

Design of an Instructor System for Learning and Training of Welding Workers in the Shipyard

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Abstract

Welding is the most important core technology in the shipbuilding process. This is a core process in determining the structural stability and the operational reliability of a ship. Ships are composed of structures that are not standardized such as curved surfaces and inclined sides, also there are many work spaces with poor conditions such as heights and narrow areas. Consequently, they are heavily dependent on manual work. As a result, there is a need for a high-skilled worker who can perform welding precisely in response to the ship structure and site flexibly. However, it is difficult to produce increased orders due to the sharp drop in technical personnel during the recession in the past. Therefore, we are developing welding simulators to improve the learning, training and skills of workers participating in shipyard. This paper deals with the construction of an instructor system consisting of a learning management module responsible for trainees' training and achievement, trainings scenario provided by the trainees' level, guide modules according to the individual welding performance, and a multilingual chat-bot specializing in welding to support workers. Through the developing instructor system, we intend to lay the foundation for creating a self-directed customized education and training environment that allows shipyard workers (trainees) engaged in welding jobs to learn and actively participate on their own.

Keywords: welding, training simulator, instructor system, chat-bot