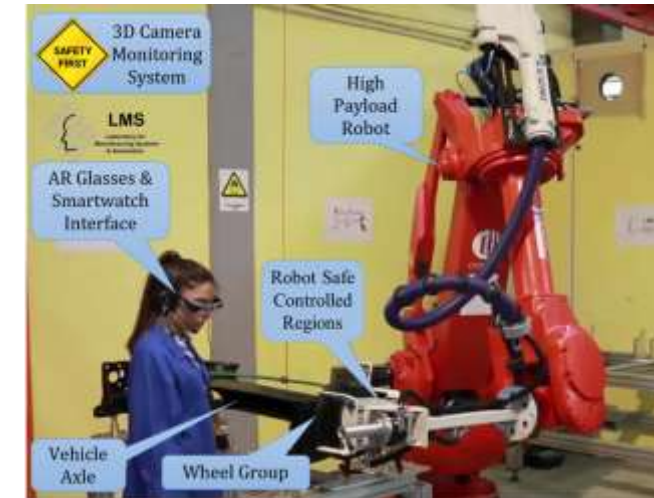


Use case 10: HRI framework for operator support in human robot collaborative operations

Problem/goal	Support and increase human operator's safety feeling during collaborative applications
Potential users	SMEs interested on exploiting the synergy effect of humans and robots in assembly
NACE	29.3 Manufacture of parts and accessories for motor vehicles
Description	Demonstration of an Augmented Reality (AR) based application providing to the human operators: a) assembly instructions, b) robot behaviour information for increasing safety awareness, c) safe working volumes, d) production status information. Interfaces on smart wearable devices enable the easy and direct human robot interaction while the HRC execution is orchestrated and monitored through a service – based controller.
Hardware	Industrial robots, , Augmented Reality glasses, Smartwatch
Software	Open source software (ROS, RosBridge, ROS Java, Unity, Vuforia)
Standards	Considered: ISO/TS 15066:2016, ISO 10218-1/2
Possible benefits	Unexperienced operators can be allocated to work in HRC cells and new processes limiting the training requirements thus providing agility in the system on re-allocating human resources according to the production needs
Partners	LMS – University of Patras, Greece
More info	https://www.youtube.com/watch?v=FsYA26SowVk



HRC assembly cell



AR based application – Operator's field of view