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Commentary

An Overview Study of Robotics

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DESCRIPTION

With today's trends toward a variety of product styles, short market life cycles, and frequent engineering design changes, relatively many products meet the criteria justifying single- purpose assembly machines. Artificial robots offer the eventuality for economically automating a portion of assembly processes. The principal advantage of robots over the single purpose type of automatizing is that a robot can do the work of several single- purpose work heads at a lower initial cost and with a shorter system development time. Alternate advantage of robots is their programmability, or capability to change tasks as needed to accommodate the product style variations, design changes, and new product introductions that externalize modern batch manufacturing.

There's a critical need to develop complete educational programs covering robotics and concrete robotic applications-like assembly. Engineering and engineering technology must move forward with educational programs that will enable scholars to master this technology and apply it in innovative ways to solve industrial and manufacturing problems. The trend in education must be to prepare technicians who understand the entire system with which they work and the specialized principles that govern the gets of each device. Likewise, technicians must realize that changing one parameter in a large system; the entire system may be altered or affected.

In principle, robotized assembly refers to a system where one or further artificial robots, using suitable grippers or other tools and auxiliary devices, join several small, mechanical parts into a transportable unit or product. Typical robot assembly systems consist of one or more of similar workstations, possibly connected by a pallet transfer device. This offers the advantage of a variable cycle time by adjusting the number of operations perfumed, or parts assembled at each workstation.

One of the main problems during the planning phase is to find an optimal (with regards to costs and process) layout of the robotized assembly cell. The robots, grippers, assembly tools, and other peripheral devices have to be selected and placed in the robot's working area. This task is very time consuming and special knowledge as well as experience is necessary. Generally, several iterations are necessary to find an 'optimal' topology. Considering this, there's a great demand for a Computer Aided Planning (CAP) system which supports the planner during cell design. Another point of this simulation system is its new approach in modeling of robotized processes. Here, the planned assembly sequence-consisting of robot movements, tooling or handling operations, communication between peripheral devices etc. is the center of the simulation model. The goal of this tool isn't to dissect the path (or the trajectory, simulation should constitute an aid for calculation and evaluation of the paths and their optimal sequence as part of the entire assembly process. Since simulation in robotics can be seen as a combination between separate event and nonstop simulation, system is concentrated more on the discrete event point of view.

Modeling and simulation vitality takes place within CAD environment. Thus, geometric data of the cell layout can be used directly the combination between cell lay outing (CAD functions), modeling (definition of the assembly sequence), and simulation (optimization of the assembly sequence) enables an interactive planning and optimization within an integrated environment.

Another feature of this simulation system is its new approach in modeling of robotized processes. Here, the planned assembly sequence consisting of robot movements, tooling or handling operations, communication between peripheral devices, the center of the simulation model. The goal of this tool isn't to analyses the path simulation should constitute an aid for computation and evaluation of the paths and their optimal sequence as part of the entire assembly process. Since simulation in robotics can be seen as a combination between separate event (e.g. starting of particular robot movements) and nonstop (robot movement per se) simulation, system.

The huge number of robotics courses each over the world is a veritably positive substantiation of the significance of robotics in the specialized academic program. For further creation of robotics and in order to open new operation areas preceptors and educational directors have to work cooperatively and intensely with assiduity to fill the requirements of the individual as well as that of assiduity. In this way, the true requirements of the scholars, the profitable requirements of the community and the employment requirements of assiduity will be really met. In this composition, a flexible and modular laboratory system for education in robotics is presented. The structure of soft and tackle of the setup allows education of all the phases of cell life cycle starting with pharming of the cell and lay outing, up to programming and operation-in an effective, but also comprehensive way.

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