

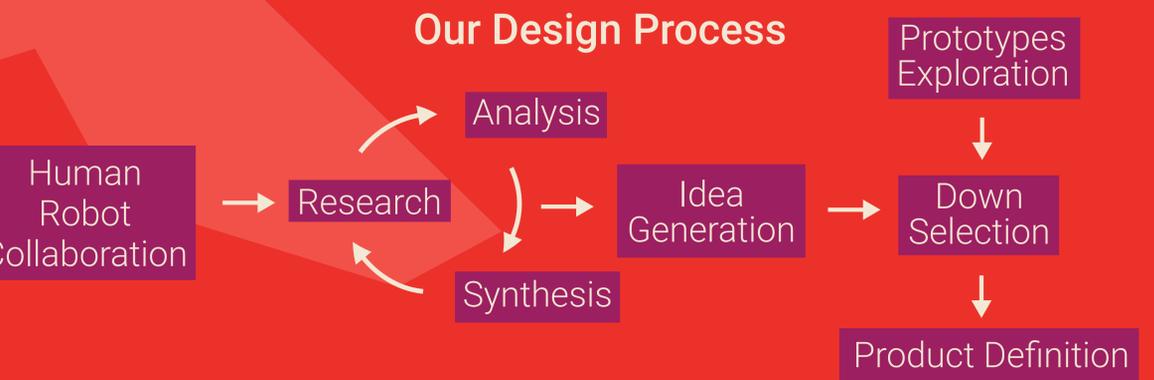
# Leveraging Emotional Intelligence In Human-Robot Collaboration

Rockwell Automation SCOPE 2017-2018

Rockwell Automation designs software and control systems for industrial automation. We partnered with Rockwell's safety and sensing division to investigate novel ways for improving collaboration in the Factory of the Future.

## FACTORY OF THE FUTURE

Ten years from now, robots will be advanced enough to closely and safely interact with human operators without massive safety cages. This environment will be a new ground for human-robot collaboration.



**"My machines get jealous. When I spend too much time with one, the other breaks down just to get attention."**

- Operator

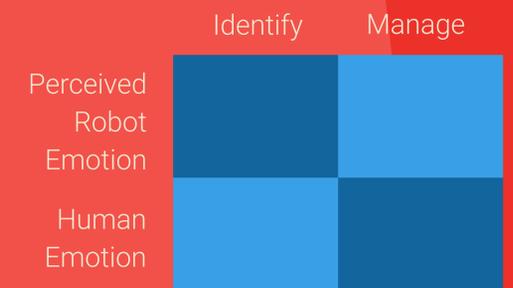
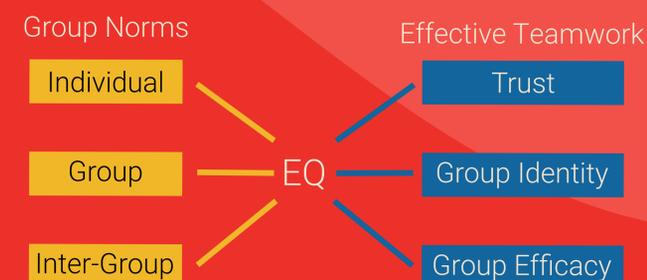
**Our goal is to develop a wearable for the next generation of factory workers that leverages the concept of emotional intelligence in order to improve collaboration between operators and robots.**

## EMOTIONAL INTELLIGENCE

The ability to identify and manage one's own emotions and the emotions of others. Emotional Intelligence has been found to be a key component of top performing teams.

We found that operators currently perceive emotions in the robots and machines they work with in the factory. This observation is evidence that emotional intelligence insights from human-human teams could apply to human-robot teams

From our research we developed three main frameworks. The first shows the hierarchy of components for effective teamwork, while the second maps emotionally intelligent group norms to these components. The third is our solution space, and shows where ideas can lie in the EQ plane.



### The Team:

- Kathryn Hite
- Shane Kelly
- Nur Shlapobersky
- Zhecan Wang
- Byron Wasti

### Advised by:

- Dr. Alexandra Coso Strong
- Annie Bowlby

