case, the service performance of the elevator apparatus may be lowered; for example, the waiting time of the user may increase and the traffic volume may be lowered. Therefore, to assign the elevator car in accordance with a control method optimized for the actual traffic demand in order to improve the service performance, accurate prediction of a traffic demand is important.

SUMMARY OF THE INVENTION

According to one embodiment, there is provided an elevator traffic demand prediction apparatus applied to up/down button group control to assign an elevator car in response to a hall call. The apparatus includes

an acquisition unit configured to acquire an elevator control result including getting-on loads and getting-off loads for respective moving directions and respective floors;

a calculation unit configured to calculate a feature amount of a traffic demand based on the elevator control result, the feature amount including a category feature amount representing a category of the traffic demand;

a feature amount database configured to store the calculated feature amount in association with attribute information and time information;

a predictor configured to predict a traffic demand by referring to the feature amount database, the predictor comprising a plurality of experts configured to predict a category of a traffic demand by referring to different data

items included in the feature amount database to generate predicted values, and the prediction unit outputting, as a prediction result, one of the predicted values; and

a selector configured to select a control method complying with the prediction result from a plurality of predetermined control methods.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram schematically showing an elevator apparatus including a traffic demand prediction apparatus according to the first embodiment;

FIG. 2 is a diagram showing an example of an origin destination (OD) table;

FIG. 3 is a flowchart showing procedures to calculate the feature amount of the traffic demand by a feature amount calculation unit shown in FIG. 1;

FIG. 4 is a graph showing an example of getting-on ratios and getting-off ratios for the respective moving directions and the respective floors;

FIG. 5 is a graph showing another example of getting-on ratios and getting-off ratios for the respective moving directions and the respective floors;

FIG. 6 is a diagram showing an example of a method of calculating the feature amount of the number of users by the feature amount calculation unit shown in FIG. 1;

FIG. 7 is a diagram showing an example of data stored by a feature amount database shown in FIG. 1;