Robot Manufacturing Task Design

You will design and build all necessary hardware to model an assembly task that a robot would be required to perform in a low-production flexible manufacturing environment. The robot will be placed in front of a conveyor belt and have access to bins containing parts. New parts may come on the conveyor belt or be delivered into the bins by assistants. The robot will use these parts to assemble a product in a separate work surface, and deliver it via the conveyor belt when it is ready.

The focus of this project is designing the task, parts, conveyor belt, and all necessary electronics to operate it. This includes actuating the conveyor belt and implementing sensors in the environment, for example to signal to assistants that a bin is empty and needs more parts. Programming a Kuka Youbot to perform the task is available for larger teams that have significant experience in object manipulation.

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