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Student researchers advance emergency alert technology



The team spent 2,000 hours on their capstone project. Photo by Mary Knox Merrill.

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A group of Northeastern University student researchers have developed an automated emergency alert system to help elderly people in sudden need of medical attention.

Under the direction of Charles DiMarzio, an associate professor in the departments of **electrical and computer engineering** and **mechanical and industrial engineering**, the students created the technology for a wireless wrist device that automatically alerts emergency responders should the gadget detect a sudden change in the user's vital signs or speed of movement, as from a fall.

The innovative technology was developed for the team's engineering senior capstone project. The team members included Darren Nunes, Brian Rosenberg, Jon Sarafinas, Chris Udall and Max Flaherty.

The wireless device, designed to resemble a wristwatch, monitors vital signs, including oxygen levels and heart rate, and wirelessly transmits the information so those responding to an emergency know as much as possible prior to arriving at the scene.

The idea behind the device came from the Flaherty family's experience with another, less technologically advanced product. A family member wearing a non-automated emergency alert device suffered fatal internal injuries after falling down a set of stairs.

"I wanted to design something that a person can easily wear and has the capacity to alert emergency responders automatically if the user becomes unconscious," said Flaherty. "Our device has the potential to save more lives."

The design of a non-invasive device that allows users to live safely and independently was a priority for the students, who spent more than 2,000 hours on the project.

"No other commercial system currently integrates wrist-worn fall detection, plus vital sign and emergency monitoring in the way that this system does," said Udall.

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