Group-2

MECHATRONICS PROJECT

Pick and Place Robot

Title: Simulating a Pick and Place Robot for Object Sorting.

Abstract

This project aims to create a versatile pick and place robot system that efficiently sorts objects by their colors, with the goal of enhancing industrial automation processes. We are leveraging the capabilities of Universal Robots, known for their precision and versatility, as the core of our manipulator system. To optimize object handling, we are integrating the Robotio 3F Gripper. The simulation and testing of this system are carried out in Webots, a dynamic simulation environment. C++, C, and other languages were used for programming, and this project primarily utilizes C.

Through the collaboration of Universal Robots and the Robotio 3F Gripper, we are developing a highly dexterous and accurate robotic system capable of sorting objects based on their colors. Webots serves as a comprehensive simulation platform, enabling realistic replication of conveyor belt operations and color-based object recognition, as well as the development and testing of control algorithms. The primary objective is to create an adaptable pick and place robot that can significantly enhance automation across various industrial sectors, boosting productivity, reducing errors, and improving material handling efficiency.

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