

Multi-Agent Collaborative Robotic Programing in Industrial Setting

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Programming multiagent collaborative industrial robots is a tedious and time-consuming task that requires a substantial amount of robotics knowledge, programing experience and work-related skills. Obviously, having experienced robotic engineers and programmers will be a key factor in running a production lines filled by robot gents. However, in large factory setting, hiring robot engineers or teaching programing and robotic knowledge to operators are costly or time consuming. To address this problem, industry is interested in having a platform/device or application that can be used to program robots with the minimum level of robotic knowledge or programming skills. In this capstone, students work on a multiagent collaborative robots project and create an application or graphic user interface that can be used by regular factory operators with no programing skills and robotic design knowledge to program industrial robots.



Tesla factory in Silicon Valley

Student start their project by working on programming two robotic arms like those used in industrial sites. Once gaining familiarity with the platform with the setting, they will then create an offline programing tool to simulate/program different robots stats and operations. This can be used for training operators as well as simulating the program before loading it into the real physical platform. In the next phase, student create the final graphic-based programing platform for a single robot and multiagent collaborative robots and evaluate their product.

Project requirements: Prior robotic knowledge and programing skills in python or C++ will be a plus in successful completion of this project.