Chapter 5

Conclusion and Recommendations

This thesis proposes intelligent topic detection agent (ITDA) that can detect meeting distraction and facilitate group discussion through an online group discussion system. It assists the discussants to focus on issues and prevent group distraction. This system employs the concepts of information extraction together with topic identification to filter irrelevant information and detect the discussion topics from the stream of textual utterances. The results from the experiments on the effects of our system on group meeting illustrate that our system can encourage the discussants to participate and reduce the distracting issues in the meeting. Rather than the effect of issue focusing, the system also helps increase in the number of the argumentation and the number of new generated ideas. From the analysis of the results, our system helps the discussants see the group's ideas more clearly and be able to notice any missing in relevant information during the meeting. If any issue lacks some key decision factors, the decision hierarchy generated from the DCSML indicated that the structure for decision-making is incomplete. The results of the experiments also show that our system can increase the completeness of the DCSML structure about two times of the completeness compared to the meeting without this system. Thus, our system makes the structure of the problem apparent and easy to understand. Besides, the system summarizes possible decisions and enhances the decision efficiency. The results of the experiments also show that our system can manage the meeting time more efficiently than the meeting without this system. Therefore, in conclusion, our preliminary study on the effects of our discussion support system illustrates that our system helps decision maker obtain enough information to boost the discussion, to localize the problem, and to make a suitable choice within time limitation.

In addition, on the study of the performance of information extraction agent, our system can extract key decision factors, which are criteria and decision alternatives, from an online discussion data with 97% accuracy. By applying HMM and Viterbi algorithm, the experimental results illustrate that this approach outperforms other algorithms. Therefore, our system can help participants to filter irrelevant information and refine the redundancy of key decision factors during the meeting.

For the intelligent topic detection agent (ITDA), the system can detect discussion topics as well as facilitating group discussion to avoid possible group distraction by detecting topic changing during meeting. This system employs the output of information extraction from information extraction agent together with topic identification by using centroid-based classification in order to filter irrelevant information and detect the discussion topics from the stream of textual utterances. From the study of the performance of this system, the experimental results show that this system can detect topic changing in online discussion data with 99.36% accuracy for different topics and 95.65% for similar topics when the number of sentence block is only 1. Moreover, the study on the performance of our system illustrates that our system also can identify the number of distraction sentence in dissimilar topics. Therefore, the intelligent topic detection agent can facilitate group meeting, help group members focus on group discussion topic and reduce group distraction in the electronic meeting system.