US006697632B1

(12) **United States Patent**
Sood

(10) **Patent No.: US 6,697,632 B1**
(45) **Date of Patent: Feb. 24, 2004**

(54) **MULTI-MEDIA COORDINATED DELIVERY SYSTEM AND METHOD**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/074,574**

(22) Filed: **May 7, 1998**

(51) **Int. Cl.**[7] **H04B 7/005**; H04B 7/01; H04B 7/015; H04B 15/00

(52) **U.S. Cl.** **455/502**; 455/503; 455/403; 455/422; 455/517; 455/560; 375/354; 375/355

(58) **Field of Search** 455/502, 503, 455/403, 422, 560, 517, 416; 125/48; 348/14.02, 14.04; 375/354, 355, 356

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(57) **ABSTRACT**

A method of coordinating the delivery of two independent messages, of different mediums, for simultaneous presentation is provided. The messages are communicated in a system capable of including coordination plans with the messages. The coordination plans include the identity of the independent messages, points in the messages where the coordination begins, and the duration of the presentation. Once linkage points in the first and second messages are defined, the relationship between messages is defined, so that independent messages 10 are displayed with predefined, meaningful timing. In communication system flexible enough to support real-time, two-way communications, such as wireless telephones, at least one of the messages to be coordinated can be received and presented in real-time. A system of coordinating two independent messages with a coordination plan message is also provided.

6 Claims, 3 Drawing Sheets

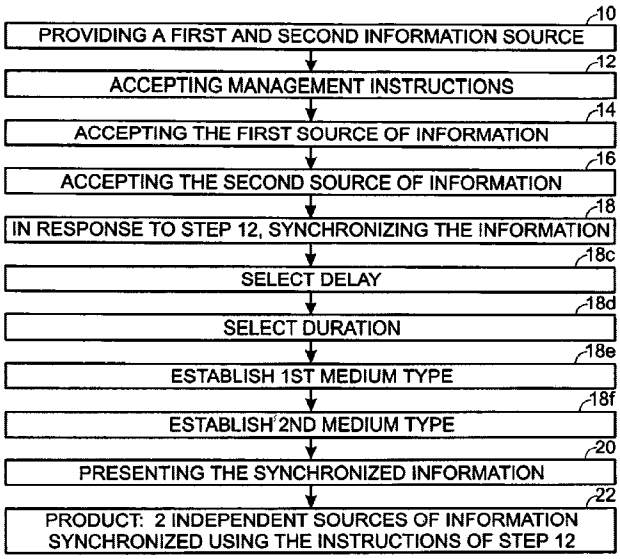


Fig. 1

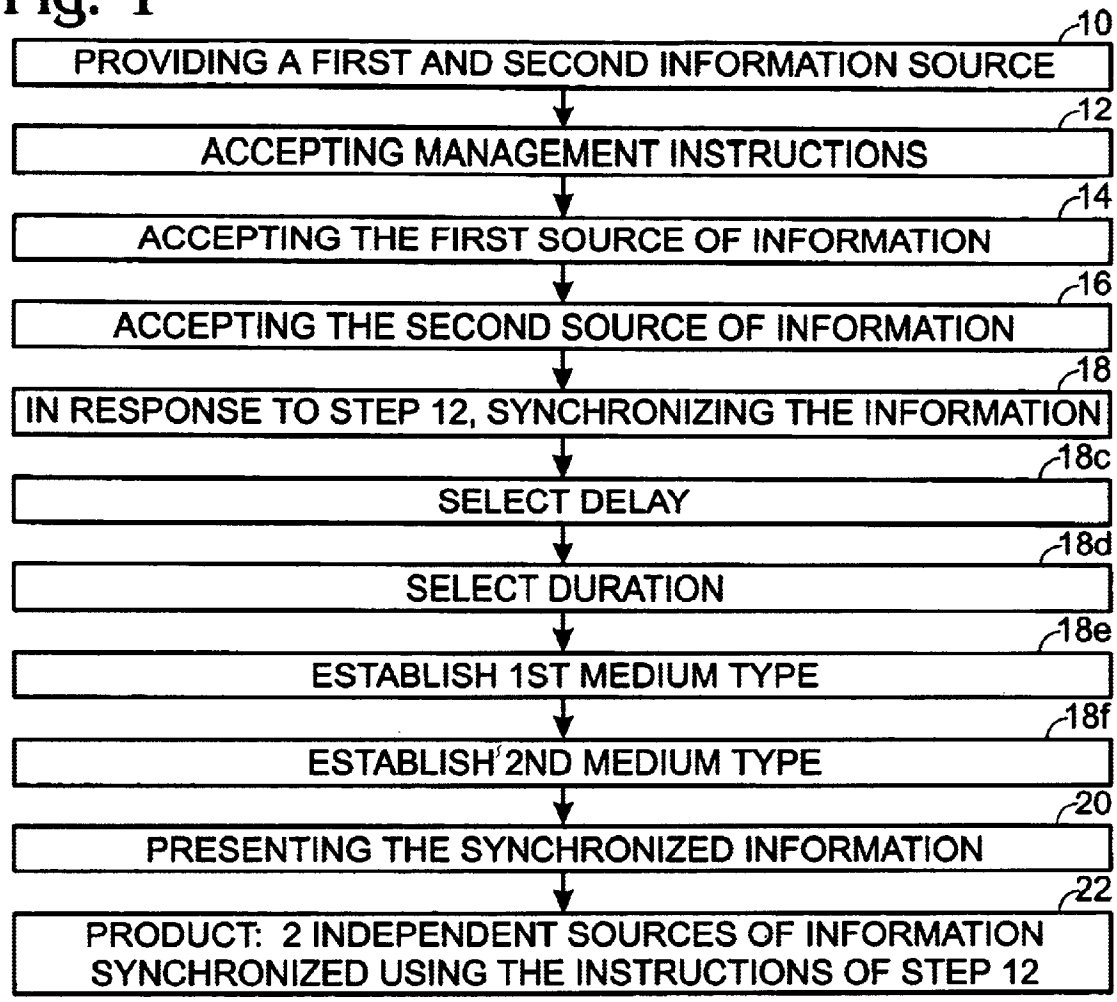


Fig. 4

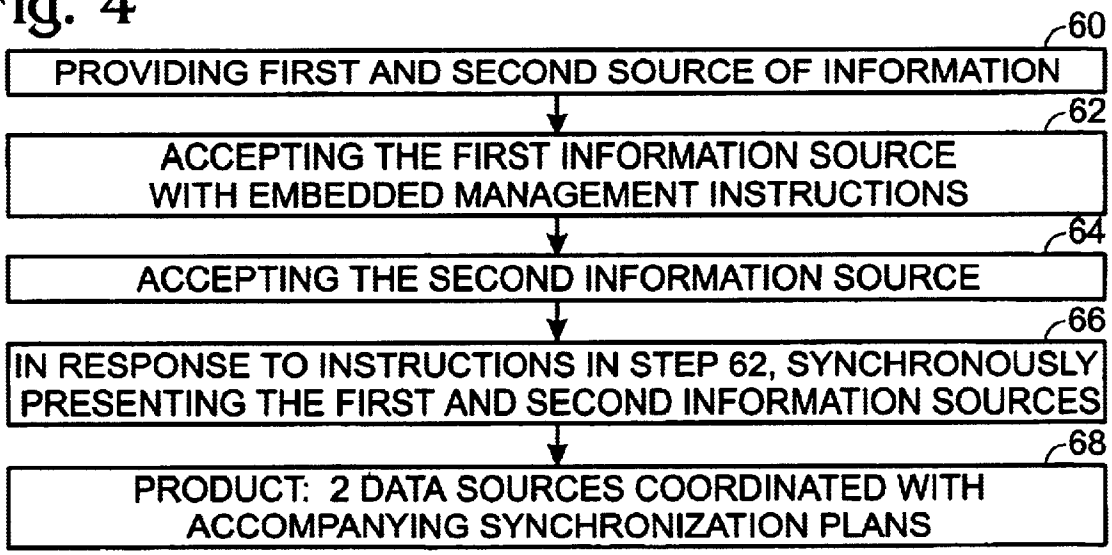


Fig. 2

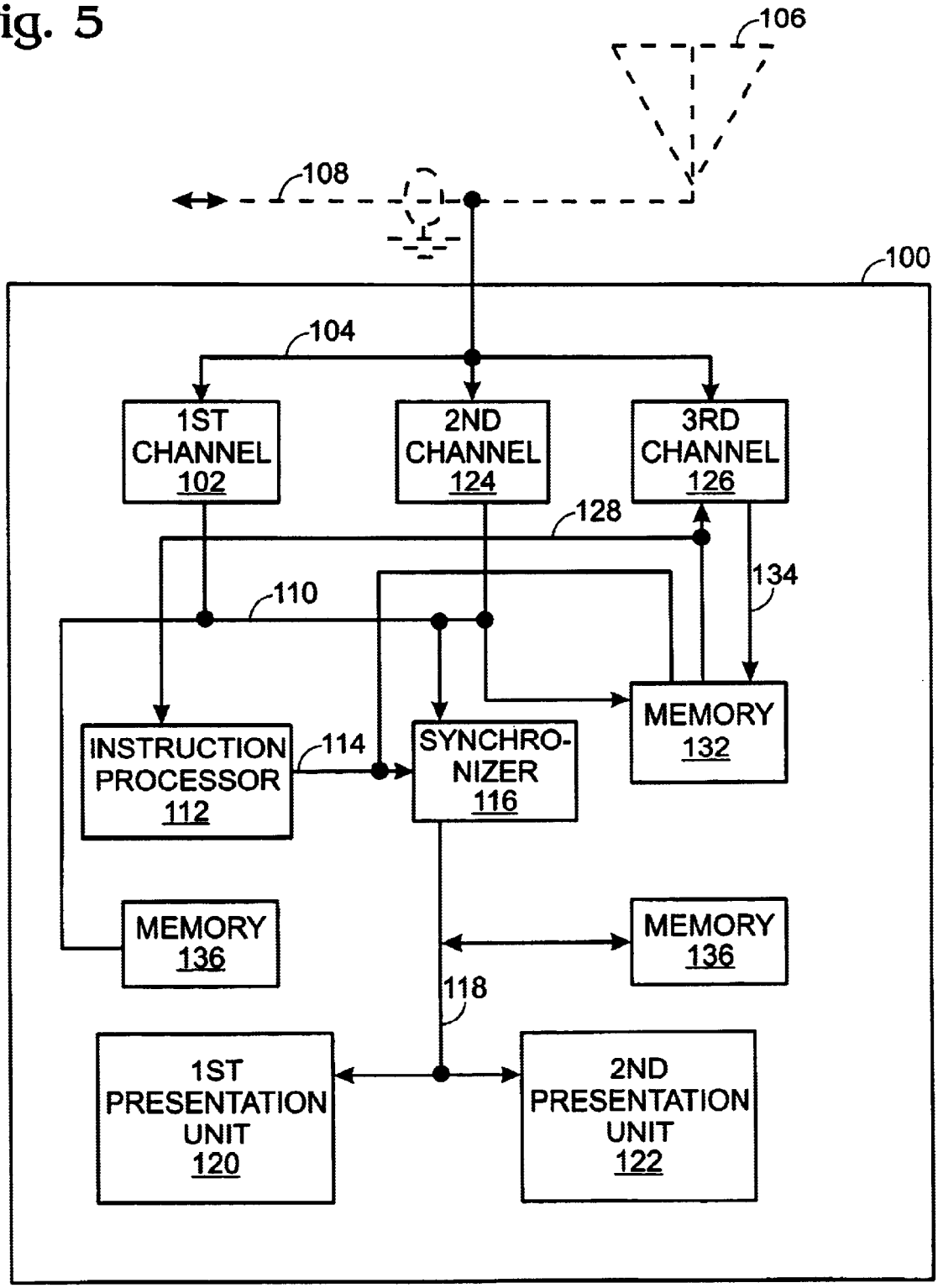
CHANNEL ASSIGNMENT MESSAGE

FIELD	LENGTH (BITS)
MSG-TYPE ("00001000")	8
ONE OR MORE OCCURRENCES OF THE FOLLOWING RECORD:	
ACK_SEQ	3
MSG_SEQ	3
ACK_REQ	1
VALID_ACK	1
ADDR_TYPE	3
ADDR_LEN	4
ADDRESS	8 X ADDR_LEN
ASSIGN_MODE	3
ADD_RECORD_LEN	3
ADDITIONAL RECORD FIELDS	8 X ADD_RECORD_LEN
RESERVED	0-7 AS NEEDED

Fig. 3

ELEMENT NAME	LENGTH (OCTETS)
COORD_TO_STREAM S1	0 (BEING SHOWN HERE ONLY FOR REFERENCE)
S1_MEDIUM_ID	1/2
S1_MESSAGE_ID	1
COORDINATION_STRIP_S2	0 (BEING SHOWN HERE ONLY FOR REFERENCE)
S2_MEDIUM_ID	1/2
S2_MESSAGE_ID	1
S2_LENGTH	1
S2_RUN_LENGTH	1
COORD_PT_ID_IN_S1	1/2
START_OF_PLAY_DELAY	1
RESERVED	1/2

Fig. 5



MULTI-MEDIA COORDINATED DELIVERY SYSTEM AND METHOD

BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates generally to communications and, more particularly, to a system and method of synchronizing a multi-media message communication.

A system is typically considered to have multi-media capabilities if it can simultaneously present different types of information mediums. Specialized computer applications have been developed for some systems to permit a user to integrate independent streams of information. Shelley et al., U.S. Pat. No. 5,345,551 disclose a system permitting a computer operator to manually synchronize information streams. Koval et al., U.S. Pat. No. 5,333,299 disclose a software program, stored in computer memory, capable of embedding synchronization signals into master and slave information streams. Neither system permits real-time synchronization of the independent data streams. The multiple information mediums must undergo a separate process of synchronization before the information is presented in the synchronized form. Further, neither system operates flexibly enough to support the convenient transfer of two-way messages between people.

Current mobile and land-line communication systems allow voice, data, and sometimes video information to be communicated in real-time, or near real-time. However these systems do not support the delivery of multi-media information streams, as only one type of information medium is communicated. That is, current communication systems do not simultaneously communicate multiple information mediums. Further, these system do not provide a means of synchronizing a second medium of information with a communicated medium of information.

It would be advantageous if multiple information mediums could be delivered in a format ready for presentation.

It would be advantageous if multiple information mediums could be delivered with synchronization instructions.

It would be advantageous if information coding, delivery system, and synchronization instructions could be embedded in a standard communication system, such as a telephone, or a network-linked computer.

It would be advantageous if at least one stream of information could be received, synchronized, and presented with a second stream of information in real-time. It would also be advantageous if the two streams of information could be of different medium types.

Accordingly, a method for presenting information from a first source, synchronously, with at least a second source of information is provided. The method comprises the steps of:

a) accepting instructions to control the acceptance and management of the first and second information sources;

b) accepting the first source of information;

c) accepting the second source of information;

d) in response to instructions accepted in Step a), synchronizing the information of the second source with information of the first source; and

e) presenting the synchronized information of both the first and second sources.

The information streams and management instructions are communicated in a variety of ways. For example, three distinct physical channels, or time multiplexed data groupings may be provided. In a TDMA system these channels may be different slots, and the function of the slots may be adaptive, changing in response to internal, or base directed software commands. In a CDMA system the three channels may be different orthogonal spreading codes. The three channels permit Steps a)–c) to include accepting the management instructions, and the first and second sources of information.

Step d) includes selecting a bit, or some other conveniently identified part of the first source of information as a coordination point which is synchronized to the starting bit of information in the second source. Then, Step e) includes presenting the starting bit in the second source in response to presenting the coordination point in the first source. That is, a point in the first source is chosen as a reference for synchronization.

To fine-tune the synchronization of the information streams a further step, following Step d), selects a delay to define the time duration between the coordination point in the first source and the starting bit in the second source. Then, Step e), delays the presentation of the starting bit in the second source from the presentation of the coordination point in the first source. Likewise, a time duration is selected for the presentation of the second source of information, and Step e) includes presenting the second source of information for the selected time duration.

Typically, the first source of information is a first communication medium type, and the second source is a different communication medium type. The management instructions are used to establish the first and second source medium types. The medium types are presented in Step e) in response to the communication medium types established. In this manner, the synchronization method is able to integrate different types of communication medium. Typically, the first and second communication medium types are selected from the group consisting of audio, audio/video, video, text, images, and data. For example, Step d) may include synchronizing the audio information of the second source with the audio/video information of the first source, so that a voice is dubbed over an audio/visual presentation.

Specifically, the management instructions may include a field devoted strictly to synchronization. This so-called Inter-Medium Coordination Management Field defines the synchronization of the first and second sources of information, with a series of sub-fields to define the medium types of each source, the identity of each source, the number of bits in the second source, the presentation length of the second source, the coordination point in the first source, and the delay between the coordination point and the beginning the second source presentation.

The method of the present invention is not necessarily limited to synchronizing two streams of information. In one aspect of the invention a Step c_1) accepts a third source of information and Step a) includes accepting management instructions to control the acceptance of the third source. Then, Step d) includes synchronizing the information in the third source with information in the first source, and Step e) includes presenting the synchronized information of the first, second, and third sources.

The present invention is useful in almost any communication system including, but not limited to, wireless systems such as those of the IS-95, W-CDMA, IS-136, and GSM standards.

A receiver has also been provided to synchronize at least two independent streams of information for real-time presentation. The receiver comprises at least a first communi-

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