Talk-back and talk-together TV system will enhance current experiences with TV. In this paper, case study on talk-together TV system is given. Scenario description, parameters and required functions for system implementation are detailed here.

1. Introduction

Talk-back TV system and Talk-together TV system introduce a new form of the broadcasting system and enhance the current experiences with TV. Talk-back TV system allows end user to feed information directly into the studio, the online content production processor or the content server. The television program is then influenced or created based on the input of the end user(s). Talk-together TV system allows users to enjoy multimedia contents and to share their experiences and emotions with friends or strangers even if they are apart as all the actions occur within a virtual space. With TAO’s newest R&D project “Broadcasting by use of telecommunication network”, we are given the opportunity to explore the possibilities of Talk-back TV and Talk-together TV system[1] on top of IP network, along with the large scale delivery of TV programs through wired networks[2]. In this paper, a case study of talk-together TV system is presented by describing a particular application scenario.

2. Scenario Description

2.1. Before – Original Scenario

Mary is a high-school student. She goes to school everyday from Monday to Friday, 9:00am to 3:30. Some days, Mary would stay longer at school because she has practice with her school basketball team members.

Everyday, she would have breakfast with her parents and her two sisters, Jane and Grace. The five family members would ask each other’s plan for the day. The sisters would complain about school, teachers, homework or gossip on other people. The parents would listen and try to give advices to the children. At the same time, they would also talk about their work or gossip on their neighbours. Before they head off for school or work, mom would ask them if they are coming home for dinner for she needs preparation. All four agreed that they would be back before dinner at 8:00pm as they leave for school and work.

In the evening, Mary arrives home around 7:45pm and finds her dad sitting in the living room reading newspaper and Grace watching TV. Mary asks what they are having for dinner while she sets the table up. Mom tells her they will be having spaghetti and Grace would be half an hour late for dinner because Grace has band rehearsal. After setting up the table, they gathered together at the dining room with the TV on. Mary suggested and argued to her mom that they should have macaroni for dinner tomorrow because she does not like spaghetti very much. Then, the dinner continues with each telling about the day. Mary tells her parents the gossip she heard from her friends. During the conversation, a news flash on an outbreak of SARS on TV has attracted dad’s attention. Dad starts the conversation on SARS and tells them that his business trip to Hong Kong has been cancelled because of SARS. Half an hour later, Grace comes home from an exhausted band rehearsal. Grace complains immediately after she sat down. This is a typical day for Mary.

2.2. After – Talk-Together TV Scenario

Next year, Mary is going to college. She will be leaving home and moving into the school dormitory. Jane will be married next year and be living in an apartment with her fiance.

After classes have finished each day, Mary would go back to her apartment for dinner. Mary turns on TV. After a minute, a message pops up on the corner of the screen. She presses a button on the remote control and the message states “Did you just get back? We are having dinner right now. Do you want to join us? From MOM”. Mary clicks another button. The screen now has three separate video images: TV news, video images from parents’ place, and video images from Jane’s place. With microphone and loudspeakers, Mary joins the conversation with everyone by speaking out loud, while she is preparing dinner in the kitchen. Then, Mary joins the party in person as she sits in front of the video camera after she has finished cooking. Everyone is now communicating face-to-face while watching the same TV program.

3. Scenario Analysis Parameters

Mary’s life has changed. Even though Mary is not together with her family, talk-together TV system allows Mary to share her feeling or emotions with her family members using media. Talk-together TV system has the functions of telephone or videophone, except the system offers a common topic from the TV program and stimulates conversations between parties. However, it is very difficult or impossible to provide a setting that offers a perfectly identical atmosphere and environment when people are actually together and there are many other scenarios that involves more people and different kinds of communication flow. Therefore, rather than trying to satisfy every single parameter, which is impossible, only one or few should be focused. Based on the analysis of the following parameters, practical talk-together TV system implementations could be identified.

3.1. Layers of Participation

In the talk-together TV system, participants are separated into four different layers: Performers, audiences, inhabitants and end viewers[3]. Two kinds of end viewers have been categorized: Independent end viewers and end
viewers who have connection with other end viewers. Different kinds of involvement and participation may occur between different layers.

In this case study, the news caster is the performer and the family members are end viewers who have contact with other end viewers. There are no audiences or inhabitants.

3.2. Number of Participants and Locations

Number of participants is the number of people taking part and number of locations represents the number of independent places involved. These two factors constrain the communication methods and information flow; thus, system requirements may change dependently. The number of participants and locations may vary across the layers. For example, normally, the number of performers is much lesser than number of audiences, inhabitants and end viewers.

In this case study, the number of participants is five and the number of locations is three.

3.3. Information Exchanged

The essential information exchanged during a communication is the most important variable and should be clearly identified and analyzed. Essential information is the required and exchanged information for people to understand or share their thoughts and emotions with other people. From the information, people gain enjoyment and satisfaction. This information may be in forms of text, audio, video, audio-visual. But, sometimes, presence is more meaningful than anything. For example, friends gather together to study and not talk about anything. Also, essential information may be the information exchanged among participants or it may be the information coming from the TV programs.

The main activities in this case scenario include:
- Eating and sharing food at the same time;
- Commenting on the news in speech, facial expression and/or body language;
- Chatting about what happened today or other information in speech, facial expression and/or body language;
- Absorbing the information coming from the TV.

However, we must consider which activities are possible and which activities are not possible in talk-together TV implementation. Eating food at the same time is possible but sharing food is impossible.

3.4. Communication Media

The current possible communication media between the participants includes text, audio, video and audio-visual. It may be difficult to implement and use several media at the same time; therefore, depending on the nature of the essential information, only the most suitable media should be used.

From the list of communication media in [3], four possible candidates are given below for this scenario:
- Text-based Communication: Members use tools such as keyboards and input his or her comments. Comments will be displayed on every location’s screen.
- Audio-Only Implementation: Only audio information would be exchanged through loudspeakers and microphone.
- Videconferencing: Images or pictures of everyone would be displayed on the television as the screen is sliced into pieces.
- Collaborative Virtual Environment (CVE): Everyone would connect to a server (virtual space) and all the communication would take place in this server. Individual’s images would be merged into one single image and broadcast out to everyone on their TV screen.

Text-based communication tools would not be recommended here because it is very inconvenient as the users have to eat and input information at the same time. Because the number of either participants or locations is only a few, media with richer level in multimedia could be used, such as videoconferencing and CVE. Among the four candidates, audio-only implementation and videoconferencing are suggested.

4. Required Functions

From the case study, we can list several required functions that talk-together TV system should obtain:
- The system should provide a common source of information, the same TV channel and program, to all participants to stimulate communication. TV plays a very important role in talk-together TV system as a provider of common conversation topic.
- The system should provide a means to convey voice and background noise among different locations. Also, the system should provide means to convey facial expressions, body movements and background scenery.
- The system should allow free joining in and leaving out any session or conversation.
- The system should provide a sign of presence of all the participants.
- The system should provide different methods of starting a session. A session may be an engagement that is agreed among the parties beforehand. Or, the session may be started at anytime as there is an indication for presence. Session may also be started by calling the person first through other media and asking if he or she wants to join and start a session.

5. Conclusion

Both talk-back TV and talk-together TV system enhance current experiences with TV programs. It should be noted that this new technology does not have to be used at all time; rather, it is used when it is necessary like facsimile. Also, as the scenario differs, implementation requirements change to adjust to the new condition. We will do more case studies on different scenarios and decide on the system architecture.

References