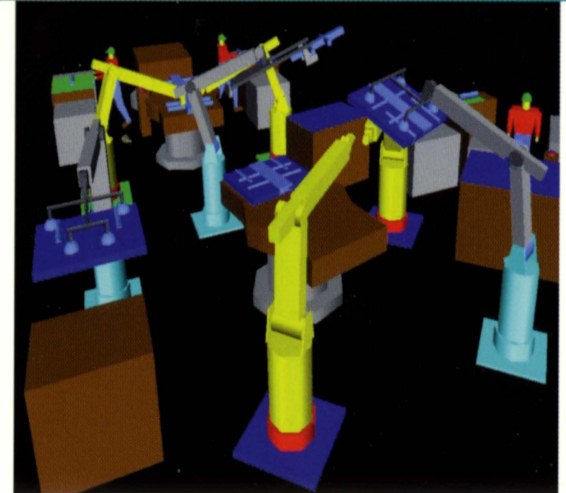


PROJECT Floor Pan Build System

CUSTOMER General Motors Corporation



Objectives

1. Analyze the system and identify potential bottlenecks.
2. Evaluate the systems' throughput at 100% capacity, with allowances for probable unscheduled downtime.
3. Evaluate "what-if" scenarios to improve system performance to a gross of 115 JPH.

Description

Floor Pan Build System consisting of material handling and shuttle robots, welding robots, operators, turntable stations, and part sub-assemblies.

General Methodology

A baseline simulation model was developed reflecting the current operating conditions of the Floor Pan Build System. An analysis verified that the system's operational logic and cycle times could support the measured gross rate, taking into consideration process interaction, but without the effects of downtime. A net rate analysis was performed employing downtime data derived from actual observations. The data was analyzed, filtered and incorporated into the model when evaluating the impact of downtime on the system. Experimentation with respect to cycle time reductions was performed with the objective of achieving a target gross throughput of 115 JPH.

"Bottom Line" Results

BASE MODEL:

Gross Throughput ➤ 99.6 JPH
Net Throughput ➤ 85.0 JPH

AFTER CYCLE TIME CHANGES:

Gross Throughput ➤ 114.6 JPH
Net Throughput ➤ 97.5 JPH

Recommendations on ways to reduce cycle times in various areas were offered, and included in the final report. For example, regarding shuttle robots 10 and 19, the suggestion was made to eliminate the shuttle robots' staging movements, thus eliminating redundant parts handling and reducing cycle times.

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