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# ID badge radiation detector could transform tiny R&D company

**LINDA A. JOHNSON**
**Associated Press**

**MIDDLESEX, N.J. -** With looming war in Iraq and fears of further terrorist attacks at home, a low-cost radiation detector invented by JP Laboratories Inc. could generate big demand come this summer.

The tiny research company started developing the thin, ID badge-style detector six years ago under a Navy research grant, but the technology was never used.

Now, under a $105,000 federal contract signed last September, JP Laboratories has produced thousands of its plastic radiation detectors for testing by federal scientists. The contract was among the first dozen the Combating Terrorism Technology Support Office awarded after a nationwide post-Sept. 11, 2001, call for new anti-terrorism technology.

"They wanted a simple device every soldier can put in his pocket," said JP Labs' founder and president, chemist and physicist Gordhan Patel.

He is rushing final refinements and says the detectors could be available to everyone from military personnel to civilians starting in a few months.

The device indicates when an area is unsafe and the level of a person's radiation exposure - a key to helping doctors choose the best treatment.

"It looks very promising," said Jeff David, deputy director of the technology support office, which is evaluating the detectors with input from interested military, law enforcement and civilian emergency agencies. "They like that they're cheap, they like that they're small, they like that they're very easy to read and that they're very quick in their response," indicating exposure instantly.

Until now, the low-profile company in a converted warehouse in Middlesex has lived off research grants and royalties from licensing to others the rights to its inventions.

Those include devices for monitoring sterilization procedures and time and temperature indicators that could eventually be in grocery stores to show whether food has been properly stored.

If federal testers give the radiation detectors a thumbs-up, it could transform JP Laboratories from a seven-person company with less than $1 million in annual revenues into a booming business.

David said some potential users have suggested subtle changes, but testing hasn't shown any flaws. He hopes to wrap up evaluations in a few months.

"We have a lot of user agencies that have said they want this if in fact it works to their satisfaction," David said.

Patel said the devices should sell for about $5 each for the military and $5 to $7 for versions for civilians and for police and ambulance crews who would respond if terrorists set off a radiation-laced bomb.

While experts say making a nuclear bomb is probably too complex for terrorists, they could easily make a "dirty bomb," an ordinary bomb packed with explosives and radioactive cobalt, cesium or radium, materials widely used in medicine and industry, Patel said.

His detectors, called radiation dosimeters, have a special plastic strip down the center. If exposed to radiation, a chemical reaction changes the strip from clear to blue in under one second.

Darker shades indicate higher exposure levels. A graded color code next to the indicator strip shows the exposure level, and wording next to it tells the user when to leave the area or seek medical help.

"A physician can look at the badge, they can see what the dose is and they will know what symptoms to expect to see and what treatment is appropriate," said Andrew Karam, radiation safety officer at University of Rochester Medical Center.

Karam said JP. Labs' radiation dosimeter seems "as idiot resistant as possible," while many other dosimeters are hard to interpret.

Other dosimeters on the market today, mainly targeted to government and emergency response agencies, sell for $15 to $30, said Arthur Barchenko, an anti-

terrorism consultant and president of Clifton-based ECSI, a maker of high-tech security systems for nuclear plants, military bases and other uses.

"There are many people, I'm sure, who would buy this," if JP Laboratories keeps the price so low, said Barchenko, who has not evaluated the detector.

Patel is planning an advanced version, with security features such as a hologram or a magnetic strip for security access systems, for about $10.

"The biggest market will be the civilian population in this country (and) overseas," he predicts.

While JP Laboratories earns royalties on about 10 products it licensed to other companies, Patel now is setting up a joint venture with a manufacturing company to make the dosimeters and share the profits.

He left high-tech manufacturer Allied Signal, now called Honeywell, to start his company in 1983, fortuitously the year after the federal government started its Small Business Innovation Research Program. Under the program, 10 federal departments and agencies give competitive grants to small companies to help them thrive as they develop needed new technology.

Patel has received at least $3 million in such grants, funding development of about 70 percent of the 15 products the company has developed so far. Ten are patented; others have patents pending.

NAMSA, a Northwood, Ohio, company that does contract testing and safety assessment of medical devices, has licensed six JP Labs' products - indicating inks that change color when products sterilized by various methods have been properly disinfected.

"They are widely accepted in the marketplace as being superior to the available" inks, partly because their sensitivity level can be adjusted and they are made without toxic heavy metals, said Joel Gorski of NAMSA, which has at least 15 indicators using the inks on the market and plans many more.

Avery Dennison, a Pasadena, Calif., maker of office products such as labeling materials, has licensed Patel's technology for time and temperature indicators it is now testing for labels to go on food shipped to markets or chain restaurants. The indicators would show whether foods such as meats, seafood, produce and dairy

products had gotten too warm or frozen and then thawed en route to the ultimate buyer.

"It's a promising product line for us," said company spokesman Charles Coleman. "I can't say when they will be on the market."