Ashley Agosa
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Junior English

Relation to industry: Automated Material Handling

Cort, Adam. "Robotic Parts Feeding." *Assembly* June 2009:38-41. Print

This article talked about the different aspects of robotics in assembly lines and in manufacturing. Even though the robot could be fast it is not worth anything if it is not productive all of the time. Sometimes this is not the robot's fault. It could be the programmer's or the machinist's fault. In order for the parts to be processed, they need to be presented in a certain position. Instead of doing it manually and risking inconsistency, there are ways to positioning the parts. Vibratory feeder bowls, nesting instinct and vision-equipped robots are some ways to solving that problem.

Vibratory feeder bowls vibrate and cause the parts to line up exactly where they need to be. If the parts are incorrectly positioned they fall back into the bowl or are physically removed. Though feeder bowls are expensive they can be worth it in the end. "The advantage of bowl-feeders are that you can rely on having parts presented and ready for picking in a very short time," says Phil Baratti application engineering manager for ESPON robots.

Nesting instinct or pallet-based nesting is a method that requires hard-tooling. As the work in process enters the robot work area, it is stopped and even elevated, if needed. This process could be very productive because, as the pallet is going through, the operator can load up another pallet or go and find something else to do.

Vision-equipped robots can be used when sorting is needed. This saves the assembler or even supplier time and money because they do not have to worry about the products being in precise places. These robots are being increasingly used to unload flat, jumbles parts and sort them.

Even though some robots have to be preprogrammed for a certain part there are many ways, in industry, to mix and match these three valuable processes. They can work together and produce product efficiently and with quality.

This article related to my technology rotation, automated material handling, because it is talking about the many ways to sort out products or various objects. It explains that there are several different ways to do that: preprogramming, the ability to identify objects and precision alignment. The purple robot, automated material handler, requires a person to preprogram it and to make sure the objects are aligned correctly. If the parts are not correctly aligned, the program could fail. In the article, it states that a robot follows a preprogrammed path every time it picks up a part. This is possible because the work in process is always located in the same spot. In the case of the purple robot, the blocks are situated in the same location every single time.

In the article there were several terms I did not understand, so I researched their definitions and listen them below.

- **Queue**- A sequences of messages or jobs held in temporary storage awaiting transmission or processing or a data structure that consists of a list of records such that records are added at one end and removed from the other.
- **Magazine**- A storage area.
- **Cost per part-** The amount of money is costs per part.
- **Singulation**- A method by which a Radio-frequency identification reader identifies a tag with a specific serial number from a number of tags in its field.
- **Conveyor-** A mechanical apparatus for moving articles or bulk material from place to place (as by an endless moving belt or a chain of receptacles)
- **SCARA-** Selective Complaint Assembly Robot Arm

After reading the article the connections between what I am doing and what is being done, is clear. Not only am I going to use what I learned about automated material handling but learning and studying it now could help me in the future.