being watched on a television, and the like. Many of these functions require that the television or set top box receive adjunct data. For example, in the case of the EPG, the television or set top box would need to receive program information.

SUMMARY OF THE INVENTION

[0004] ~~According to an embodiment of the present disclosure, there is provided a method of a reception apparatus for retrieving Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire. The method includes receiving content from a content source. The received content is displayed on a display. A location of the PDI data associated with the received content is subsequently determined. Further, the reception apparatus retrieves the PDI data based on the determined location of the PDI data.~~

According to a first aspect of the present invention, there is provided a method of a reception apparatus for retrieving Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire, comprising: receiving content from a content source; displaying the received content on a display; determining a location of the PDI data associated with the received content; and retrieving, by the reception apparatus, the PDI data based on the determined location of the PDI data, wherein the step of determining comprises: determining the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.

[0005] ~~Further, according to an embodiment of the present disclosure, there is provided a computer-readable storage medium having instructions embedded therein, which, when executed by a computer, cause the computer to perform the method of the reception apparatus, as described above.~~

According to a second aspect of the present invention, there is provided a computer-readable storage medium storing a program, which when executed by a computer, causes the computer to perform a method of a reception apparatus for retrieving Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire, the method comprising: receiving content from a content source; displaying the received content on a display; determining a location of the PDI data associated with the received content; and retrieving, by the reception apparatus, the PDI data based on the determined location of the PDI data, wherein the step of determining comprises: determining the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.

[0006] ~~According to an embodiment of the present disclosure, there is provided a reception apparatus. The reception apparatus includes a receiver, a display interface, and a processor. The receiver is configured to receive content from a content source. The display interface is configured to output the received content. The processor is configured to determine a location of PDI data, including a PDI questionnaire, associated with the received content, and retrieve the PDI data based on the determined location of the PDI data.~~

According to a third aspect of the present invention, there is provided a reception apparatus, comprising: a receiver configured to receive content from a content source; a display interface configured to output the received content; a processor configured to determine a location of Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire, associated with the received content, and retrieve the PDI data based on the determined location of the PDI data, wherein the processor is further configured to determine the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.

[0007] ~~According to an embodiment of the present disclosure, there is provided an information providing apparatus, which includes a memory and a communication unit. The memory is configured to store PDI data, including a PDI questionnaire. The communication unit is configured to provide the PDI data to a reception apparatus, when the reception apparatus retrieves the PDI data from a location determined by the reception apparatus.~~

According to a fourth aspect of the present invention, there is provided an information providing apparatus, comprising: a memory configured to store Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire; a communication unit configured to provide the PDI data to a reception apparatus at a location identified by a PDI locator provided to the reception apparatus, wherein the reception apparatus is configured to determine the location of the PDI data associated with a content received by the reception apparatus based on a PDI locator extracted from closed caption data associated with the received content.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] A more complete appreciation of the present disclosure and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

[0009] FIG. 1 illustrates an exemplary digital television service system;

[0010] FIG. 2 is a block diagram of an exemplary reception apparatus;

[0011] FIG. 3 is a processor-centric block diagram of an exemplary reception apparatus;

[0012] FIG. 4 illustrates a flow diagram of an exemplary method for retrieving PDI data;

[0013] FIG. 5A is an exemplary format of a URI string command delivered in non-closed caption text data;

[0014] FIG. 5B illustrates an exemplary PDI locator syntax;

[0015] FIG. 6 illustrates an example of PDI filter criteria delivery through metadata;

[0016] FIGS. 7A-7C illustrate exemplary PDI processing flow diagrams;

[0017] FIG. 8 illustrates an exemplary PDI questionnaire;

[0018] FIGS. 9A-9B illustrate exemplary PDI table schemas;

[0019] FIG. 10 illustrates an exemplary triggered declarative object (TDO) Parameters Table (TPT);

CLAIMS

1. A method of a reception apparatus for retrieving Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire, comprising:

receiving content from a content source;

displaying the received content on a display;

determining a location of the PDI data associated with the received content; and

retrieving, by the reception apparatus, the PDI data based on the determined location of the PDI data,

wherein the step of determining comprises:

determining the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.

~~2. The method according to claim 1, wherein the step of determining comprises:~~

~~determining the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.~~

~~3. The method according to claim 2, further comprising:~~

~~extracting the PDI locator from non-closed caption text data within a service block having a service number in the range of 1-6.~~

~~4. The method according to claim 3, wherein the step of extracting comprises:~~

~~extracting the PDI locator from non-closed caption text data within a service block having a service number of 6.~~

~~5~~2. The method according to claim 1, wherein the step of determining comprises:

determining the location of the PDI data associated with the received content based on a PDI locator extracted from a triggered declarative object parameters table (TPT) associated with the received content.

~~6~~3. The method according to claim 1, wherein the step of determining comprises:

determining the location of the PDI data associated with the received content based on a PDI locator identifying a location of the PDI data in a File Delivery over Unidirectional Transport (FLUTE) carousel extracted from a Transport Stream carrying the content.

~~7~~4. The method according to claim 1, wherein the step of receiving content comprises:

receiving the content via at least one of a satellite broadcast, a cable television transmission, a terrestrial television broadcast, and the Internet.

~~8~~5. The method according to claim 1, wherein the step of retrieving comprises:

retrieving, by the reception apparatus, the PDI data based on the determined location of the PDI data and one or a combination of a predetermined filename, a predetermined directory path, and a PDI location file.

~~9~~6. A computer-readable storage medium storing a program, which when executed by a computer, causes the computer to perform a method of a reception apparatus for retrieving Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire, the method comprising:

receiving content from a content source;

displaying the received content on a display;

determining a location of the PDI data associated with the received content; and

retrieving, by the reception apparatus, the PDI data based on the determined location of the PDI data,

wherein the step of determining comprises:

determining the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.

~~10~~7. A reception apparatus, comprising:

a receiver configured to receive content from a content source;

a display interface configured to output the received content;

a processor configured to

determine a location of Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire, associated with the received content, and

retrieve the PDI data based on the determined location of the PDI data,

wherein the processor is further configured to determine the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.

~~11. The reception apparatus according to claim 10, wherein the processor is configured to determine the location of the PDI data associated with the received content based on a PDI locator extracted from closed caption data associated with the received content.~~

~~12. The reception apparatus according to claim 11, further comprising:~~

~~an extraction unit configured to extract the PDI locator from non-closed caption text data within a service block having a service number in the range of 1-6.~~

~~13. The reception apparatus according to claim 12, wherein the extraction unit is configured to extract the PDI locator from non-closed caption text data within a service block having a service number of 6.~~

~~14~~8. The reception apparatus according to claim ~~10~~7, wherein the processor is configured to determine the location of the PDI data associated with the received content based on a PDI locator extracted from a triggered declarative object parameters table (TPT) associated with the received content.

~~15~~9. The reception apparatus according to claim ~~10~~7, wherein the processor is configured to determine the location of the PDI data associated with the received content based on a PDI locator identifying a location of the PDI data in a File Delivery over Unidirectional Transport (FLUTE) carousel extracted from a broadcast multiplex carrying the content.

~~16~~10. The reception apparatus according to claim ~~10~~7, wherein the receiver is configured to receive the content via at least one of a satellite broadcast, a cable television transmission, a terrestrial television broadcast, and the Internet.

~~17~~11. The reception apparatus according to claim ~~10~~7, wherein the processor is configured to retrieve the PDI data based on the determined location of the PDI data and one or a combination of a predetermined filename, a predetermined directory path, and a PDI location file.

~~18~~12. The reception apparatus according to claim ~~12~~7, wherein

the receiver is configured to receive the content via at least one of a satellite broadcast, a cable television transmission, a terrestrial television broadcast, and the Internet.

~~19~~13. An information providing apparatus, comprising:

a memory configured to store Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire;

a communication unit configured to provide the PDI data to a reception apparatus at a location identified by a PDI locator provided to the reception apparatus,

wherein the reception apparatus is configured to determine the location of the PDI data associated with a content received by the reception apparatus based on a PDI locator extracted from closed caption data associated with the received content.