CLAIMS

What is claimed is:

1. A building management system for auto-tagging points comprising:

a communication component configured to receive data associated with a plurality of points of a site, each point of the plurality of points is associated with a point name and a point descriptor;

a processor configured to identify a building name based on the point name for each point by extracting a first part of a particular point name detected frequently among the data associated with the plurality of points; and

a machine learning module comprising

a conditional random field model configured to determine a point equipment from a second part of each point name by predicting the point equipment in response to the identification of the building name with the conditional random field model and determine a point function from a third part of each point name by predicting the point function in response to the identification of the building name with the conditional random field model; and

a neural network configured to generate a set of point tags based on the point equipment, the point function, and the point descriptor,

wherein the processor creates confidence scores for the set of point tags based on matching characteristics to a common tag set.

2. The building management system as described in claim 1, further comprising an expert knowledge system that determines an equipment tag based on a group of points sharing a same or similar equipment name in response to the processor failing to identify the equipment tag by regular expressions.

3. The building management system as described in claim 1, wherein the conditional random field model is trained with data specific to a building management domain.

4. The building management system as described in claim 1, wherein the conditional random field model determines an equipment location from a fourth part

of each point name by predicting the point equipment with the conditional random field model.

5. The building management system as described in claim 1, wherein the processor generates a natural language version of the point function based on a library of abbreviations for a building management domain.

6. The building management system as described in claim 1, the processor resolves ambiguity among a plurality of possible point functions based on the point equipment.

7. The building management system as described in claim 1, wherein the neural network generates the set of point tags with a multi-label classification model trained with data specific to a building management domain.

8. The building management system as described in claim 1, further comprising an expert knowledge system, wherein:

the data is associated with a point unit, a point type, and a virtual-point indicator;

the expert knowledge system infers point tags based on the point unit, the point type, and the virtual-point indicator; and

the processor creates confidence scores for the point tags inferred by the expert knowledge system based on matching characteristics to the common tag set.

9. A method for auto-tagging points of a building management system, the method comprising:

receiving data associated with a plurality of points of a site, each point of the plurality of points being associated with a point name and a point descriptor;

identifying a building name based on the point name for each point by extracting a first part of a particular point name detected frequently among the data associated with the plurality of points;

determining a point equipment from a second part of each point name by predicting the point equipment in response to identifying the building name by using a conditional random field model;

determining a point function from a third part of each point name by predicting the point function in response to identifying the building name by using the conditional random field model;

generating a set of point tags based on the point equipment, the point function, and the point descriptor using a neural network; and

creating confidence scores for the set of point tags based on matching characteristics to a common tag set.

10. The method as described in claim 9, further comprising determining an equipment tag based on a group of points sharing a same or similar equipment name in response to failing to identify the equipment tag by regular expressions.

11. The method as described in claim 9, wherein determining the point equipment from the second part of each point name includes predicting the point equipment with the conditional random field model trained with data specific to a building management domain.

12. The method as described in claim 9, wherein determining the point function from the third part of each point name includes predicting the point function with the conditional random field model trained with data specific to the building management domain.

13. The method as described in claim 9, further comprising determining an equipment location from a fourth part of each point name by predicting the point equipment with the conditional random field model trained with data specific to a building management domain.

14. The method as described in claim 9, further comprising generating a natural language version of the point function based on a library of abbreviations for a building management domain.

15. The method as described in claim 9, further comprising resolving ambiguity among a plurality of possible point functions based on the point equipment.

16. The method as described in claim 9, wherein:

generating the set of point tags includes predicting the set of point tags with the neural network, and

the neural network is a multi-label classification model trained with data specific to a building management domain.

17. The method as described in claim 9, wherein each point of the plurality of points is associated with a point unit, a point type, and a virtual-point indicator, the method further comprising:

inferring point tags with an expert knowledge system based on the point unit, the point type, and the virtual-point indicator,

wherein creating the confidence scores includes creating the confidence scores for the point tags inferred by the expert knowledge system based on matching characteristics to the common tag set.