CLAIMS

1. A state analysis device, comprising:

a state quantity-acquiring unit configured to acquire values of a plurality of state quantities at a certain timing associated with an object device;

a state quantity-predicting unit configured to predict allowable ranges of the values of the plurality of state quantities after a predetermined time has elapsed on the basis of the acquired values of the plurality of state quantities;

a correlation-specifying unit configured to specify a correlation strength between the plurality of state quantities; and

a display information-generating unit configured to generate information in which a predicted-value figure which is a figure with a shape corresponding to the allowable ranges of the values of the plurality of state quantities and corresponding to the correlation strength is disposed in a coordinate space with the plurality of state quantities as axes.

2. A state analysis device, comprising:

a state quantity-acquiring unit configured to acquire values of a plurality of state quantities at a certain timing associated with an object device;

a state quantity storage unit configured to store histories of the values of the plurality of state quantities of the same type of device as the object device

a state quantity-predicting unit configured to specify a plurality of parts which are similar to change of the acquired values of the plurality of state quantities out of the histories stored in the state quantity storage unit and to predict allowable ranges of the values of the plurality of state quantities after a predetermined time has elapsed on the basis of the plurality of parts; and

a display information-generating unit configured to generate information in which a predicted-value figure which is a figure with a shape corresponding to the allowable ranges of the values of the plurality of state quantities is disposed in a coordinate space with the plurality of state quantities as axes.

3. The state analysis device according to Claim 2, wherein the state quantity-predicting unit is configured to specify a plurality of timings at which there are values similar to the acquired values of the plurality of state quantities out of the histories stored in the state quantity storage unit and to predict the allowable range on the basis of the values of the plurality of state quantities stored in the state quantity storage unit after the predetermined time elapses from the plurality of timings.

4. The state analysis device according to Claim 2, wherein the state quantity-predicting unit is configured to specify a plurality of timings at which there are changes similar to changes of the acquired values of the plurality of state quantities out of the histories stored in the state quantity storage unit and to predict the allowable range on the basis of the changes of the plurality of state quantities stored in the state quantity storage unit after the predetermined time elapses from the plurality of timings.

5. A state analysis device, comprising:

a state quantity-acquiring unit configured to acquire values of a plurality of state quantities at a certain timing associated with an object device;

a state quantity-predicting unit configured to predict allowable ranges of the values of the plurality of state quantities after a predetermined time has elapsed for each of a plurality of prediction means on the basis of the acquired values of the plurality of state quantities; and

a display information-generating unit configured to generate information in which a predicted-value figure which is a figure with a shape corresponding to the allowable ranges of the values of the plurality of state quantities is disposed in a coordinate space with the plurality of state quantities as axes.

6. The state analysis device according to Claim 5, wherein the state quantity-predicting unit is configured to determine a prediction means which is used to predict the allowable range out of the plurality of prediction means on the basis of the acquired values of the plurality of state quantities and to predict the allowable range on the basis of the determined prediction means.

7. The state analysis device according to Claim 5 or 6, wherein the display information-generating unit is configured to generate the predicted-value figure for each of the plurality of prediction means and to generate the information in which the predicted-value figures are disposed.

8. The state analysis device according to any one of Claims 1 to 7, wherein the predicted-value figure is drawn inside the allowable ranges of the values of the plurality of state quantities.

9. The state analysis device according to any one of Claims 1 to 8, wherein the display information-generating unit is configured to generate the information in which an acquired-value figure which is a figure representing the values of the plurality of state quantities acquired by the state quantity-acquiring unit is additionally disposed in the coordinate space.

10. The state analysis device according to any one of Claims 1 to 9, further comprising a simulator that simulates an operation of the object device,

wherein the state quantity-predicting unit is configured to predict the allowable range on the basis of the values of the plurality of state quantities which are acquired by changing an external parameter of the simulator.

11. The state analysis device according to any one of Claims 1 to 10, wherein the display information-generating unit is configured to generate the information in which the predicted-value figure with a shape including values in which an occurrence probability is equal to or greater than a predetermined value in the allowable range is disposed.

12. A state analysis method, comprising:

a step of acquiring values of a plurality of state quantities at a certain timing associated with an object device;

a step of predicting allowable ranges of the values of the plurality of state quantities after a predetermined time has elapsed on the basis of the acquired values of the plurality of state quantities;

a step of specifying a correlation strength between the plurality of state quantities; and

a step of generating information in which a predicted-value figure which is a figure with a shape corresponding to the allowable ranges of the values of the plurality of state quantities and corresponding to the correlation strength is disposed in a coordinate space with the plurality of state quantities as axes.

13. A program causing a computer to perform:

a step of acquiring values of a plurality of state quantities at a certain timing associated with an object device;

a step of predicting allowable ranges of the values of the plurality of state quantities after a predetermined time has elapsed on the basis of the acquired values of the plurality of state quantities;

a step of specifying a correlation strength between the plurality of state quantities; and

a step of generating information in which a predicted-value figure which is a figure with a shape corresponding to the allowable ranges of the values of the plurality of state quantities and corresponding to the correlation strength is disposed in a coordinate space with the plurality of state quantities as axes.