18.2: Points Made in the Case Study

The control algorithm for an automated system, such as an AS/RS, can be included in a simulation model. The control algorithm may be coded in a general purpose programming language and interfaced within the model.

A simulation model can consist of multiple processes. These processes can share the same resources. In this application, an S/R machine, represented by a resource, is used by both an inventory storage process and by an inventory retrieval process.

A resource may have multiple BUSY states. Each BUSY state indicates that the resource is occupied in a unique way. In this application, each rack space is either empty or full of a particular type of item. BUSY states correspond to item types.

Sometimes it is necessary to select a resource to employ from a set of resources with similar or identical characteristics. A criteria for making the selection must be specified. The set of resources cannot be modeled as units of a single resource since the state of each individual resource must be tracked. In this application, the state of each individual rack storage space is important. The model must use the AS/RS control logic to select from among the storage spaces in the IDLE state when a carrier is stored. In the same way, the model must select from among items of the same type when a retrieval is required.