HSSMI

CDC
COBOTS DESIGN
& CERTIFICATION

IMPLEMENTING **COLLABORATIVE ROBOTS** IN **INDUSTRIAL SETTINGS**

WHAT IS THE CDC SERVICE?

If you are considering implementing collaborative robots (cobots) on your shop floor, HSSMI can support you in this journey with the Cobots Design and Certification (CDC) service. We provide a cost-effective approach to guarantee a safe implementation of truly collaborative applications in manufacturing environments.

WHY HSSMI?

HSSMI is a sustainable manufacturing innovation consultancy with extensive skills and capabilities in collaborative robotics and simulation. HSSMI has acquired significant knowledge on collaborative robots by successfully leading:

- A working group with three OEMs and HSE to develop implementation guidelines and identify key application for automotive manufacturing.
- A research project aimed at developing a virtual tool for risk assessment of collaborative applications.

Our work in collaborative robotics was awarded the EEF Future Manufacturing Award in the Health and Safety category in 2017.

More information
enquiries@hssmi.org

HSSMI

WHAT DO WE OFFER?

CDC
COBOTS DESIGN & CERTIFICATION

The CDC service assesses the feasibility of implementing truly collaborative applications in an industrial environment by using virtual design and simulation. This step-by-step approach ensures safety and productivity of the designed workstations.

1 APPLICATION ASSESSMENT & ROI

This first step aims to evaluate whether the use case would benefit from a collaborative application. We have developed an assessment method that considers several parameters, including the operator's task, workstation accessibility, cycle time and weight of workpieces. Based on this, we calculate a global score that reflects the risks of implementing a collaborative robot on the specific workstation. In this phase, HSSMI also evaluates the business benefit of installing a collaborative application by

DELIVERABLES

- Report, outlining the likelihood of a successful collaborative application, including potential barriers and enablers
- High-level investment assessment business case and ROI.

2 APPLICATION DESIGN

If the application is considered appropriate for collaborative applications, HSSMI will suggest potential technology suppliers. In this phase, HSSMI will also design the future workstation to establish the best layout.

DELIVERABLES

- A 2D layout and a 3D static mock-up of the future workstation equipped with suggested collaborative robots.

3 VIRTUAL RISK ASSESSMENT & COMPLIANCE

In this phase, a simulation is modelled to identify optimal trajectories for the cobots so that the risk of collisions with the operator is minimised. The simulation includes:

- Visualisation of the path of the cobot alongside the path of the operator,
- Testing and improvement of the cobot's route,
- Detection of any potential risk or hazard in the workstation, and
- Calculation of the cycle time.

Should any hazard be detected, the application will be reworked and optimised in order to meet the requirements. The new design will then be revised in the simulation and continue to be run and optimised until all potential hazards are eliminated.

The cobot program is then generated with offline programming and some physical tests are conducted to verify the results of the simulation.

HSSMI will work according to the relevant guidelines and standards to ensure that the designed application meets all the safety requirements.

DELIVERABLES

- Simulation of the future workstation including cobots' trajectories and operator's paths in a VR environment
- Station implementation plan
- Report, presenting the findings and results of the simulation and the physical tests, along with potential safety and/or installation recommendations
- Cobot program

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