How to Teach Your Robot in 5 Minutes: Applying UX Paradigms to Human-Robot-Interaction

Abstract:
When creating modern and visually appealing user experiences for the interaction with industrial robots, previously known and universally applicable paradigms in app and web design can be utilized to increase accessibility and usability of the to be created service. This is especially the case when the expected user group consists of untrained and inexperienced users and therefore system interaction focus is laid more on build progress overview, safety for human and robot, as well as overall simplification of complicated features. In this paper, we present four of the most important paradigms of modern graphical user experiences in web and app design that can be used to forward the concept of interacting with an industrial robot without any experience-related thresholds. By redesigning an existing interaction concept of a working robot cell system for assembly tasks in a small and medium-sized enterprise environment the presented paradigms are being utilized. The achieved improvements are then examined in a before-after user study to analyze the paradigm's success in suiting the user's expectation and anticipation using the redesigned service.