WOOD PRODUCTS MANUFACTURING PROCESS ENGINEERING

A McIntire-Stennis supported project

PURDUE UNIVERSITY

Forestry and Natural Resources

This project will help the primary and secondary wood processing industries in the United States formulate their technological, manufacturing and management strategies to increase their competitiveness amidst ever-increasing economic, societal and environmental concerns.

The aim is to develop tools and applications that enable use of wood scanning technology in the hardwood industry, demonstrate wood scanning technology to the U.S. wood industry and allow benchmarking for lean manufacturing and supply chain management performance in general.

After several years of software development to create algorithms that could assess quality of hardwood logs and lumber, this project tested an automated scanner, the Microtec Goldeneye 300 Multi-Sensor Quality Scanner, which utilized color cameras, lasers and an x-ray sensor, to grade more than 1000 boards from each of nine different commercial species: ash, basswood, cherry, hard maple, hickory, red oak, soft maple, white oak and yellow poplar.

Results showed the scanner was 92.22 percent on-grade accurate and 99.5 on-value accurate, well above the National Hardwood Lumber Association requirements, and better than that of human counterparts.

The Microtec Goldeneye 300 Multi-Sensor Quality Scanner in action.

COLLABORATION

This project utilized an NHLA inspector, personnel from the Pike Lumber Company and Microtec engineers in addition to researchers.

$348.1 billion

Sales of hardwood products added $348.1 billion in value to the United States economy in 2016

About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.

USDA

IMPACT

Nearly 15 years in the making, the project aims to achieve the vision of a fully automated hardwood industry

980
The Goldeneye 300 scanned 980 linear feet per minute, sufficient for a sawmill producing 20-25 million board feet of lumber per year

99.54 Percent
On-value accuracy results, far better than the industry required 4% margin of error

8
CT.Log scanners installed globally in the last 5 years, including 1 in Indiana