

Rockwell SCOPE Team

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Rockwell Automation :

Rockwell Automation is a global company headquartered in Milwaukee, WI. They specialize in creating safety solutions for industrial automation. They also offer a variety of consulting services helping manufacturers mitigate project risk.



Process

User Research



Frameworks/Personas

Areas of Opportunities



Ideation



Codesign



Prototyping



Rockwell
Automation

Current state of manufacturing

Manufacturing facilities frequently perform complex tasks that combine the precision and strength of robots with the flexibility and versatility of human workers.

Due to safety concerns, these two critical elements are generally completely isolated, often with a physical cage and/or proximity sensors. In the current system, the robot in question must be entirely powered down before a worker may enter a potentially dangerous robot's work space. As these robots are part of a complex assembly line, shutting down a single robot to facilitate maintenance or any other task requiring worker interaction can have severe consequences to overall productivity.

Essentially, isolation requires factories to choose between the strength and precision of robots or the versatility of human workers - any task that cannot be accomplished by robots or humans independently must therefore be split into two or more sub-tasks. This approach requires more factory floor space and reduces efficiency by separating processes that may otherwise be integrated.

Problem Statement

Incorporating versatile robots in industrial environments has been gaining more and more traction. As a response, many companies in this industry are working to better integrate human and robot work flows to achieve a high level of collaboration on manufacturing tasks. The barriers between the state of automation right now and a highly collaborative state of automation boil down to two main factors: technical and human considerations. Industrial robots must avoid harming humans, and the humans that are working with them must also perceive them as safe. The 2014-2015 Olin College SCOPE team worked with Rockwell Automation to make the vision of a highly-automated Factory of the Future into a reality by addressing the human factors inherent in such an environment.