

New technology keeps evidence close to the vest

January 12 2010, by Staci West

(PhysOrg.com) -- Each day, law enforcement officials are faced with the daunting task of investigating complex crime scenes without compromising evidence. Investigators know the slightest error could jeopardize a conviction, setting a criminal free.

Now, researchers at the Department of Energy's Pacific Northwest National Laboratory are teaming with Mnemonic Systems Inc. on an interactive system that will enable law enforcement personnel to quickly capture, store and relay vast amounts of information at crime scenes and other field scenarios. Called Team Leader, the system will bring the latest in geographical information systems together with global positioning, multi-media computing and communication technologies in a small unit that can be worn by the user. MSI, based in Washington, D.C., is a Nichols research company.

"The range of tools and on-line capability of Team Leader reduces the number of people needed initially to assess and prepare a scene for processing, therefore reducing the risk of inadvertent contamination from fingerprints, footprints, hair or fiber," said Dan Irwin, project manager at Pacific Northwest.

Team Leader, scheduled to be completed by the end of 1998, is designed to be a rugged, weatherproof vest unit that incorporates an IBM-compatible [personal computer](#). The unit will be field tested by police departments in Baltimore, Md.; Miami (Metro-Dade), Fla.; and Los Angeles, Calif. and eventually renamed and commercialized by MSI.

Team Leader integrates sophisticated software with a number of data collection tools, including a digital video and still camera, voice recorder, barcode scanner and specialized sensors. The system can capture and use satellite images, terrain features, architectural drawings, site plans and a host of other information vital to a thorough investigation.

Team Leader also serves as a portable library, with access to volumes of stored or online information, such as maps, facility floor plans, databases, reports, forms, investigation protocols and scientific, technical and legal reference material.

Information gathered at scenes can be disseminated instantly via fax, e-mail or wireless LAN lines to a base station. For complex scenes, up to eight Team Leader systems can exchange information and communications simultaneously. And due to the modular design, each unit can be configured with different tools depending on need. Team Leader supports both voice and video conferencing and also can be used to access off-site computers, printers and fax machines.

"If Team Leader were deployed at a murder site, for example, investigators could use the unit to track their routes and create a detailed 'map' of the scene," said Irwin. "Upon discovery of the murder weapon, investigators could link the evidence to its geographical position with laser measurements and positional data, capture still and video images and record detailed audio and text notes. The digitized evidence would be transferred immediately to an evidence custodian and could be recalled months or years later during trial through its assigned barcode."

Team Leader originally was developed by Pacific Northwest and the Remote Sensing Laboratory, Las Vegas, Nev., through DOE funding in support of treaty inspections and other arms control and verification activities. Pacific Northwest and MSI, with guidance from the National

Forensic Science Training Center, will customize the unit for a range of law enforcement and forensic applications, such as search and rescue, natural disasters, hazardous material incidents, fires and clandestine drug operations.

"We plan to work closely with the Federal Bureau of Investigation, American Society of Crime Laboratory Directors and others to help establish the standards and criteria by which digital evidence is accepted into our criminal justice system," said Irwin. "Also, we'll team with the law enforcement and forensic communities to establish and equip Team Leader with specific directions or protocols for processing crime scenes - protocols that may set an industry standard."

Provided by Pacific Northwest National Laboratory

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