Abstract

MULTI MODAL ROBOT TRAINING USING CGI VIDEOS

An articulated Robot herein referred to as an automated system is typically deployed in industrial environments to perform critical tasks at high speed and accuracy. They require to be trained at many different tasks such as loading, unloading, gripping & releasing an object to name a few. Modern Robots have capabilities to learn by observing a human or another Robot perform the sequence of tasks and record the movements to formulate a control plan based on the tasks to be executed by the automated system henceforth referred to as a Robot, with the aid of a computer. However such methods are time consuming and prone to errors. The present invention discloses a solution that utilises a computer-generated imagery (CGI) video in combination with Computer aided design (CAD) process, to enable the generation of a control program for a Robot as contained in the CGI input. Further, machine learning, reinforced learning, Generative Artificial Intelligence and predictive analytics are incorporated within the control program, to help enhance the performance of the control program by fine tuning the operating models for efficient and quick deployment of Robots in different manufacturing environments. The control program may subsequently be used to evaluate the robot's performance and provide feedback for recalibrating the robot control program.

Figure 1