A Study About User Modeling In A Virtual Home Network

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1 Introduction

Various systems are converging to Internet including a home network. A new type large-scale network (an ubiquitous network) of a is formed as a complex networks. And it is thought that it is good for home network simulation in cost and time. In additon ,we use a home network daily such as an AV system, kitchen equipment and entertainment system. A home network system is a compound network ,which is componented of many home electric appliances in various fields. The whole system works as one network. Our living is supported by home network. We are influenced by room temperature, noise and so on. And we control the home network so that we can live in a comfortable environment. Therefor it is important to design a home network that it is significant for a user. Therefor it is necessary to study a user behavior when home network simulation is needed. The purpose of this study is how to design a method of constructing a user modeling in virtual home network.

2 Sequence Model

2.1 What Is Sequsence Model

It is possible that a user behavior is generated by too-down approache, if user's intention is known. However, user's intention can not be observed directly. In fact only user's activity can be observed. In this study, user's activity is enumerated and sequsence model is generated .

2.2 Construction Of User Model

For achieving a certain purpose, user activity can be described by a series of the operation of home electric appliances, when plural home electric appliances are used. Firstly, relation table and relation figure is made, which it is described the dependence between home electric appliances. Secondly, significant user activity is enumerated by usecase is made from relation table and relation figure. Thirdly, according to user activity, the equipment level sequences can be generated. Fourthly, opteration level sequences can be generated by equipment level sequences and the state machine of those home electric appliances. Finally, the weighted opteration level sequences are picked up.

3 Experimental Result

The real user data is collected by questionnaires, which it is operated AV system. Then an example of watching TV is showed. This example is shown how to calculate resemblance degree and how to evaluate opteration level sequences concretely. Finally, weighted opteration level sequences which resemblance degree are 1 are picked up. The real user behavior is generated.

4 Conclusion

In this study, a method of constructing a user modeling in virtual home network is designed.