leave, the officer suddenly collapses and issues a Mayday.

There's nothing in this scenario that sounds good. Except for the fact that it's all fake.

The scenario is part of the HazMat Hot Zone, a video game-like computer training program under development for the FDNY at Carnegie Mellon University in Pennsylvania.

The computer program simulates hazardous materials incidents with a great deal of precision, incorporating real-world details such as the individual sound of firefighters breathing through their air masks. The program also allows an entire unit of firefighters to participate together, interacting with each other through the program.

"It gives firefighters experience with how to handle a variety of scenarios," said Lt. Tony Mussorfiti of FDNY HazMat Operations. "They have incorporated as many sensory features as possible into the program."

The HazMat Hot Zone enables instructors to set up numerous types of scenarios for firefighters, from chemical leaks at industrial plants to mass transit terrorism. Instructors can pre-set everything, including time of day, the color of the hazardous material and how far it should travel, wind direction, outdoor temperature and number of victims. Computer scientists and programmers at Carnegie Mellon have worked closely with FDNY firefighters and fire officers to test and improve the program – making it as real-
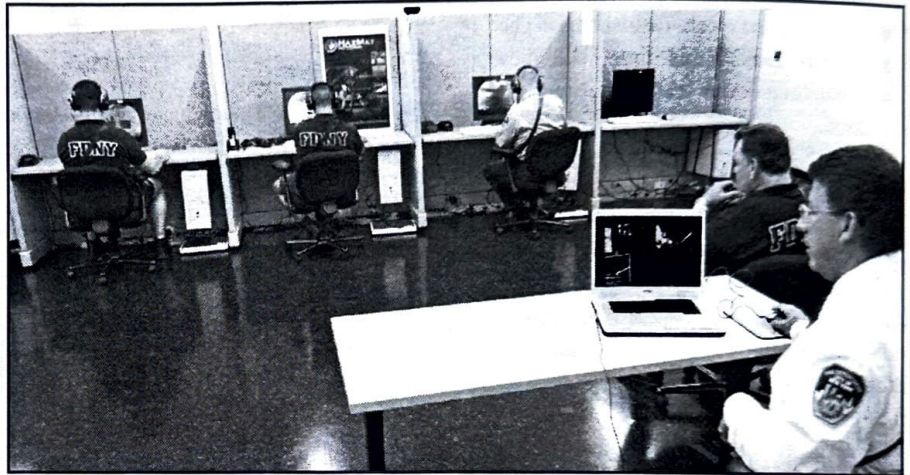
(Top) Under the direction of Lt. Tony Mussorfiti of FDNY HazMat Operations, Firefighters from Engine 44 participate in the HazMat Hot Zone, a video game-like computer training program that is being developed for the FDNY by Carnegie Mellon University.

(Right) Firefighter Bryan Doyle of Engine 44 descends the steps of the subway during a computer simulation.
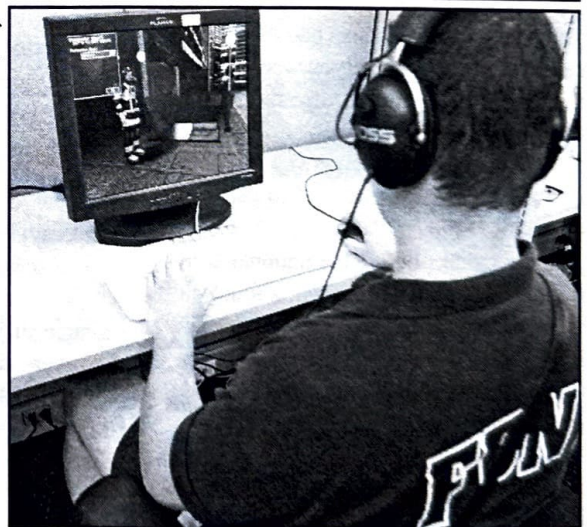
istic as possible.

"It gives us the ability to rerun a scenario an unlimited number of times," said Chief of HazMat Operations Robert Ingram. "And the more you do something, the better you are at it and the more you learn from it."

The program is still in development, but it is already impressing firefighters.

Lieutenant Ed Ryan of Engine 44 said the program helps all firefighters become more confident, forcing them to make split second decisions.

"You can put five guys through five exercises in a half an hour. There's no way you could do that outside," he said. "Every time you react differently and you learn more."

Other firefighters from his unit agree.

"It gives us an opportunity to learn from our mistakes without getting hurt, tired or exhausted," said Firefighter Carlos Toro.

Firefighter Bryan Doyle agreed, saying that with this program "you never know what's going to be thrown at you. You never know what's going to happen, which is the reality of our job."

While the project is still in need of additional funding, Lt. Mussorfiti said he hopes to eventually make the program even more intricate and have it available in firehouses throughout the city.

And although he helped spearhead the project, he added that he, too, is amazed by the success of the program.

"I didn't think it was possible," Lt. Mussorfiti said. "So much of what we do is perishable knowledge – if you don't practice it, it's lost. But this gives them the ability to run through a scenario several times; gaining experience they can take with them to the field. And it's only going to get better."