

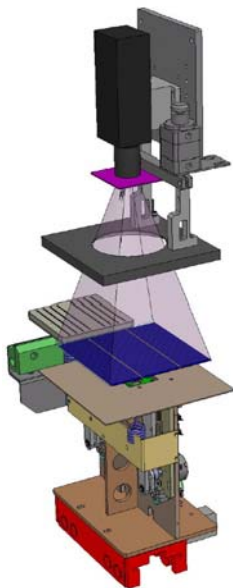


SOLAR PHOTOVOLTAIC INDUSTRY

PHOTOVOLTAIC CELL HANDLING MODULES

The Situation

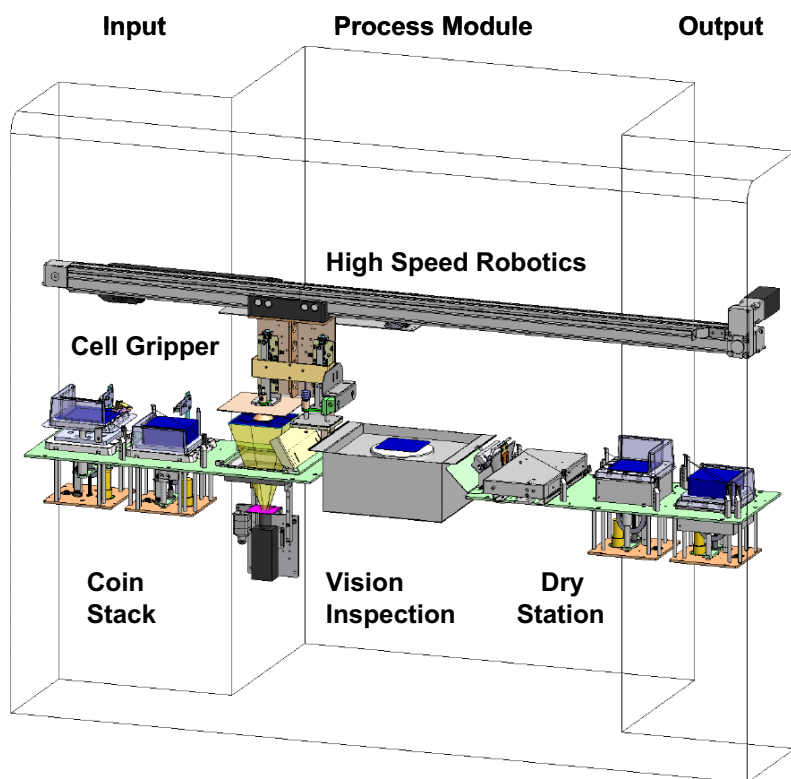
A solar startup had developed a proprietary process to manufacture solar photovoltaic (PV) cells. A key step in the process used a standard semiconductor tool which needed to be modified for PV cell handling.



PV Cell Inspection and Gripping

The Challenge

Unlike wafers, PV cells are much thinner and more fragile. The cells are delivered in coin stacks requiring the cells to be separated from each other. Due to their fragile nature, automated vision is required to verify the quality and detect cracks prior to



Schematic View of Automation Added to Semiconductor Process Tool

processing. The handling system must handle cells after wet processing and dry them prior to unload.

The Solution

Owens Design developed input and output cell handling modules with vision inspection that were seamlessly integrated with the semiconductor process

tool. The automation was capable of picking up and drying thin (<180µm) PV cells in wet or dry condition. Factory automation software was developed to interface the automation to the tool. Owens Design worked collaboratively with the customer to develop the cell drying process to meet the targeted throughput without damaging the cells.