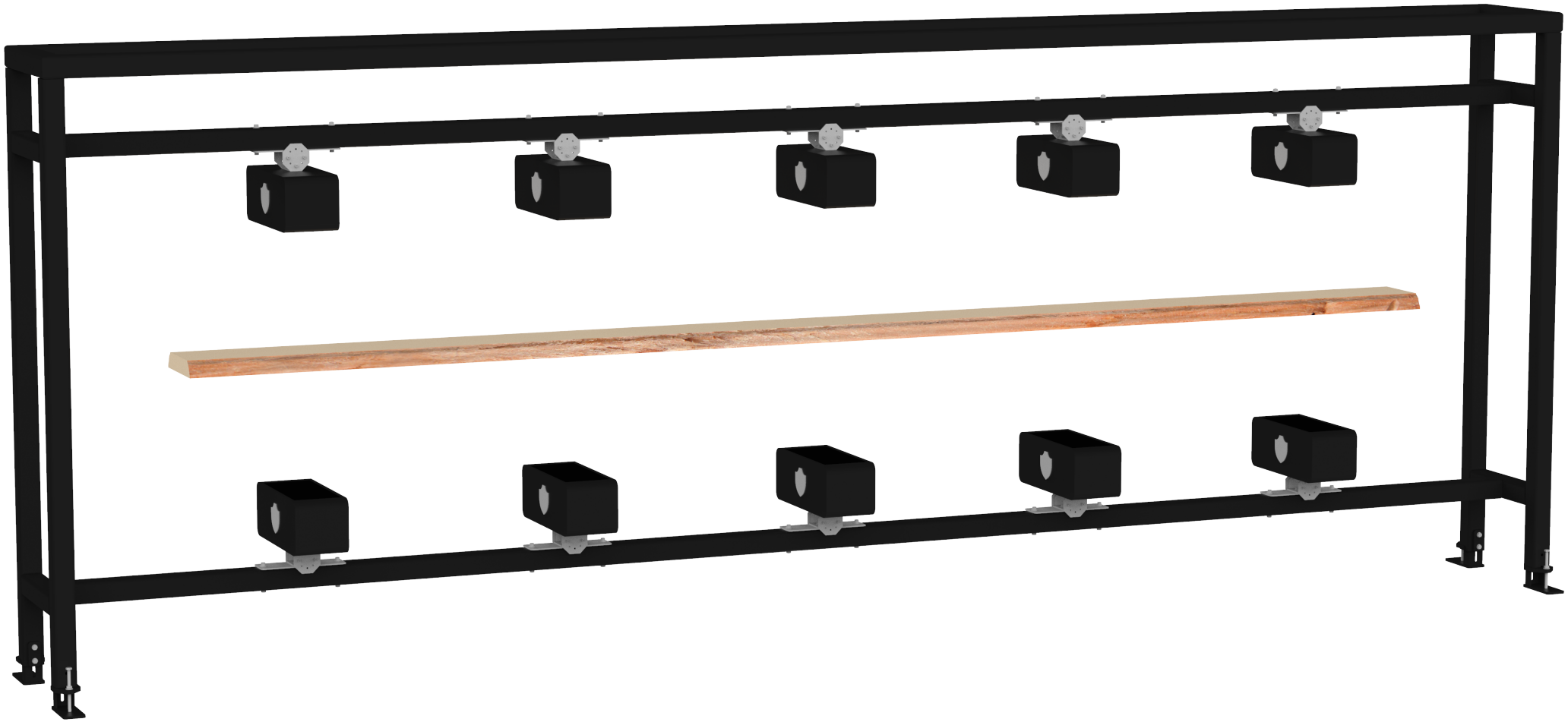
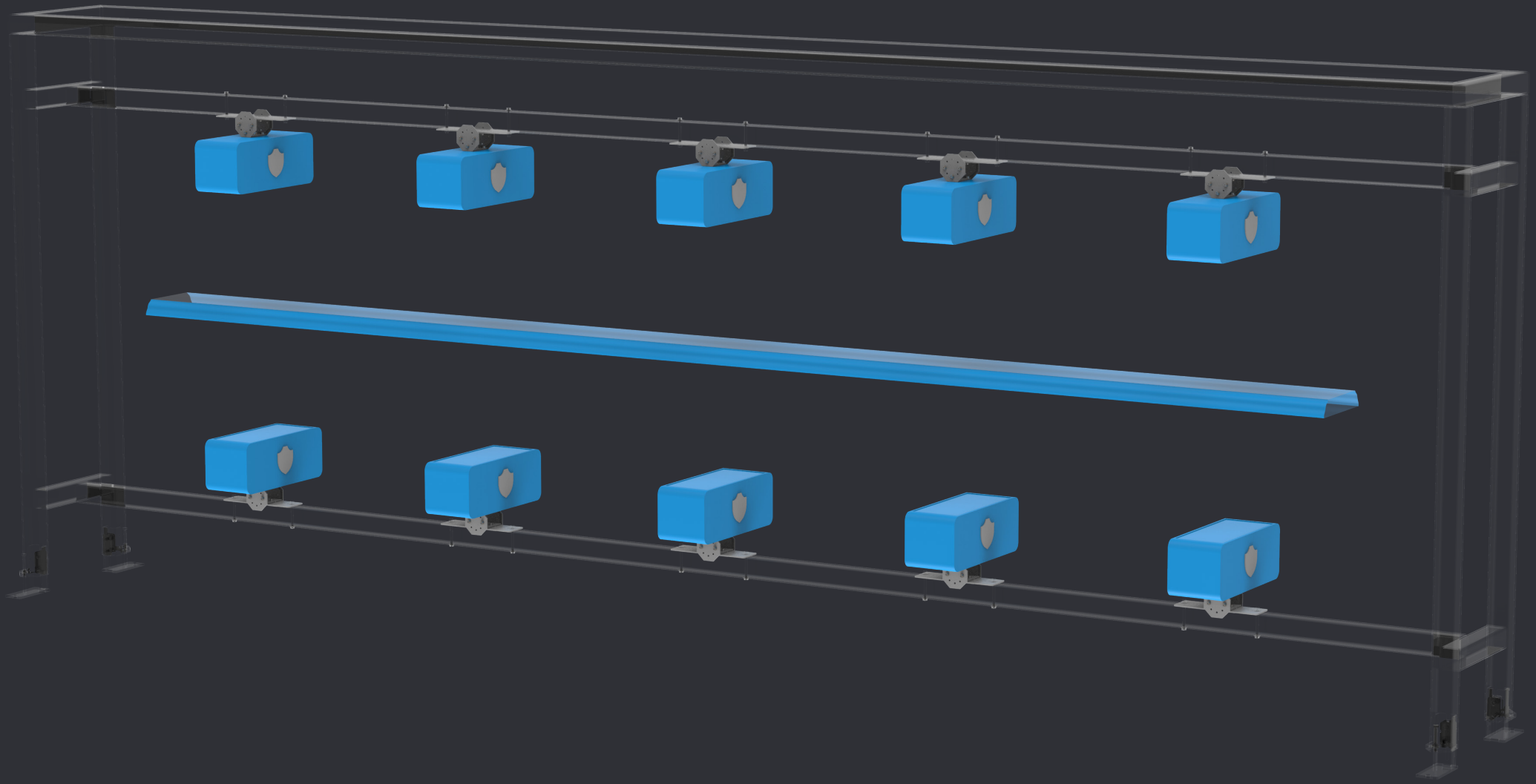
SMARTi

WS 200

Wane Scanner

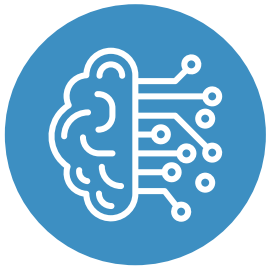




Company Presentation

About

SMARTI Wood Scanning as part of **TAB SYSTEMS Inc.** is a producer and developer of advanced AI machine vision systems for wood industry. We manufacture lumber and log scanners for cutting, sorting, grading and other multipurpose applications. Our lumber scanners support one-side or multi-side scanning with utilization of in-house developed AI algorithms for accurate defect/feature detection and classification. Optional x-ray scanning combined with advanced AI, furthermore offers insights into lumber structure, strength and hidden defects/features. Log scanners provide 3D scanning with optional x-ray feature for optimized sorting, cutting and grading.



Cutting-edge

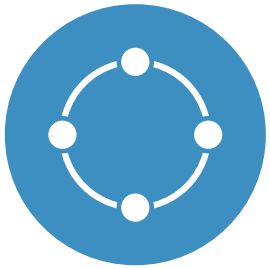
Class leading AI algorithms and machine vision technology in a quality solution.

Competitive

Market leading pricing with quality customer service for entire product/solution portfolio.

Know-how

Team of experts from machine vision, AI/neural networks, wood industry and other fields.



Adaptable

Customization options for detection requirements, wood species and machinery control.

Made in Slovenia

In-house development and production of systems including software along with hardware.

Philosophy

Mission Statement

We are on a mission to constantly develop and manufacture advanced wood scanning systems to satisfy the needs of growing wood industry. Cutting-edge machine vision technology, combined with state of the art machine learning and AI algorithms provide an added value for the investment. Our solutions offer unmatched performance with increased yield, productivity and accuracy for cost efficient production process optimization.

Vision Statement

To provide scanning solutions for optimized lumber and log processing industry with the use of cutting-edge technology. To offer advanced machine vision hardware and software solutions, supported with AI technology. To contribute to sustainability in business and natural environment by continuously developing next generation technological innovations for production processes in wood industry.

Applications

Longitudinal Cutting and Sorting Optimization

SMARTI WS 200 is an advanced wood scanning system for wane and defect detection in wood processing industry. Scanner can be used for accurate wane detection after log cutting. Besides wane detection, the machine also detects various defects visible in 3D spectre. Longitudinal cutting optimization and sorting is carried out automatically according to rules set by operators or relevant standards. Scanner supports conveyor belt speeds of more than 500 m/min and can function with any desired wood species. In-house developed AI technology enables highly accurate wane as well as other 3D defect detection and classification. Detection is carried out in real time from all four sides of the board. Machine supports high speed manufacturing operations and adding value with impeccable AI detection.

Production Optimization

Increasing Yield After Sawing

Utilizing SMARTI WS 200 ensures for fast manufacturing processes with maximum yield outputs. Wane and defect/ feature detection and classification on sawn boards increases manufacturing and end product quality. Error and wane elimination in further cutting as well as sorting applications, allows for completely autonomous and automatized wood processing lines. Machine delivers value for its initial investment by offering increased production capabilities and quality gains. Advanced in-house developed AI technology for accurate defect/ feature detection and classification allows for continuous workflows capable of controlling any manufacturing line efficiently. Customer support for all our products and solutions is guaranteed to enable uninterrupted production process.

Detection Options

3D Visible Defects

- Wane
- Cracks and splits
- Lack of material
- Custom defect options

3D Measurement

- Length
- Width
- Height
- Volume

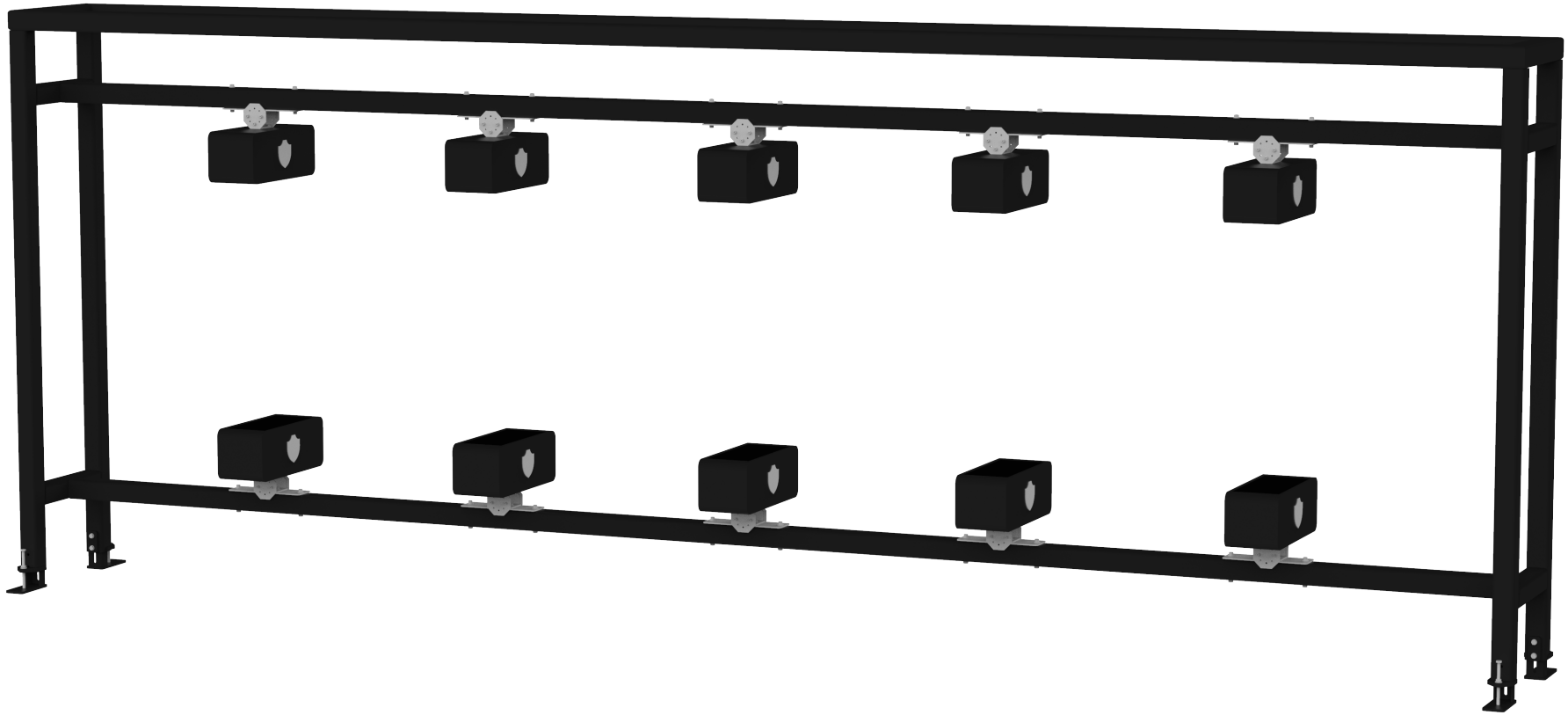
Longitudinal Cutting Optimization

High Performance Rip Saw Optimization

Technology

AI and Machine Learning

SMARTI WS 200 utilizes in-house developed AI technology to enable accurate wane and 3D defect/feature detection on sawn boards. Machine learning is supported with controlled data inputs in a process called annotating or teaching the machine. For each wood species AI model is generated with respect to the defect/feature inputs. With such principle all softwood and hardwood species can be supported for wane and defect/feature detection. Annotating process can be done in house or at the customer's location by our experts. The process is based on annotating or imputing individual defects/features by marking them on scanned boards. Large enough dataset is a basis for machine learning to produce accurate and efficient AI models for detection.



Software Interface

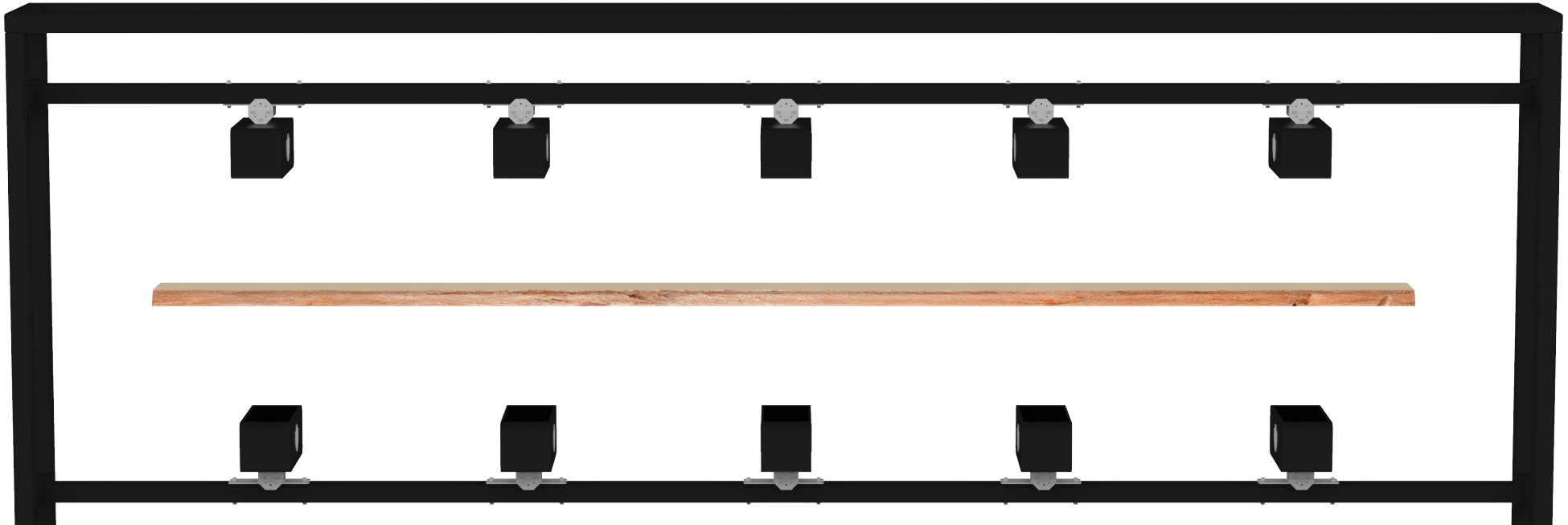
UI Meant for the User

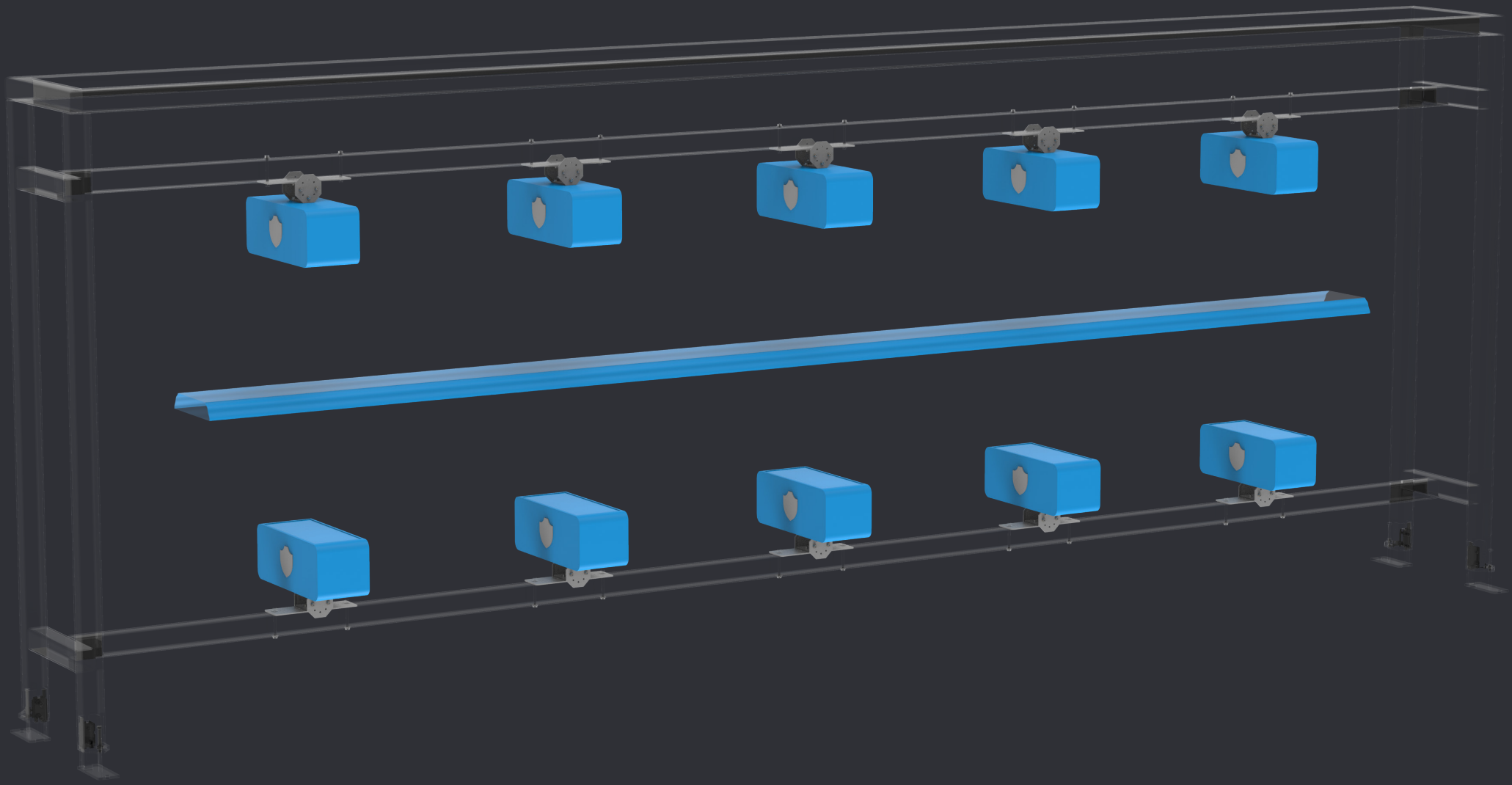
Machine user interface is presented via touch screen terminal for controlling the scanner. 3D images of boards are displayed in real time with wane and other 3D visible defects/features detected. Information about single board and current production batch is showed at all times on the home screen. In SMARTI user interface there are classifications to work sets and batches. Work set is a set of rules for cutting and sorting for wane as well as for 3D visible defects/features detection. Rules are set by the user or pre-set to support desired standards. Batch represents boards that are scanned with a set of rules for specific work set from the point of starting to stopping the production. Users can view individual boards scanned in a historical database and create various reports. Statistics and simulations are provided as standard. Simulations allow for adjusting batch settings and seeing would-be outputs on already scanned boards. The feature allows for experimentation without harming real production yields. Software also allows for different user rights in order to control and protect manufacturing process.

Connected Machines

Industry 4.0 for Smart Production Environment

SMARTI WS 200 is a high speed longitudinal scanning system, up to the task of controlling wood processing production lines. Cutting and sorting based on wane and defect/feature detection is carried out according to set work set parameters. Scanner can control different types of mechanization, therefore supporting fully autonomous and automatized manufacturing process. Multiple sorting lines and saws can be controlled directly or signals can be provided to accommodate for smart manufacturing. Software architecture allows for setting up multiple scanners in one or multiple physical locations that can be managed via one central hub. Operators and managers can easily monitor and keep track of production. Decentralized machine control options deliver value for scanner operation and data manipulation. Connectivity options are eliminating the need for third party management software solutions and therefore saving costs. Scanners are enabled to be controlled from anywhere and at any time.





SMARTi

Advanced AI Wood Scanning Solutions

Ljubljanska 24a
SI - 4000 Kranj
Slovenia/EU

www.smartiwoodscanning.com

smarti@tab-systems.com