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**Heredia**

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(54) **VOICE COMMUNICATION DURING A MULTI-PLAYER GAME**

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(52) **U.S. Cl.** ..... **463/42**; 463/40; 463/41; 704/200; 704/201; 704/270; 704/275; 725/18; 725/20; 725/118; 725/148; 725/127

(58) **Field of Search** ..... 463/42, 40, 41, 463/35; 704/201, 200, 203, 270, 275; 725/18, 20, 118, 127, 148, 149

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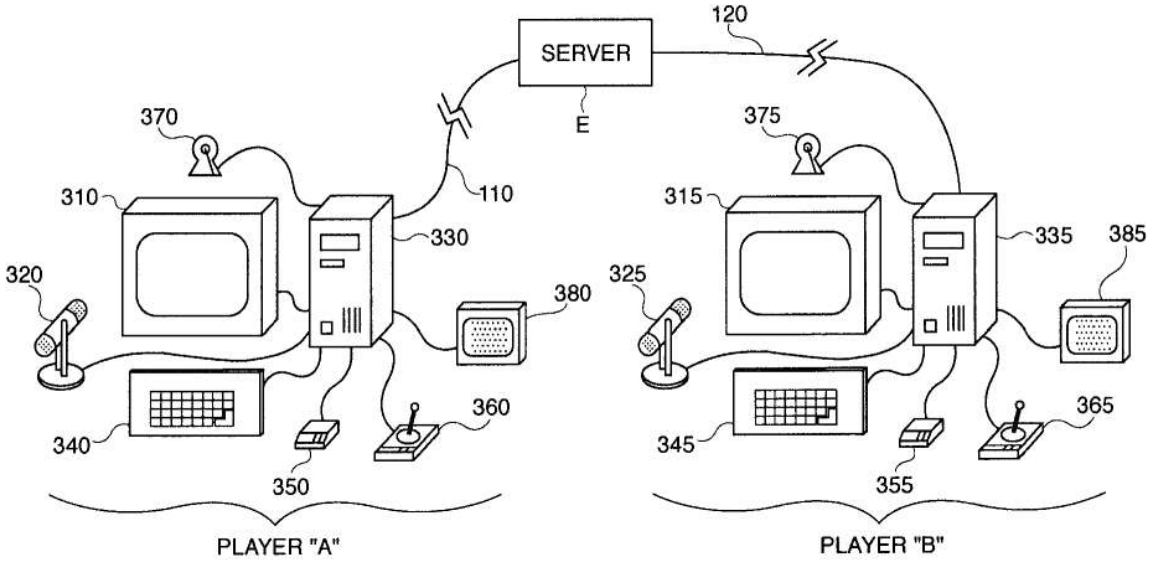
(57) **ABSTRACT**

Real-time synchronized voice communications during a multi-player game is disclosed. A server is connected to client computers, players. Players can speak into a microphone and have their voice transmitted to all players or a select few. Digitized voice communications are transmitted along with other game data. Player speech and game data is synchronized and reproduced in the same order it was captured.

**2 Claims, 3 Drawing Sheets**



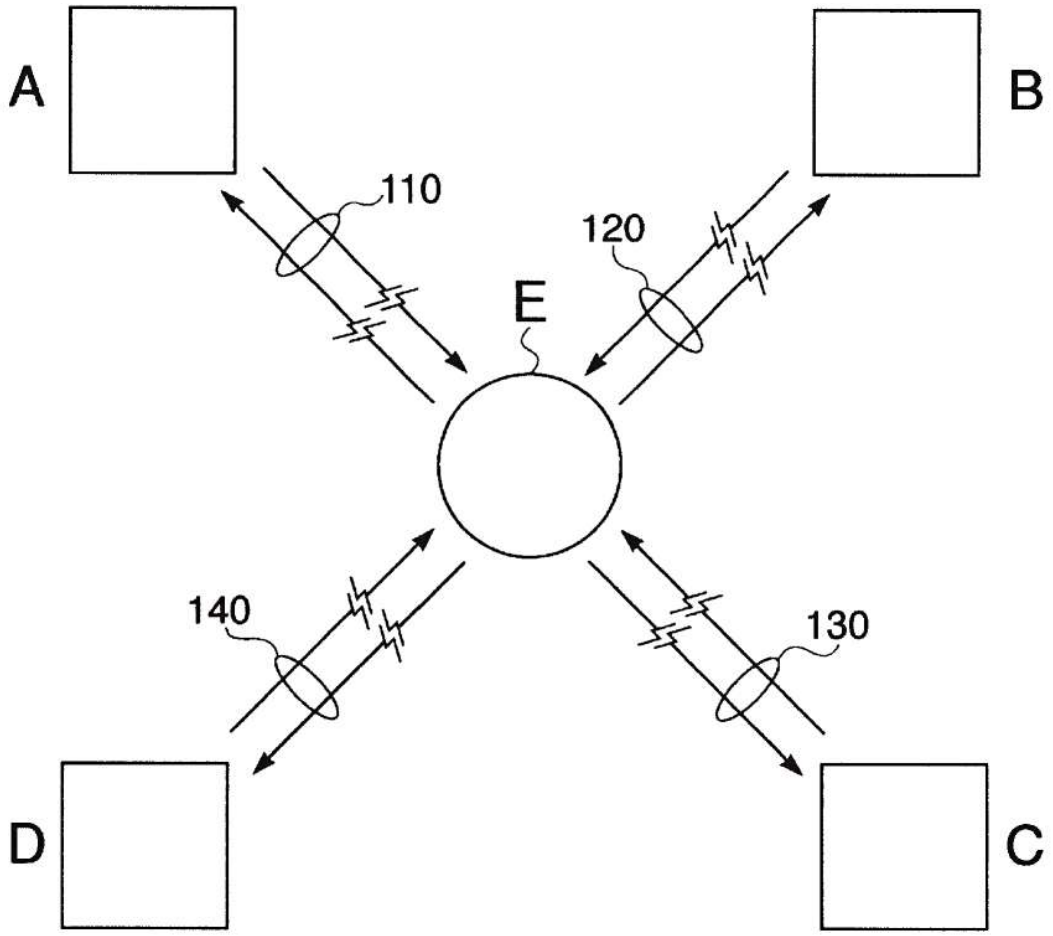



Figure 1

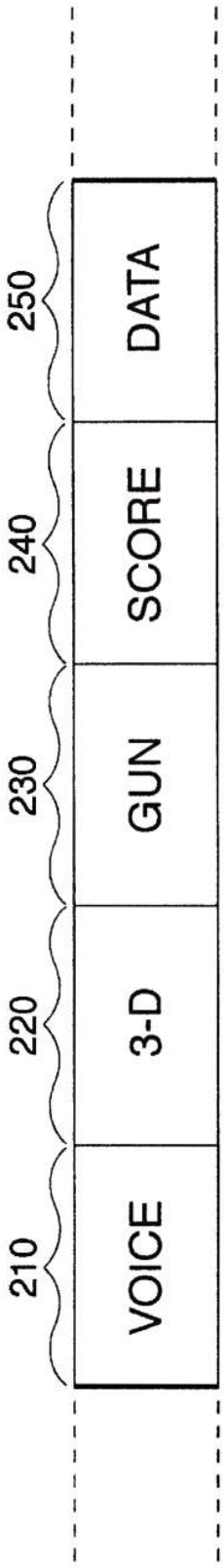



Figure 2

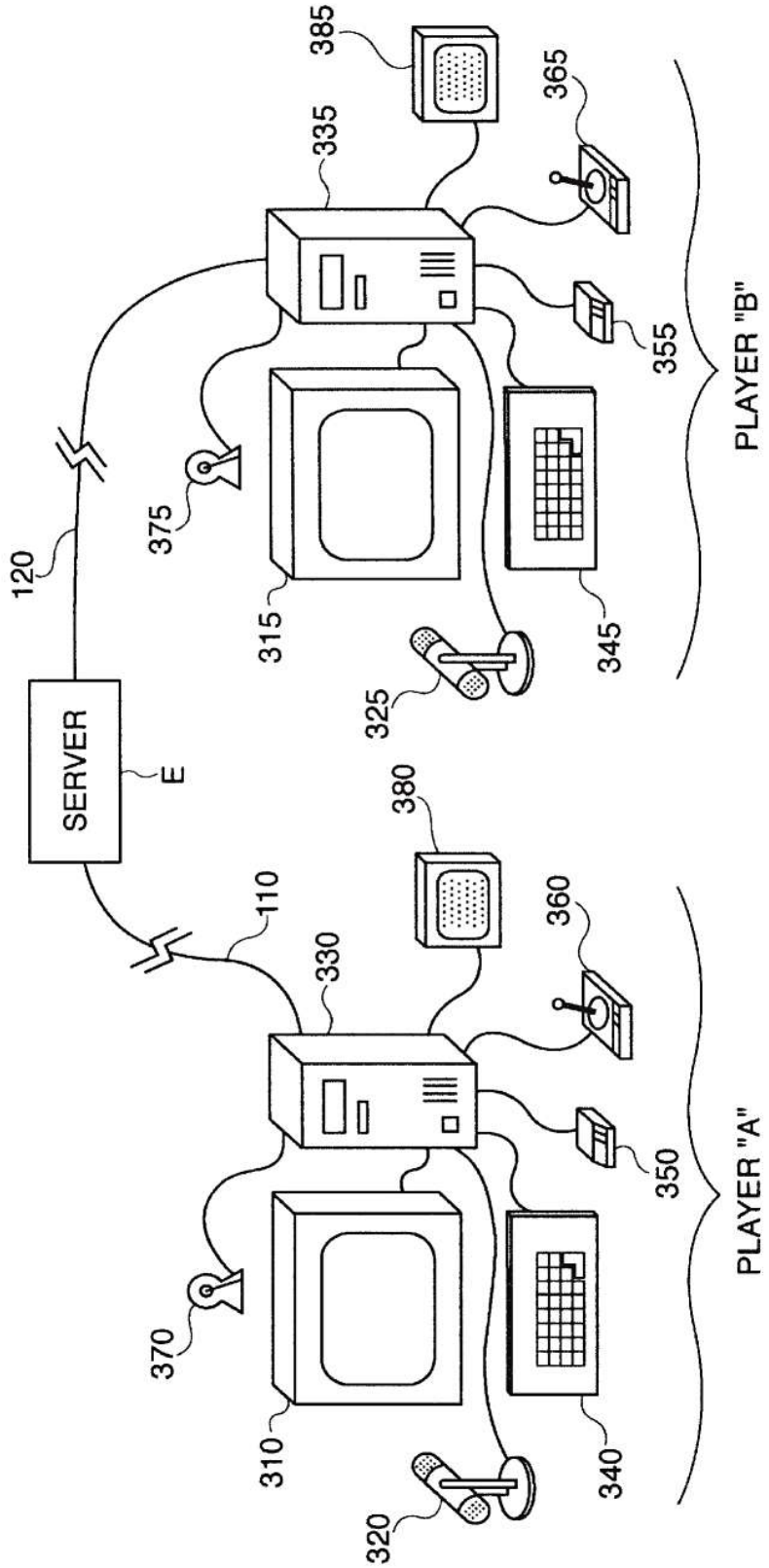



Figure 3

# VOICE COMMUNICATION DURING A MULTI-PLAYER GAME

## FIELD OF THE INVENTION

The present invention relates to the field of computer games. In particular, the present invention relates to networked multi-player computer games which are played over a local area network or the Internet. Still more particularly to synchronized voice communication during a multi-player game.

## BACKGROUND OF THE INVENTION

Computer games have long driven computer technology. The intense graphics and processing requirements of most computer games have stretched the limitations of processors, graphics controllers and the like. Moreover, computer games have fueled the market for so-called multimedia computers which include audio and video processing elements. A typical multimedia computer may be equipped with a microphone, stereo speakers, an advanced graphics controller with 2 or 3-D rendering capabilities, and real-time video imaging (e.g., MPEG-2 or the like). In addition, such computers may be provided with powerful audio processing capabilities including spatial imaging, surround sound, and the like. Typical home computers may be purchased with all such features at a fairly nominal cost.

Multi-player computer games have long been known in the art. Typical prior art SEGA and NINTENDO home entertainment systems may be provided with two or more control interfaces to allow multiple players to play a computer game against each other or in combination against the computer system within the game device. When players are in the same room, they may interact verbally with one another, as well as through the game interface. However both players utilize the same video device, sound device, and CPU.

Multi-player gaming through networks or over phone lines has long been known in the art. Before widespread acceptance of the Internet, multi-player games played over bulletin board systems (BBS's) were well known. Unlike SEGA and NINTENDO each player has their own video device, sound device, and CPU. However, when the players are not located in the same room, the verbal interaction between players is non-existent. Verbal interaction only exists when users are in the same physical location within ear shot of each other.

Some games provide a technique whereby messages can be transmitted between players by using a special command, then typing a message and sending it to all players. However, the time taken to type such a message would distract the player from game playing. As a result the player might lose the game while attempting to communicate with another player, due to the fact that these multi-player games are played in real-time.

Baker U.S. Pat. No. 5,538,255, issued Jul. 23, 1996 discloses a voice communication controller for transmitting a speech signal via microphone between two players of a computer game connected to each other via an analog phone line. However the image control commands and analog microphone signals are transmitted at alternate moments in time to share the same phone line. The speech is not synchronized with the game leaving a delay between the game play and the speech. The '255 patent does not allow for more than two players and moreover does not teach playing over a computer network or the like.

Carter, U.S. Pat. No. 5,556,107, issued Sep. 17, 1996 provides each player with audio intended for that player, independent of other players. Speech between players is not provided for, only audio originating from the computer game is transmitted to game controllers having headphones attached.



In more recent times, multi-player games have expanded with the widespread acceptance of the Internet. Various websites such as the MPLAYER server (www.mplayer.com) have been established as a clearinghouse for multi-player gaming. Players may log on to the website and play very sophisticated computer games over the Internet against players at remote locations. Games such as Quake, Warcraft, Starcraft, Duke Nukem, Motor Racer, Monster Truck Madness and the like have become extremely popular. Moreover, games based upon traditional sports such as hockey, baseball, and the like have also become popular in multi-player modes. The Internet has allowed people from all over the world to play with, or compete against, each other.

Thus, multi-player computer games, played over the Internet or other networks lack some of the real-time interaction experienced by players playing a multi-player computer game in the same room. In particular, Internet or other network players cannot talk to one another in real-time to encourage, disparage, strategize, scheme, or otherwise share their enjoyment of the computer game.

With the wide spread introduction of multimedia computers, new uses for the Internet and other networks are constantly being found. For example, Internet telephony techniques have been established using the audio capabilities of a typical multimedia computer. Using the microphone and speakers of a computer, a player can log on to the Internet and communicate with a remote Internet player verbally. Audio signals are received from the player's computer, digitized, and transmitted over the Internet where they are replayed at a receiver's speakers. Using such a technique, "telephone calls" can be placed over the Internet at very little or no expense. In addition, other forms of audio and video conferencing have been established over the Internet using multimedia computer capabilities. Using such techniques, a number of players may simultaneously interact through the Internet or other type of network sending audio signals to one another and/or video images.

## SUMMARY OF THE INVENTION

The present invention relates to a technique for providing voice communication and other selective audio in a multi-player computer game played over a computer network. In the preferred embodiment, a microphone is provided at a player's computer which receives voice messages in real-time. These messages are either used to operate the player's computer game, or are transmitted along with player input signals (from joystick, keyboard, and the like) over a computer network (local area network, Internet, or the like) to a central server or servers. The server or servers transmit data to a number of other players on the network playing the same computer game. The data comprises player position information and other game data as well as voice packet data. The server program can customize the data sent to each individual player. Thus, the audio comments and reactions of one player are relayed over the network to other players.

Each player's computer decodes the voice packet data and plays back voice messages over an audio system in real-time. The voice packet data is transmitted in the same packet as other data such that the game data and voice data is synchronized. If a player shouts then shoots, all networked players will hear the shout before the shot.

Each player can either receive selective data or select which data to replay as it is received by the computer.

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