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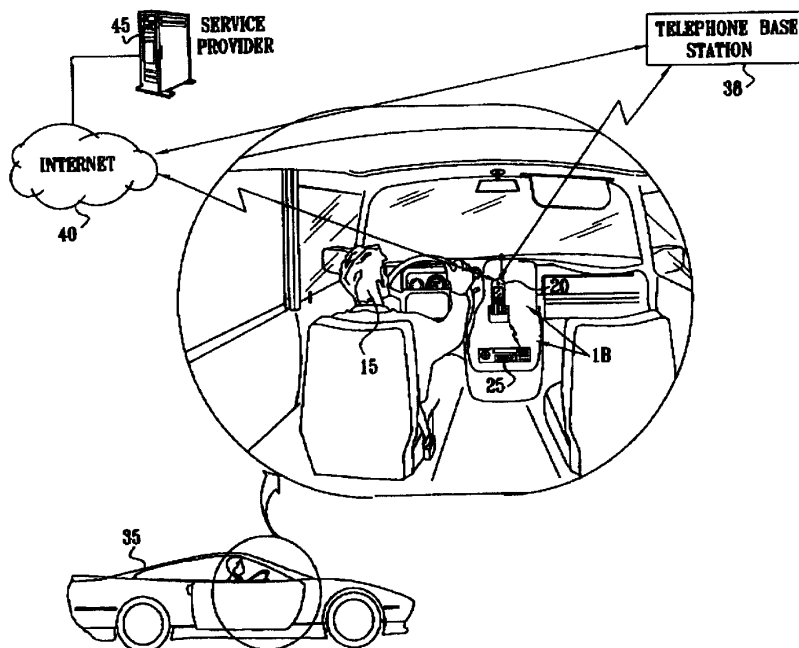
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(54) Titre : FOURNITURE SANS FIL DE CONTENU AUDIO

(54) Title: WIRELESS PROVISION OF AUDIO CONTENT



(57) Abrégé/Abstract:

Apparatus for in-vehicle provision of audio content to a listener. The apparatus includes a cellular telephone adapted to receive broadcast radio content over a wireless network, and an in-vehicle audio system adapted to be fixedly installed in a vehicle, and coupled to receive the broadcast radio content from the cellular telephone, and to play the content in the vehicle.

ABSTRACT**WIRELESS PROVISION OF AUDIO CONTENT**

- 5 Apparatus for in-vehicle provision of audio content to a listener. The apparatus includes a cellular telephone adapted to receive broadcast radio content over a wireless network, and an in-vehicle audio system adapted to be fixedly installed in a vehicle, and coupled to receive the broadcast radio content from the cellular telephone, and to play the content in the vehicle.

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WIRELESS PROVISION OF AUDIO CONTENT

FIELD OF THE INVENTION

The present invention relates to the field of provision of audio content, particularly wireless provision of audio content via a cellular telephone.

5 BACKGROUND OF THE INVENTION

The majority of cars and other vehicles contain in-vehicle audio systems containing relatively high quality audio components such as amplifiers and speakers. Such in-vehicle audio systems typically include radios, and cassette, CD and minidisk players, and the like. However, the range of audio content available to a listener of in-vehicle audio devices is limited.

10 A listener to a radio is limited temporally to the programming available at that time. If a listener misses a desired radio program at its normal broadcast time, he is unable to listen to that program later, at a time convenient for him, unless he recorded it during broadcast. A radio listener is also limited geographically to the programming broadcast from a within-range radio transmitter. It is currently not possible for a radio listener to travel abroad and still receive broadcasts from his
15 home country's local radio stations on an in-vehicle radio. There is thus a need for a method for listening to a radio program via an in-vehicle radio system, while the radio program is not being currently transmitted on an in-range transmitter, without the listener having to pre-record the program.

A listener to in-vehicle audio devices, such as a cassette or CD player, is limited to the
20 selection of prerecorded audio content, typically music, that he has available in the appropriate format.

A large amount of audio content, including both music and spoken content, is available over the Internet. The majority of in-vehicle audio systems are not Internet-enabled, however.

A large number of listeners to in-vehicle audio devices also possess cellular phones. New
25 generations of cellular phones are Internet-enabled, allowing audio content to be downloaded from the Internet. The sound quality from cellular phones is typically poor as they are designed to

minimize size and weight and are intended to be used by a single user, while being held close to the ear. Cellular phones are not designed for broadcasting music to a number of listeners. There is thus also a need for apparatus and a method for improving the sound quality of audio content downloaded from a network such as the Internet, through a cellular phone.

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SUMMARY OF THE INVENTION

The present invention seeks to provide apparatus and methods for receiving audio content, typically in the form of files, from a network such as the Internet via a cellular phone, and for playing the downloaded audio content over regular radio or stereo equipment. In one embodiment, the radio or stereo equipment is located within a vehicle. The vehicle stereo provides high quality sound, not available from the cellular telephone, and may also provide a buffering memory, *e.g.*, a hard disk, for storing downloaded audio files for playback. The cellular phone provides a user interface and data channel to an application server as an extension to the car radio/stereo.

In a preferred embodiment, the cellular phone is Internet enabled, using a protocol such as WAP (Wireless Access Protocol), to retrieve audio files from the Internet. In an alternative embodiment, the cellular phone uses packet-oriented cellular protocols and networks. A typical, but non-limiting, example of a packet-oriented cellular protocol is GPRS (General Packet Radio Service), which is a data service currently offered in some GSM networks.

In a preferred embodiment, the cellular phone and the radio or stereo equipment are able to communicate with each other over a short-range wireless channel, using a communication protocol such as Bluetooth™.

In a preferred embodiment, a user specifies the desired radio stations, or individual radio programs, typically by presetting a radio to the desired program or station. This information is transmitted from the radio to the telephone, which then contacts an application server which has an accessible archive of the radio station's programs, and downloads the requested programming, typically as audio files. The audio content is transferred from the telephone to the radio for playback to the user. Thus, the user is able to listen to programming at substantially any desired time and place, without being bound by the geographical limits and programming schedule of a given radio station.

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There is thus provided in accordance with a preferred embodiment of the present invention, apparatus for in-vehicle provision of audio content to a listener. The apparatus includes a cellular telephone adapted to receive broadcast radio content over a wireless network, and an in-vehicle audio system, adapted to be fixedly installed in a vehicle, and coupled to receive the broadcast radio content from the cellular telephone, and to play the content in the vehicle.

Further in accordance with a preferred embodiment of the present invention, the cellular telephone is adapted to receive the broadcast radio content over the wireless network at a time when the radio content is not being broadcast over radio channels.

Still further in accordance with a preferred embodiment of the present invention, the cellular telephone is adapted to receive the broadcast radio content over the wireless network at a location where the radio content cannot be received over radio channels.

Additionally in accordance with a preferred embodiment of the present invention, the broadcast radio content received over the wireless network is user-selected.

Also in accordance with a preferred embodiment of the present invention, the cellular telephone is adapted to receive, from a user, an input including at least one detail regarding the broadcast radio content to be received, and to transmit the at least one detail to a content provider over the wireless network.

Further in accordance with a preferred embodiment of the present invention, the input comprises a verbal input.

Still further in accordance with a preferred embodiment of the present invention, the cellular telephone comprises buttons, and the input comprises contacting the buttons.

Additionally in accordance with a preferred embodiment of the present invention, the audio system is adapted to receive, from a user, an input including at least one detail regarding the broadcast radio content to be received, and to transmit the at least one detail to the cellular telephone.

Also in accordance with a preferred embodiment of the present invention, the in-vehicle audio system can function as a radio independent of the cellular phone, and is adapted to receive, as the input, at least one identification detail of the radio station to which the radio is tuned.

Further in accordance with a preferred embodiment of the present invention, the at least one identification detail is selected from the group consisting of radio station name, radio station ID

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