



### **GEORGIA TECH VIDEO:** **ELECTRONIC "EARS"** **LET SEWING MACHINES** **SUPERVISE THEIR OWN WORK**

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Automated sewing machines of the future may be able to monitor their own performance with electronic "ears" being developed by researchers at the Georgia Institute of Technology. The sensing devices would allow the machines to detect problems before they caused defects in manufactured goods.

#### **VISUALS AVAILABLE:**

- \*Interviews with Dr. Howard Olson and Dr. Lou Dorrity, associate professors of textile & fiber engineering.
- \*Footage of sewing machine at work.
- \*Close-ups of sewing machine parts running.
- \*Close-ups and wide shots of computer analyzing acoustic energy.
- \*Computer screen displaying color graphs of acoustic energy readings.

The sensor the scientists are developing could monitor the wear of sewing machine needles by listening to the sound they make each time they pass through fabric. A certain sound intensity would indicate to the machine that the needle was damaged--the machine would respond by summoning a human operator to replace the needle before it harmed garments.

The device would allow technicians to replace sewing machine needles only when they are worn out, a condition that is difficult to detect.

This technology is necessary to automated apparel plants of the future. It could reduce the cost of machine-made garments by freeing plant employees to take other responsibilities and enabling machines to produce fewer defective garments and more high-quality products overall, researchers say.

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But the sensors will become very important in the absence of a machine operator, said Dr. Howard Olson, associate professor of textile & fiber engineering. The sensor, not the operator, would be the first line of quality control.

The technology works with the use of computer analysis and a technique called Fast Fourier Transform. These reveal that the amplitude of certain sound frequencies increases when worn needles are used on a sewing machine. The increase is proportional to the amount of needle wear.

The sensor project is part of a larger research program sponsored by the U.S. Defense Logistics Agency (DLA), which purchases uniforms and other apparel for Defense Department agencies, supplying clothes to personnel in every branch of the armed services. Maintaining a strong U.S. apparel industry and ensuring quality control development are important to national defense and preparedness for emergencies such as Operation Desert Storm.

Additional research goals related to this project include detecting misaligned fabric pieces, broken thread, improperly set thread tension and even chipped or broken needles.

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***If you are interested in reporting on this research and need more information or missed our Wednesday, October 30 satellite feed, please call Toni Mills at (404) 853-0459 or Lea McLees/John Toon at (404) 894-3444. Dr. Olson can be reached at (404) 894-2534 and Dr. Dorrity can be reached at (404) 853-9076.***