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"SYSTEM BASED MINING FOR DISCOVERING HUMAN INTERACTION IN MEETINGS"

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Abstract - *Human Interaction plays a vital role to understand the communicative information. Understanding human behavior is essential in applications including automated surveillance, video archival/retrieval, medical diagnosis, and human-computer interaction. The advent of smart meeting that automatically records a meeting and analyzes the generated audio-visual content for future viewing .While most of current smart meeting systems analyze the meeting content for understanding what conclusion was made, it is more interesting and important to know how a conclusion was made.*

***Key Words*: Human Interaction, Behaviour, Meeting, Content, information**

1. INTRODUCTION

Human interaction plays an important role in understanding this communicative information and different from physical interactions (e.g. turn-taking and addressing), the human interactions here are defined as behaviors among meeting participants with respect to the Current topic, such as proposing an idea, giving some comments, expressing positive opinion, and requesting information. When incorporated with semantics (i.e. user intention or attitude towards a topic), interactions are more meaningful in understanding conclusion drawing and meeting organization.

1.1 Existing Method

Generally in meetings, human interaction plays a major role and has much attracted in the field of image analysis and computer vision, speech processing. Here the existing method only analyze and visualize the human interaction while the proposed method focus much on the understanding of the human interaction with higher level knowledge.

Disadvantages of existing method:

- System is complex to handle
- Identification of negative points during meetings in the presented topic is very difficult
- This system increases the data to be repeated.

1.2 Proposed Method

Here in this paper we propose a method called mining method in order to extract the frequent patterns of human interaction .this frequent pattern is extracted based on the content that is captured during face-face interaction .Also, we propose an Tree based interaction mining algorithms to analyze the structures of the trees[4], so by analyzing the structure of trees we can extract interaction flow action. During meetings the human interaction flow is represented in the form of trees. The advantages of proposed method is The interaction flow determines the relationship between the different types of interaction. To understand the content of meeting mining human interaction is necessary for it. Mining human interactions performed in two ways

1. The mining result can be used for determining the meeting content.

2. Secondly, the patterns that are extracted are useful for understanding interaction between the humans in meetings. The extracted patterns are then analyzed and that can be used to evaluate whether the meeting is in efficient way or not? And also it is used to compare two meeting discussion.

2. PROCESS FLOW

The interaction issues including turn-taking, gaze behavior, influence and talkativeness and analyzing user interactions during poster presentation in an exhibition room are mainly focus on detecting physical interactions between participants without any relations with topics[1]. The context used in our interaction detection includes head motion, notice from others, speech manner, talking time, and information about previous interaction. Head motion (e.g. drowsy) is very common and used often in detection of human response (acknowledgement or agreement). For example, when a user is proposing some idea, he is usually being looked at by most of the participants. Attention from others can be treated as how many persons looking at the target user during the interaction. Thus the problem can be roughly turned into detection of face direction. The face orientation is determined as the one whose vector makes the smallest angle. Speech tone refers to whether a statement is a question or a normal one. Speaking time is another important indicator in detection the type of human interaction. The context information is gathered through multiple sensors e.g. video cameras, microphones, and motion sensors.

Table -1: A set of Human Interaction

propose	A user proposes an idea with respect to a topic
comment	A user gives comments on a proposal
acknowledgement	A user confirms someone else's comment or explanation(eg.yeah,ok)
Request Info	A user requests information about a proposal

When a user puts forward a proposal, it usually takes relatively long time. But it takes short time when he gives an acknowledgement or asks a question.

2.1 Pre Processing

1.Stop word removal

2.Stemming (Porter Stemmer Algorithm)

3.Part of speech tagger

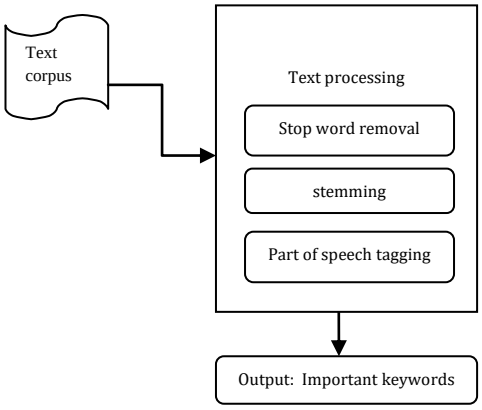

Figure 1.preprocessing steps

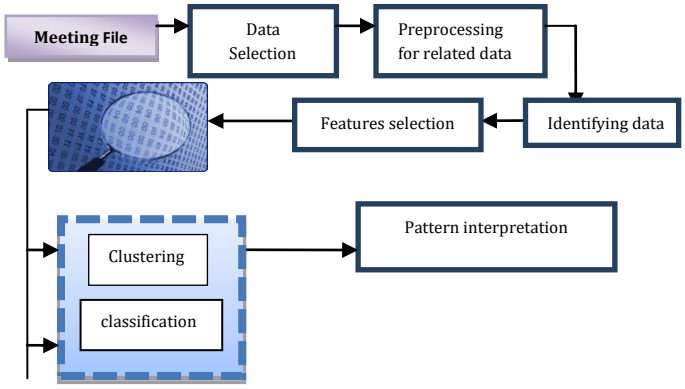

Figure 2.Block Diagram

2.2 classification

Summary of patterns and corresponding participant

Eg: P1 commented twice, P2 proposed once

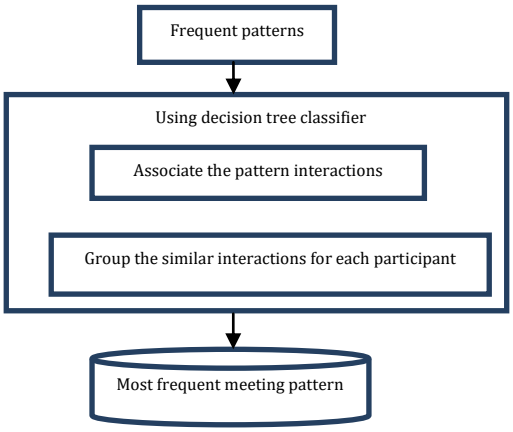

Figure 3. Classification Steps

2.3 Pattern Mining

1. Associate the keywords and group them
2. Form a set of patterns PRO-COM, PRO-ACK, PRO COM- ACK, PRO, PRO-COM-COM-ACK
3. A priori algorithm

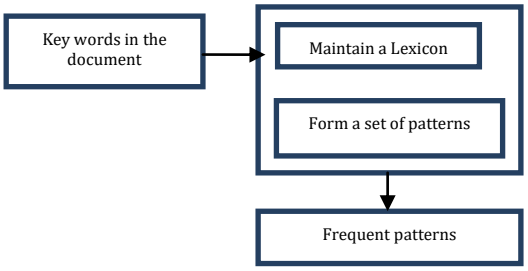

Figure 4. Pattern Mining Steps

2.4 Clustering

Behavior of participant identified, if the person's Proposal level is high then he will have a passion in the enhancement of the organization.

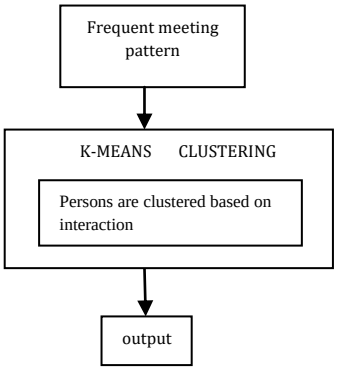

Figure 5. Clustering Steps

3. CONCLUSIONS

we proposed a tree based mining method that is useful in meeting to identify the patterns of human interaction. the mining result is useful for determining the meeting content, indexing, comparison of meeting records. This tree based mining method is valuable to capture various categories of meetings for analysis such as debate, interview, etc

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