

Steel Dynamics medium section mill for AIC's robotic tagging station in the American market.

Steel Dynamics, Inc. (SDI), one of the largest domestic steel producers and metals recyclers in the United States, will install an AIC automatic tagging solution based on robotics application.

The robotic tag application will be integrated to tag bundles at the finishing end of the company's medium section mill in Columbia City (IN, USA), by replacing human time-consuming and repetitive operations, as well enhancing worker safety releasing them from manual operations in the finishing area.

The turn-key packet holds a stand-alone ABB floor-mounted robot, that integrates smart double camera sensors running artificial vision algorithms, allowing the robot to seamlessly sense its surroundings and respond accordingly: the 3D reconstruction indicates the most suitable coordinates (nearby the centre of the head profile), avoiding any collisions with protruding or misaligned bars.

Moreover, the counting algorithms will count the number of pieces within the bundle itself, combining the information to form a repository interfaced with the L2 system.

A QR code reader is included to double-check the printed data (by laser printers in backup configuration) with bundle data coming from plant tracking. Included in the robotic cell, a colored tags dispenser to indicate special bundles with color coding, up to 6 different colors to be associated with the printed tag. In the out-turn, traceability and efficiency will be automatically achieved in the plant.

Therefore, integrating SIEMENS PLC, the processes outcomes will be mapped through direct and indirect real-time data exchange: information extrapolated driving operations within the robotic island, enhancing productivity and assisting meeting faster market opportunity thanks to the astonishing cycle time of operations. Round out of the package, safety access and control of the entire area will be handled through trapped keys handled by safety PLC, avoiding risky operations and insuring maintenance safety operations.

The full robotic island will be installed at site during the second semester of 2022 and commissioning will be ultimate before the end of this year.

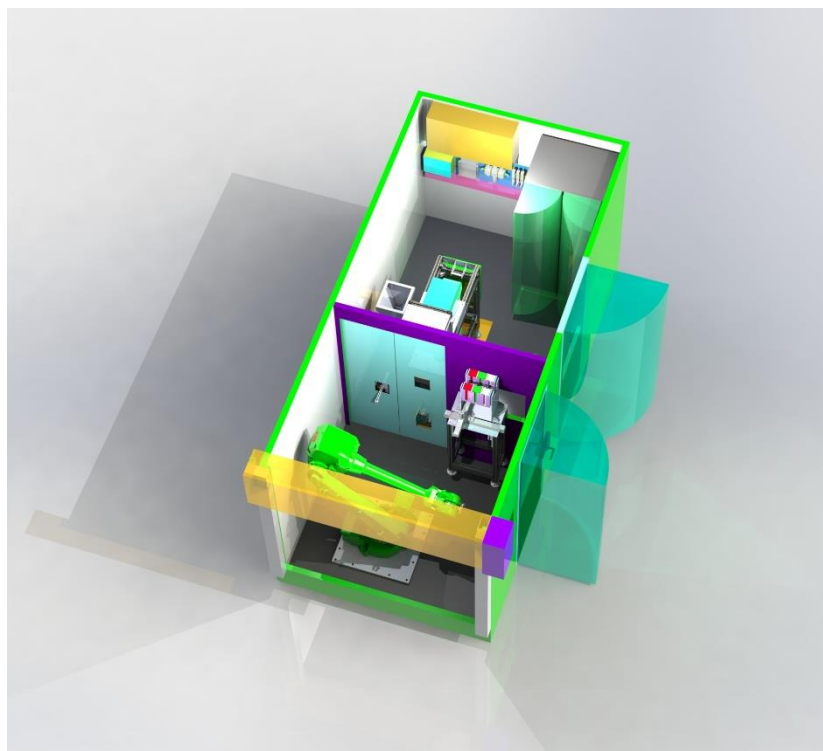


Figure 1 – The project's 3D robotic island.

The steel and metals industry is predestined for robot-based automation, shifting towards a synergistic combination of human and machines abilities in a way to better perform the clients' demands and reach a wide acceptance.

AIC Capitanio Tailored Automation is a global system integrator that designs, manufactures and commissions turn-key plants worldwide, providing advanced and tailored automation and mechatronics solutions for the steel industry, with the aim to continuously improve both efficiencies, competitiveness and safety of the production processes. With more than 1500 applications worldwide and more than 45 years of history, AIC can boast a unique experience in both greenfield and revamping projects, especially in meltshops and long products rolling mills.

Steel Dynamics, Inc. (SDI) is one of the largest domestic steel producers and metals recyclers in the United States, with facilities located throughout the United States, and in Mexico. Steel Dynamics produces steel products, including hot roll, cold roll, and coated sheet steel, structural steel beams and shapes, rail, engineered special-bar-quality steel, cold finished steel, merchant bar products, specialty steel sections and steel joists and decks. In addition, the company produces liquid pig iron and processes and sells ferrous and nonferrous scrap.

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