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(54) **Title:** AUTOMATED GENERATION OF OPTIMIZATION MODEL FOR SYSTEM-WIDE PLANT OPTIMIZATION

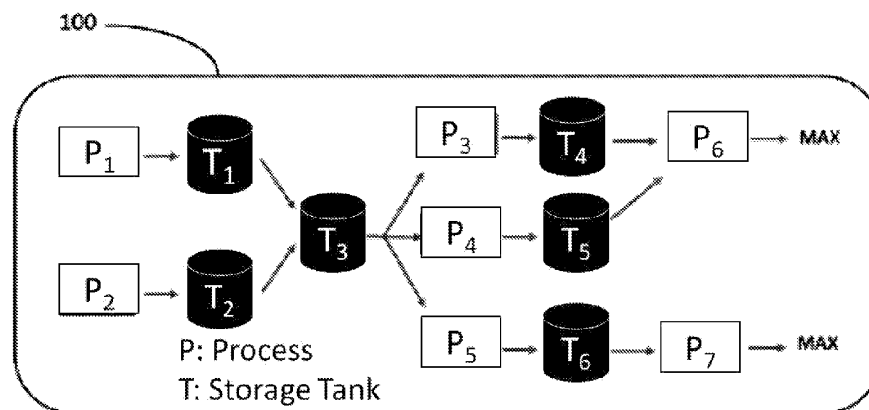


FIG. 1

(57) **Abstract:** A computer implemented method for automatically generating an optimization model for site-wide plant optimization includes mapping a process flow diagram of a plant process to a graph comprising nodes and edges, wherein the nodes represent processes and the edges represent flows between processes. A behavior is learned for each node of the graph based at least on historic data of the plant process. One or more regression functions are modeled for each node to predict an output of each of the processed, wherein the one or more regression functions are modeled based on the learned behavior for each node.

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