Portable "Vein Finder" Enables Faster, Accurate Injections

A team of Georgia Institute of Technology researchers is developing an inexpensive, handheld device that uses Doppler ultrasound technology to find veins quickly to alleviate problems associated with the technique. "Depth and angle are the critical issues for vessel detection," says project leader Michael Gray, a research engineer at the Electro-Optical Systems Laboratory within the Georgia Tech Research Institute. "Even if you locate a vein at the skin's surface, it's still easy to miss when you try to insert a needle into the tissue below."

The Doppler effect is a phenomenon that occurs when electromagnetic and sound waves interact with a moving object, altering wavelengths and frequency. Compared to static skin and tissue, blood is a moving substance, so ultrasonic waves reflected from blood vessels have different characteristics than transmitted ones, providing critical 3D information about a vein's location.The patent-pending vein finder is composed of two parts: a reusable unit houses the electronics and signal processing components, while a disposable coupler box holds a reflector and needle guide. The needle guide is positioned parallel to the sound beam being transmitted by a transducer in the device's reusable section.

Once the system is successfully adapted for humans, data processing and electronics will be miniaturized in a prototype for field-testing. The researchers envision the final product will be about the size of a fat fountain pen.*Information:* www.gtresearchnews.gatech.edu *[1]*.

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