A PROPOSAL OF GROUP DECISION SUPPORT SYSTEM FOR *KANSEI* COMMODITY PURCHASE USING SOM AND ITS APPLICATIONS

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Abstract. *This paper describes a group decision support system (a negotiation support system) based on the Kansei of group members using SOM. Firstly, we evaluate commodities in the real world by Kansei scores in Kansei Engineering. Secondly, we make a SOM map based on the Kansei scores of both the commodities in the real world and ideal commodities of the group members. If the Kansei scores of the ideal commodities of members are far away from each other on the SOM map, the system shows some compromises to each member for negotiation and makes a request to members for a small change of Kansei scores. Thirdly, when the Kansei scores of their compromised commodities gather into a small area on the SOM map, the system judges that the compromise has been completed and then shows some commodities in the real world nearest to the area as a negotiation result of members. Finally, the usefulness of the proposed system is verified by satisfaction ratings of the members with the output results of the system comparing with no negotiation cases.*
Keywords: Group decision support system, Self-organizing maps, *Kansei* engineering

1. **Introduction.** Recently, many decision support systems have been proposed, see for example, [1]-[5] and the references therein. A decision support system for group decisions is called a group decision support system. The group decision support systems have been used widely, such as a complex equipment selection, a two-party negotiation model and so on [6, 7]. Saaty proposed AHP (Analytic Hierarchy Process) for a decision support system based on the preferences of user by the paired comparison method [8, 9]. In addition, Saaty proposed AHP for the group in which the average of preferences of group members or a preference as the group were used [10]. On the other hand, Yamada *et al* developed a new group AHP using interval values [11]. However, these traditional systems did not execute a negotiation process that adjusts preferences of group members to one. We believe the most important thing in the group decision support system(GDSS) is a process in which one member of the group also compromises while catching the other members compromise and then all members find one compromise proposal.