BUILDING UP OF FMS SIMULATION MODEL IN FURNITURE INDUSTRY

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ABSTRACT

The new world market conditions - characterized by a increase in the innovation product variety, reduction of batch size and great demand in quality - forced a revision in the relations between the company's functions. Manufacturing today is an important competitive weapon. Following these development tendencies, manufacturing companies experienced an increasing degree of sophistication, especially by incorporating computational technology to the productions systems. One of the most important results of this process is the Flexible Manufacturing Systems (FMS). These systems, especially by increasing the flexibility, bring together a high degree of adaptability to the manufacturing function. To take advantage of all these characteristics, FMS's components must be well managed and utilized. The appropriate utilization of FMS's components depend on the quality of the decisions took during its planning and operational phases. Wrong decisions could result in low machine utilization; long make span and systems congestion's. Due to the high degree of flexibility, these systems have many possible states bring difficulties to the task of searching for good decisions and solutions at the planning and operational level. Many times a good solution at the planning level are difficult, sometimes impossible to implement at the operational level. This simulation system present a methodology that transfer part of the planning level decision (machine allocation) to the operational level. These decisions are made based on the system state, considering some parts, machines and transport attributes at the moment the decision should be taken. In this way the machine sequence for each type of part will defined at the operational level, considering its needs and system state. The system adopt this solution can give suggestions based on management polices and performance parameters give by the user. A graphical user interface with object-oriented features is providing, so the user can easily modify the FMS model, operational policies (like parts and vehicles dispatch and queues controls), number of vehicles and pallets, buffer size, and other else. The intelligent module is capable

of manage all the cycle simulation/ analysis/ modification/ simulation. The module has a learning characteristic that permits the convergence and close the interaction as the operational performance can't be improved with the provided parameters. The figure below show an overview of the methodology included in the prototype.
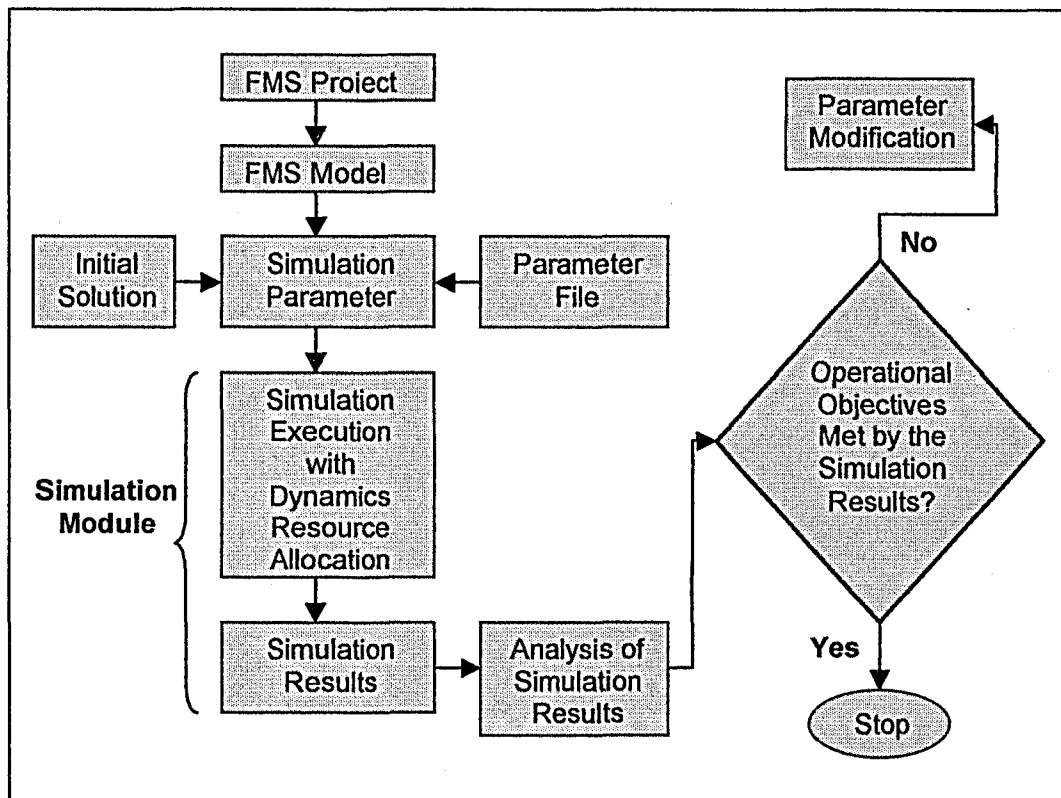
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