Transforming Apparel Production

In August 2014, a $2 million Innovation Grant from the Walmart Foundation was awarded to Georgia Tech to further its “CRAFTed with Pride in the USA” project. The project is under Georgia Tech’s Center for Research in Apparel Fabri cations Technologies (CRAFT), working in collaboration with SoftWear Automation, the company that is commercializing the technology, and Georgia Tech’s Mechanical Engineering School. The goal is the creation of a fully-robotized sewing facility that will boost U.S. apparel manufacturing and bring this much needed supply-chain function back to America.

“Today only 2.5 percent of apparel consumed here is produced domestically,” notes Dr. Sundaresan Jayaraman, principal investigator on the project. “We plan to increase this figure by building on our breakthrough innovation for developing of a thread-count-based fabric motion control, a non-Euclidean measure (geometric measure), and a high-speed machine vision system for handling robotics and materials.

Jayaraman stated, “Humans cannot count threads as they sew, but a robotic machine can!”

Since denim accounts for a significant portion of imports and is easier to handle than fine silk, the project’s initial target is blue jeans. Once the technology has been successfully developed for denim, it can be enhanced to account for all types of fabrics.

Future for the Project

According to Jayaraman, the various building blocks for automated sewing are currently being developed. At the same time, a low-cost fabric-handling and transport robot to handle the repetitive movement of fabric parts during sewing has been developed and is being commercialized by SoftWear Automation. Jayaraman expects that by the end of the two-year period, a fully-functional automated Work-Cell with a seamstress-less sewing machine will be ready for commercial deployment.

This project is also considered as critical for national security and economic prosperity. Jayaraman noted, “Manufacturers and retailers will be able to deliver products rapidly in small lots, in varying designs, and at competitive prices. It will also minimize inventory in the value chain, and reduce markdowns for retailers and chargebacks to manufacturers. By strengthening the U.S. domestic manufacturing capabilities, both the defense and civilian sectors will benefit.”

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