

**SYSTEM AND METHOD FOR PERFORMING
INTERLOCUTION AT A PLURALITY OF
TERMINALS CONNECTED TO
COMMUNICATION NETWORK**

This application is an application of Ser. No. 350,850, filed May 12, 1989, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates in general to a joint information processing system. More particularly, the invention is concerned with an electronic interlocution system in which a plurality of terminal apparatuses (also referred to simply as terminals) are interconnected through communication channels and in which data communication is carried out between or among the terminals to perform information processing jointly in cooperation with one another while the users of the terminals perform voice interlocution through telephone sets.

2. Description of the Related Art

In connection with a prior art data processing system or terminal apparatus of the type which has a data processing capability, an information processing program which has excellent interaction characteristics and is capable of outputting data which is easy to understand visually was at one time premised on the dedicated use of the program for the individual. A computer system using such program is described in detail in Seybold, Jonathon, "Xerox's 'Star'", in the Seybold Report Media, PA: Seybold Publications, Vol. 10, No. 16, (1981). However, this computer system is not equipped with any function which allows a plurality of users to make access simultaneously to the same data constituting a document, table and the like and which can reflect the results of the processing as performed onto a display on a real time basis. Although electronic mail is described in the publication cited above as one function of the system which allows the same data to be utilized by a plurality of users, electronic mail is a system in which a plurality of users cannot make access to the same document or the like simultaneously but only at different times.

On the other hand, in a communication between persons at remote locations, the telephone has been made use of among others. The telephone system is advantageous in that reactions of interlocutors can be transmitted straightforwardly on a real time basis and in that voice information is used which is very easy to understand. However, the inability to handle other than voice information in such a system presents a problem. Experience shows that even a fact which can be readily understood through the medium of a simple picture is difficult to understand when it is to be elucidated through verbalization. In other words, if a memorandum or document can be made use of in the course of conversation a mutual understanding of the information being discussed could be promoted significantly.

From JP-A-62-53084, such a system is known in which two terminals each equipped with a telephone set are interconnected through a communication channel, wherein the same images are displayed on the display devices of both terminals, respectively, together with a cursor inputted in one terminal and a cursor inputted from the counterpart or partner terminal to thereby

allow a conference to be conducted by viewing the displays.

When each of the terminals is provided with a multi-window display function in the system mentioned just above, it is possible to generate simultaneously on one and the same screen both a joint use window for displaying the same document in at both terminals through inter-terminal communication and a local window for displaying a document or data to be used only in the one terminal. In conjunction with the communication system including the multi-window terminals mentioned above, there is known an approach, as proposed in JP-A-63-67958, according to which the positional information of the local windows is mutually transferred between the interconnected terminals so that the user of the terminal can know the state of the display on the screen of the partner terminal. With this arrangement, the user of one terminal can command the partner to displace a local window when the former desires to explain the content of a document or other data generated in an area of the window dedicated for joint use which is however covered by the local window in the partner's terminal.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an electronic interlocution system including a plurality of terminals or work stations each imparted with a multi-window function and interconnected to one another and which system can enjoy much improved information service performance. With the invention, it is also contemplated to provide an interlocutory communication method carried out by using the electronic interlocution system mentioned above.

Another object of the present invention is to provide an interlocutory communication system in which a given one of the terminals or work stations can participate in a plurality of interlocutions (or conferences) simultaneously or selectively.

A further object of the invention is to provide a joint information processing system in which the users of a plurality of terminals or stations interconnected through communication channels can individually prepare data while conducting an interlocution in parallel by referring to the information for joint use, wherein the prepared data can be added to the joint information to thereby improve the efficiency of the interlocution.

In view of the above and other objects which will be more apparent as this description proceeds, it is proposed according to a general aspect of the present invention that in a communication system including a plurality of stations each having a multi-window function and connected to a communication channel system, a control communication path or route is first established between a plurality of the stations among which the interlocutory communication is to be performed, and then a logical communication route is established among those of plural application programs (processing programs) of the stations which are to be executed jointly. Parenthetically, the application programs interconnected through the logical communication route are herein referred to as interlocution object programs. In work station incorporating multiwindow function, a plurality of application programs corresponding, respectively, to a plurality of windows generated on the display screen can be caused to run selectively or in parallel to one another, wherein the results of the processes executed by the individual application pro-