

Device helps with Sudden Infant Death Syndrome detection

May 9 2012

University of Texas at Arlington researchers have obtained a patent for a device aimed at saving babies' lives through improved and rapid detection of Sudden Infant Death Syndrome.

Electrical Engineering professor J.-C. Chiao, doctoral candidate Hung Cao and Heather Beardsley, a research engineer at UT Arlington's Automation & Robotics Research Institute, have developed a sensitive wireless sensor system that can detect [carbon dioxide](#) exhaled by [babies](#) as they sleep. But more importantly, the [sensors](#) know when infants are not expelling carbon dioxide – quickly enough to allow intervention.

“This has the chance to save lives,” said Chiao, who also holds the Janet and Mike Greene and Jenkins Garrett professorships in the UT Arlington College of Engineering. “Our system is more accurate than current systems. Our system reduces false alarms that desensitize parents or caregivers.”

SIDS typically occurs in infants under a year old while the child is sleeping. Cases are classified as SIDS when there is no other explainable cause of death.

The new sensors can be attached to a baby's crib or car seat. The sensors are less cumbersome than current technology that requires breathing apparatus being placed around the baby's nose.

“Our sensors just let you know the baby is breathing normally without all

the wires and breathing tubes most systems use now,” Chiao said.

Cao said he was inspired to develop the new sensor after his son’s birth in 2006.

“I was watching him through the glass in the hospital nursery and didn’t see anyone taking care of him,” Cao said. “I couldn’t get in to check so I thought, ‘How can I be sure he’s OK?’ ”

Cao was working at ARRI at the time on a project developing gas sensors for missiles. His work involved building sensors that could detect whether a missile had lost gas, which is needed to fire the missiles.

“I thought why couldn’t that same type of system be used for detecting carbon dioxide which all people breathe out,” Cao said. “The sensors could be mounted around the baby to let people know whether he’s breathing normally or not.”

Beardsley said the team has worked to reduce the cost of the device to about \$100 to speed its move to the marketplace.

“That’s the key to commercialization,” Beardsley said. “People are willing to pay \$100 for the device but not several thousand dollars.”

She said the wireless sensor system would be infinitely better than what exists now in the marketplace.

“Now, there are audio, video and motion detection systems to monitor infants, but it is still difficult to determine whether a baby is breathing,” Beardsley said. “Those current systems aren’t being endorsed by the American Academy of Pediatrics anymore. The CO₂ system is much better. It represents a significant risk reduction in the health care industry.”

Provided by University of Texas at Arlington

Citation: Device helps with Sudden Infant Death Syndrome detection (2012, May 9) retrieved 2 May 2024 from <https://medicalxpress.com/news/2012-05-device-sudden-infant-death-syndrome.html>

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