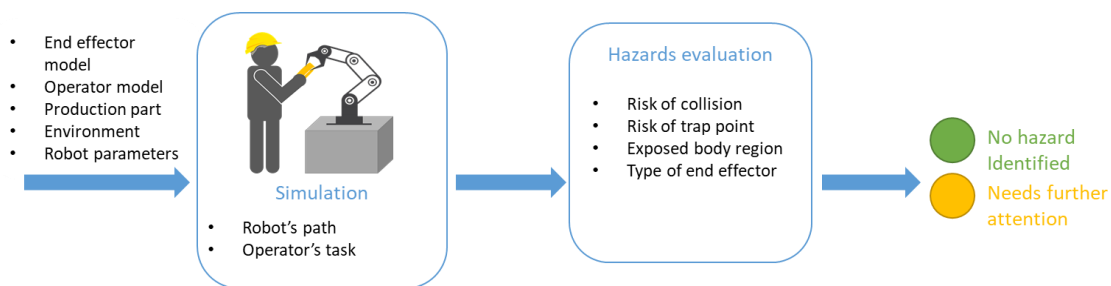


Case study: Risk Assessment for Collaborative Environment

The Aim of the Project

Risk Assessment for Collaborative Environment (RACE) is a feasibility study which envisioned the development of a simulation tool to perform risk assessments of collaborative applications virtually.

Using inputs such as the robot's program and/or task, the operator's task and CAD models of the workstation and the production facility, a simulation is performed to identify any risk of collision between the robot and the operator. This tool will then enable performing quicker risk assessments and design safe collaborative applications, according to current safety regulations for collaborative robots.



3

The Challenge

Develop a virtual tool as an add-on feature of an existing simulator which:

- enables simulating both the operator task and the robot task
- detects collisions
- estimates collision forces and pressure
- estimates if the application is compliant with safety standards

The Solution

A tool that shorten the time for risk assessment using virtual validation and provide recommendations to the OEMs to install collaborative robots onto their facility in the safest possible manner. The tool will also help OEMs in evaluating the risk associated with collaborative robots, and design a safe workstation before the physical installation.

The Duration

RACE was a 6 months project, during which the following objectives were achieved:

- development of guidelines on implementing collaborative applications
- identification of required inputs and outputs of the tool

- development of the algorithm
- design and development of a proof of concept

The Funding

The project was 40% funded by DETC, and 60% funded by members in-kind contributions.

Members of the Project

HSSMI

Ford

Jaguar Land Rover

Kuka Robotics