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Hauenstein

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(54) **METHODS AND SYSTEMS ARCHITECTURE TO VIRTUALIZE ENERGY FUNCTIONS AND PROCESSES INTO A CLOUD BASED MODEL**

(71) Applicant: **Mark Hauenstein**, Reno, NV (US)

(72) Inventor: **Mark Hauenstein**, Reno, NV (US)

(73) Assignee: **Mark Hauenstein**, Reno, NV (US)

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(52) **U.S. Cl.**
CPC *H02J 3/00* (2013.01); *G06F 17/5009* (2013.01)

(58) **Field of Classification Search**
CPC .. F24F 11/0012; F24F 2011/0068–2011/0075; F24F 2011/0094; G06Q 50/06; H02J 3/005; H02J 3/14; H02J 2003/003; H02J 2003/007; H02J 2003/14; H02J 3/00; H04L 67/125; H04L 12/2803; Y04S 50/10; Y04S 10/54; Y04S 40/22; G05B 13/041; G06F 17/5004; G06F 17/5009; G06F 17/5086; G06F 22/7178
USPC 703/18, 1, 13
See application file for complete search history.

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Primary Examiner — Kamini S Shah
Assistant Examiner — Andre Pierre Louis
(74) *Attorney, Agent, or Firm* — Burns & Levinson LLP; Joseph M. Maraia

(57) **ABSTRACT**

A system for creating an energy performance and predictive model includes a non-transitory computer-readable storage medium which performs the steps of obtaining parametric information objects that represent actual physical objects and modifying the parametric information by embedding data related to energy performance characteristics unique to the device represented. The system further performs the steps of grouping the modified parametric information objects that define actual real world interrelationships to create a complete virtualized project and parsing the virtualized model data set to create a first parsed data set and a second parsed data set. The first parsed data set creates the project system control application, which acts upon and coordinates the actions of the real device through the virtual field bus. The second parsed data set creates the project's virtualized energy performance project and represents the subset of the virtualized performance environment where other virtualized devices can act upon it.

13 Claims, 9 Drawing Sheets
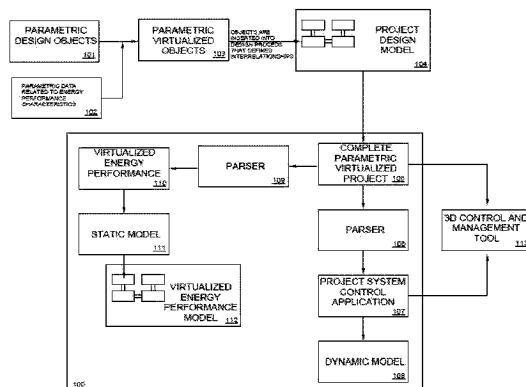
PARAMETRIC TO VIRTUALIZED OBJECT FLOW CHART