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 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 a broadcast stream, which includes content from a content source; outputting the received content for display; extracting, by circuitry of a reception apparatus, a URI and a URI type associated with the URI from the received broadcast stream, wherein the extracted URI type is a PDI type; determining, by the circuitry, an action to be performed based on the extracted URI type; and automatically retrieving, by the circuitry, the PDI data based on the extracted URI and a determination that the extracted URI type is the PDI type.

[0005] According to a second aspect of the present invention, there is provided a non-transitory 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 a broadcast stream, which includes content from a content source; outputting the received content for display; extracting a URI and a URI type associated with the URI from the received broadcast stream, wherein the extracted URI type is a PDI type; determining an action to be performed based on the extracted URI type; and automatically retrieving, by the reception apparatus, the PDI data based on the extracted URI and a determination that the extracted URI type is the PDI type.

[0006] According to a third aspect of the present invention, there is provided a reception apparatus, comprising: a receiver configured to receive a broadcast stream, which includes content from a content source; a display interface configured to output the received content for display; circuitry configured to extract a URI and a URI type associated with the URI from the received broadcast stream, wherein the extracted URI type is a PDI type; determine an action to be performed based on the extracted URI type, and automatically

retrieve Profiles, Demographics, and Interests (PDI) data based on the extracted URI and a determination that the extracted URI type is the PDI type.

[0007] According to a fourth aspect of the present invention, there is provided an information providing system, comprising: a memory configured to store Profiles, Demographics, and Interests (PDI) data, including a PDI questionnaire; circuitry configured to generate a URI and a URI type associated with the URI, generate a broadcast stream, which includes content to be output for display and the URI and the URI type; transmit the broadcast stream to a reception apparatus, and provide the PDI data to the reception apparatus at a location determined by the reception apparatus based on the URI and the URI type, wherein the reception apparatus is configured to determine an action to be performed based on the URI type extracted from the broadcast stream, the extracted URI type being a PDI type; and automatically retrieve the PDI data from the circuitry based on the URI extracted from tire broadcast stream and a determination that the extracted URI type is the PDI type.

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 a broadcast stream, which includes content from a content source;

outputting the received content for display;

extracting, by circuitry of a reception apparatus, a URI and a URI type associated with the URI from the received broadcast stream, wherein the extracted URI type is a PDI type;

determining, by the circuitry, an action to be performed based on the extracted URI type; and

automatically retrieving, by the circuitry, the PDI data based on the extracted URI and a determination that the extracted URI type is the PDI type.

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

extracting the URI and the URI type from closed caption data associated with the received content.

3. The method according to claim 1, wherein the step of extracting comprises:

extracting the URI and the URI type from a non-closed caption text portion of the closed caption data, which is included 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 URI and the URI type from the non-closed caption text portion of the closed caption data within the service block having the service number of 6.

5. The method according to claim 1, further comprising:

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

6. The method according to claim 1, further comprising:

determining a location of the PDI data based on a PDI locator identifying the location of the PDI data in a File Delivery over Unidirectional Transport (FLUTE) carousel extracted from the broadcast stream.

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

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

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

retrieving, by the circuitry, the PDI data based on the extracted URI and one or a combination of a predetermined filename, a predetermined directory path, and a PDI location file.

9. A non-transitory 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 a broadcast stream, which includes content from a content source;

outputting the received content for display;

extracting a URI and a URI type associated with the URI from the received broadcast stream, wherein the extracted URI type is a PDI type;

determining an action to be performed based on the extracted URI type; and

automatically retrieving, by the reception apparatus, the PDI data based on the extracted URI and a determination that the extracted URI type is the PDI type.

10. A reception apparatus, comprising:

a receiver configured to receive a broadcast stream, which includes content from a content source;

a display interface configured to output the received content for display;

circuitry configured to

extract a URI and a URI type associated with the URI from the received broadcast stream, wherein the extracted URI type is a PDI type;

determine an action to be performed based on the extracted URI type, and

automatically retrieve Profiles, Demographics, and Interests (PDI) data based on the extracted URI and a determination that the extracted URI type is the PDI type.

11. The reception apparatus according to claim 10, wherein the circuitry is configured to extract the URI and the URI type from closed caption data associated with the received content.

12. The reception apparatus according to claim 10, wherein the circuitry is configured to extract the URI and the URI type from a non-closed caption text portion of the closed caption data, which is included within a service block having a service number in the range of 1-6.

13. The reception apparatus according to claim 12, wherein the circuitry is configured to extract the URI and the URI type from the non-closed caption text portion of the closed caption data, which is included within the service block having the service number of 6.

14. The reception apparatus according to claim 10, wherein the circuitry is further configured to determine a location of the PDI data based on a PDI locator extracted from a table associated with the received content.

15. The reception apparatus according to claim 10, wherein the circuitry is configured to determine a location of the PDI data based on a PDI locator identifying the location of the PDI data in a File Delivery over Unidirectional Transport (FLUTE) carousel extracted from the broadcast stream.

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

17. The reception apparatus according to claim 10, wherein the circuitry is configured to retrieve the PDI data based on the extracted URI and one or a combination of a predetermined filename, a predetermined directory path, and a PDI location file.

18. An information providing system, comprising:

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

circuitry configured to

generate a URI and a URI type associated with the URI,

generate a broadcast stream, which includes content to be output for display and the URI and the URI type;

transmit the broadcast stream to a reception apparatus, and

provide the PDI data to the reception apparatus at a location determined by the reception apparatus based on the URI and the URI type, wherein

the reception apparatus is configured to

determine an action to be performed based on the URI type extracted from the broadcast stream, the extracted URI type being a PDI type; and

automatically retrieve the PDI data from the circuitry based on the URI extracted from tire broadcast stream and a determination that the extracted URI type is the PDI type.

19. The reception apparatus according to claim 10, wherein

the circuitry is configured to extract a URI element and a URI type element,

the URI element indicates the URI, and

the URI type element indicates the URI type.