

AC 2007-2969: ROBOT MOTION PATH ADJUSTMENT BASED ON MULTIPLE SENSOR RECOGNITION OF A MOVING HUMAN/OBJECT

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Title of the Paper:
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MULTIPLE SENSOR RECOGNITION OF MOVING
HUMAN/OBJECT**

Abstract

This study proposes a solution to provide expansion of the currently limited workspace between humans and robots and other similar automation. The robot shall be able to detect and recognize moving human or object in the unknown environment using different sensors. Human or object is detected and recognized by several sensors when enters in the predefined area close to the robot. The collected data is plotted and a point cloud of the human is formed. From the point cloud a complete 3D model surface of the human is built. Further, when human movements are considered, 3D space motion envelopes are constructed. Those envelopes' intersections with robot motion envelope, defined from a pre-programmed path, can provide safe solution.

With this comprehensive information of the sensors, robot can react to the human or object motion and can modify its path to avoid collision and behavior accordingly.