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(54) **SYSTEM AND METHOD IN A DISTRIBUTED SYSTEM FOR RESPONDING TO USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM**

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(57) **ABSTRACT**

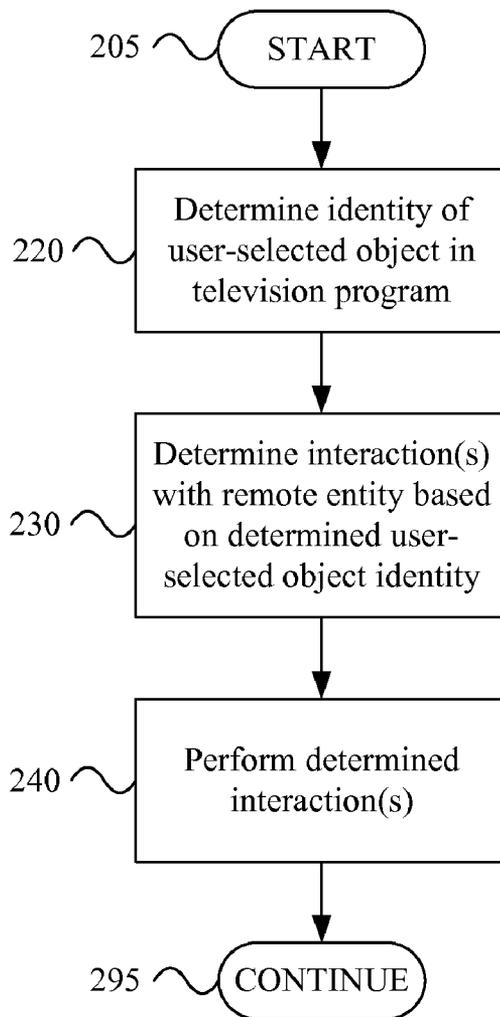
A system and method in a distributed television system for responding to user-selection of an object in a television program, substantially as shown in and/or described in connection with at least one of the figures, as set forth more completely in the claims.

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(21) Appl. No.: **12/880,530**

(22) Filed: **Sep. 13, 2010**

200



100
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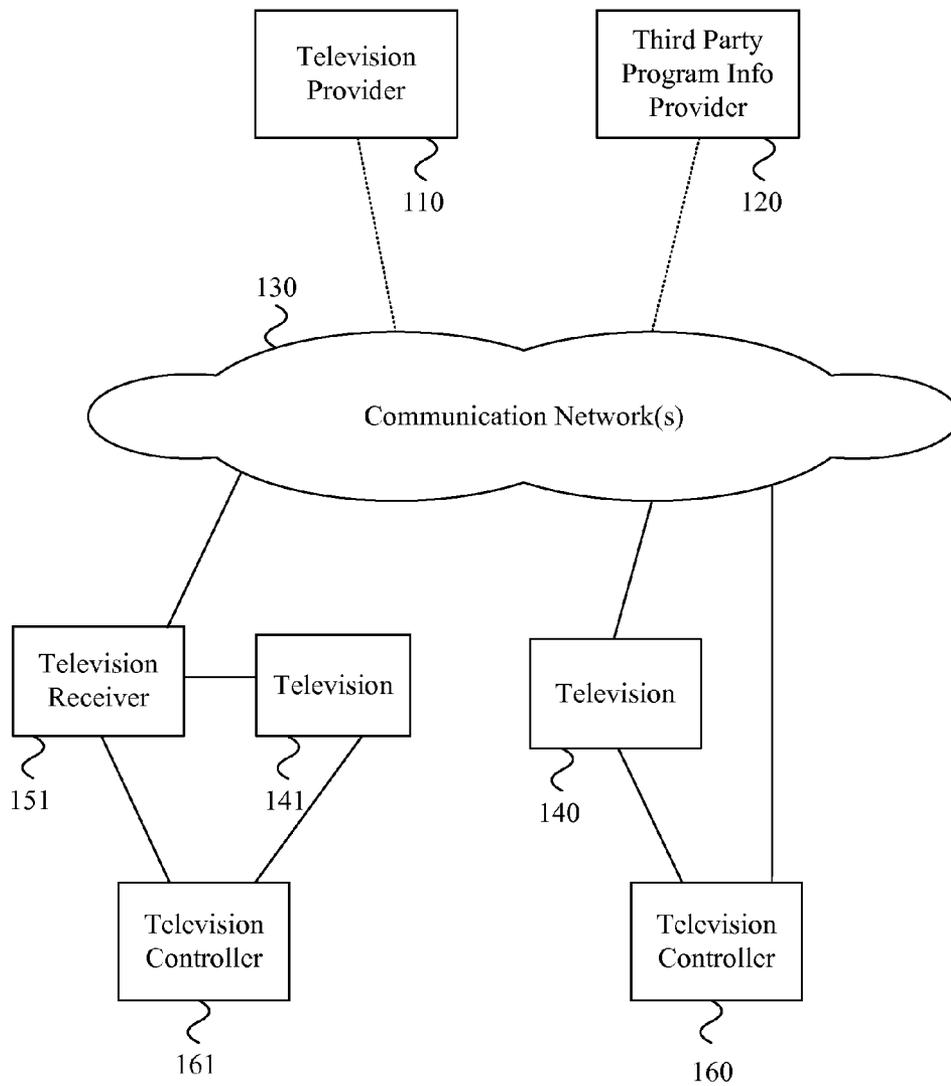


Figure 1

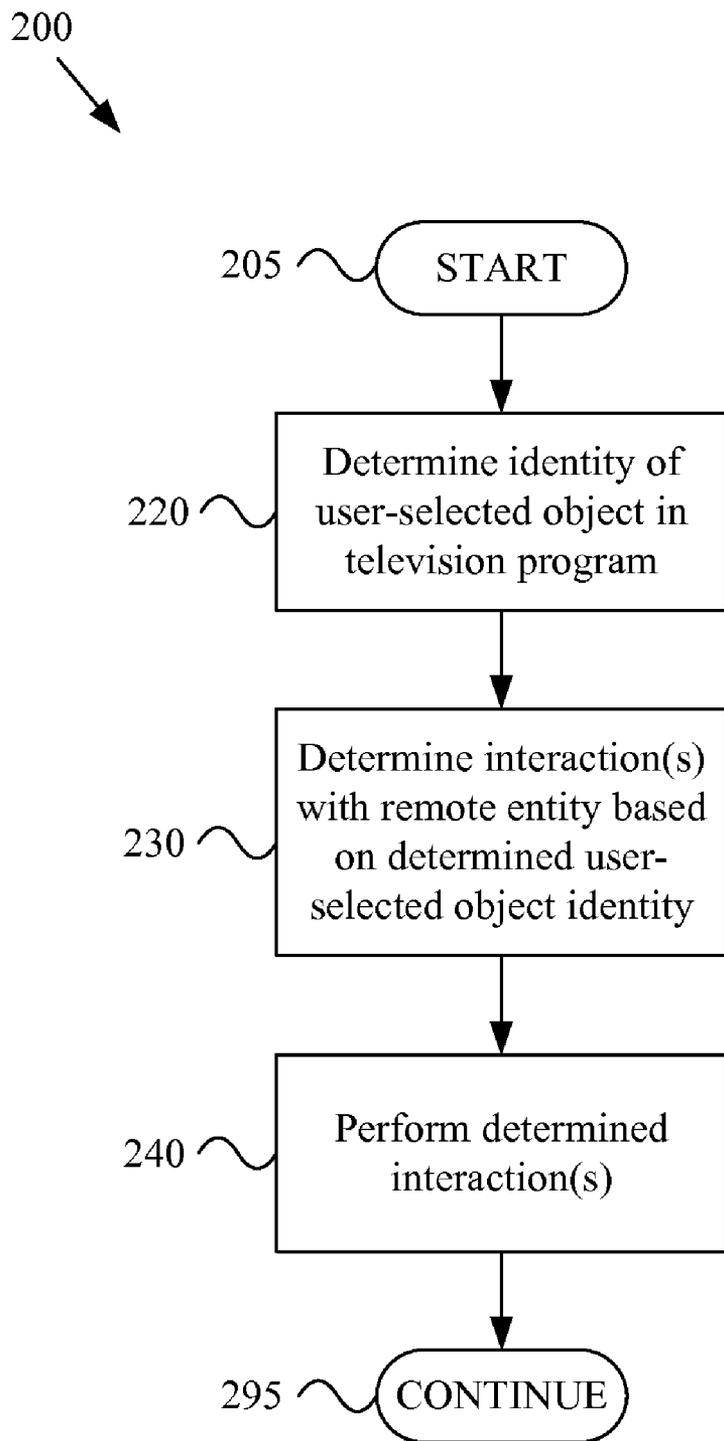


Figure 2

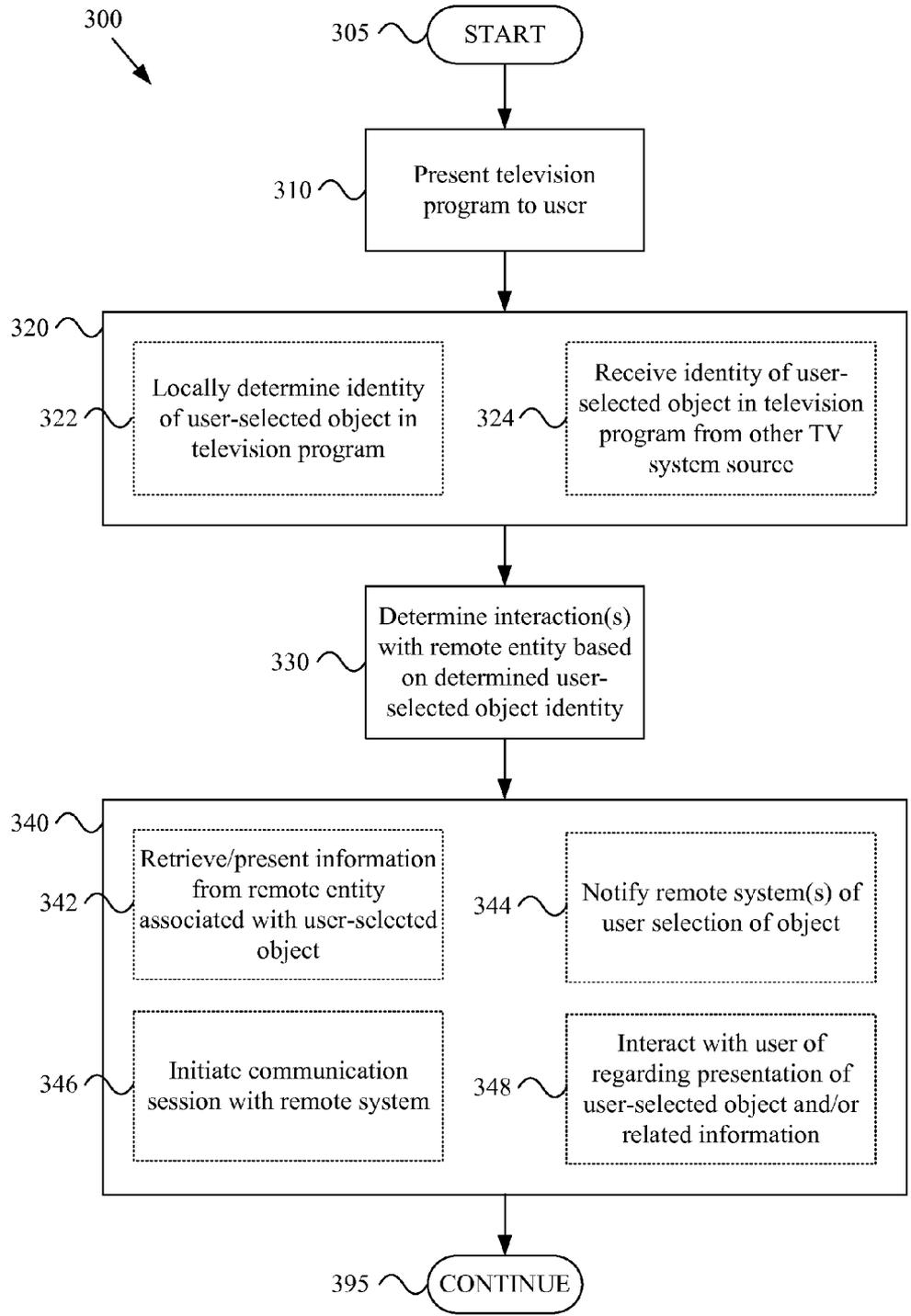


Figure 3

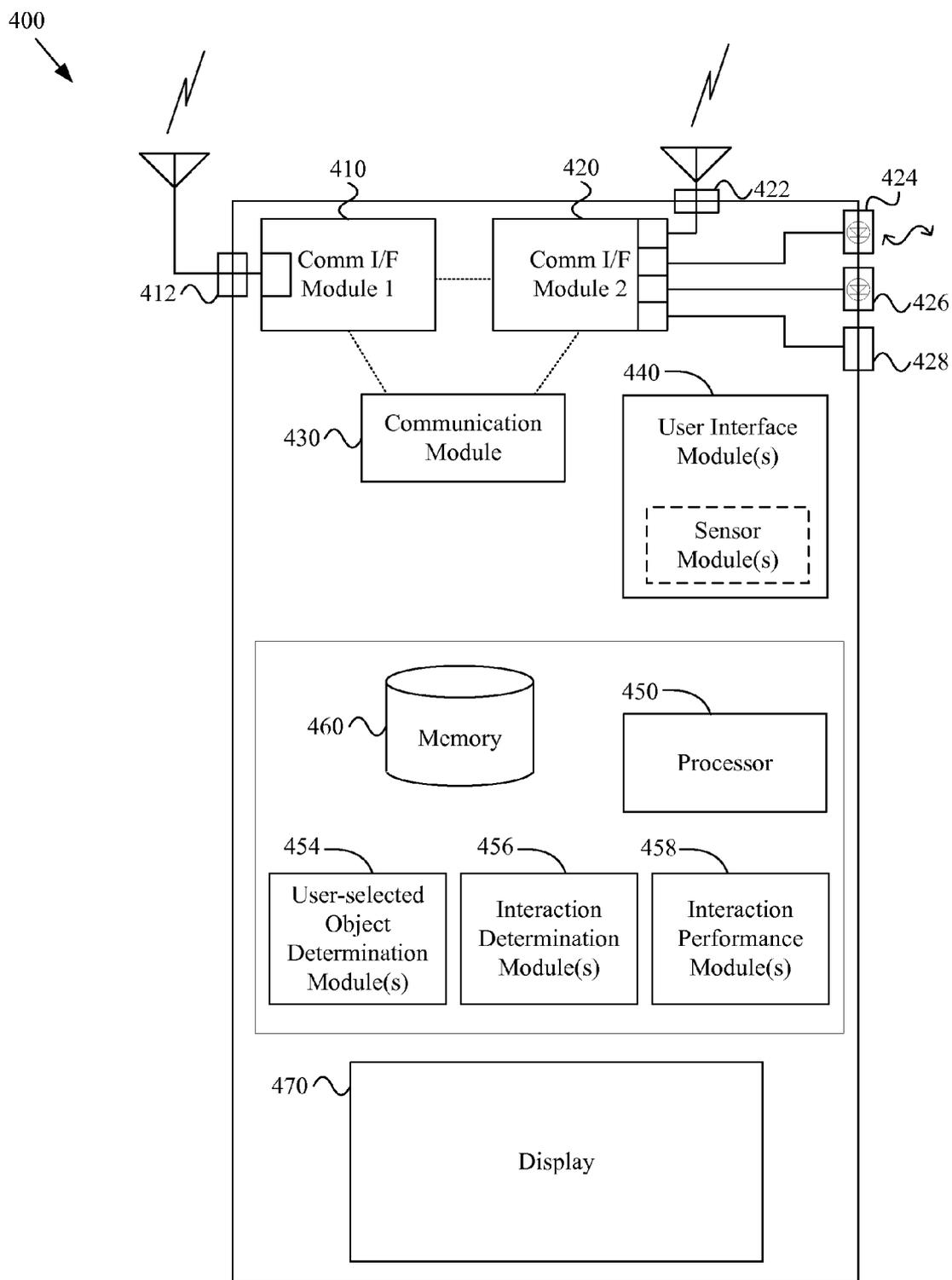


Figure 4

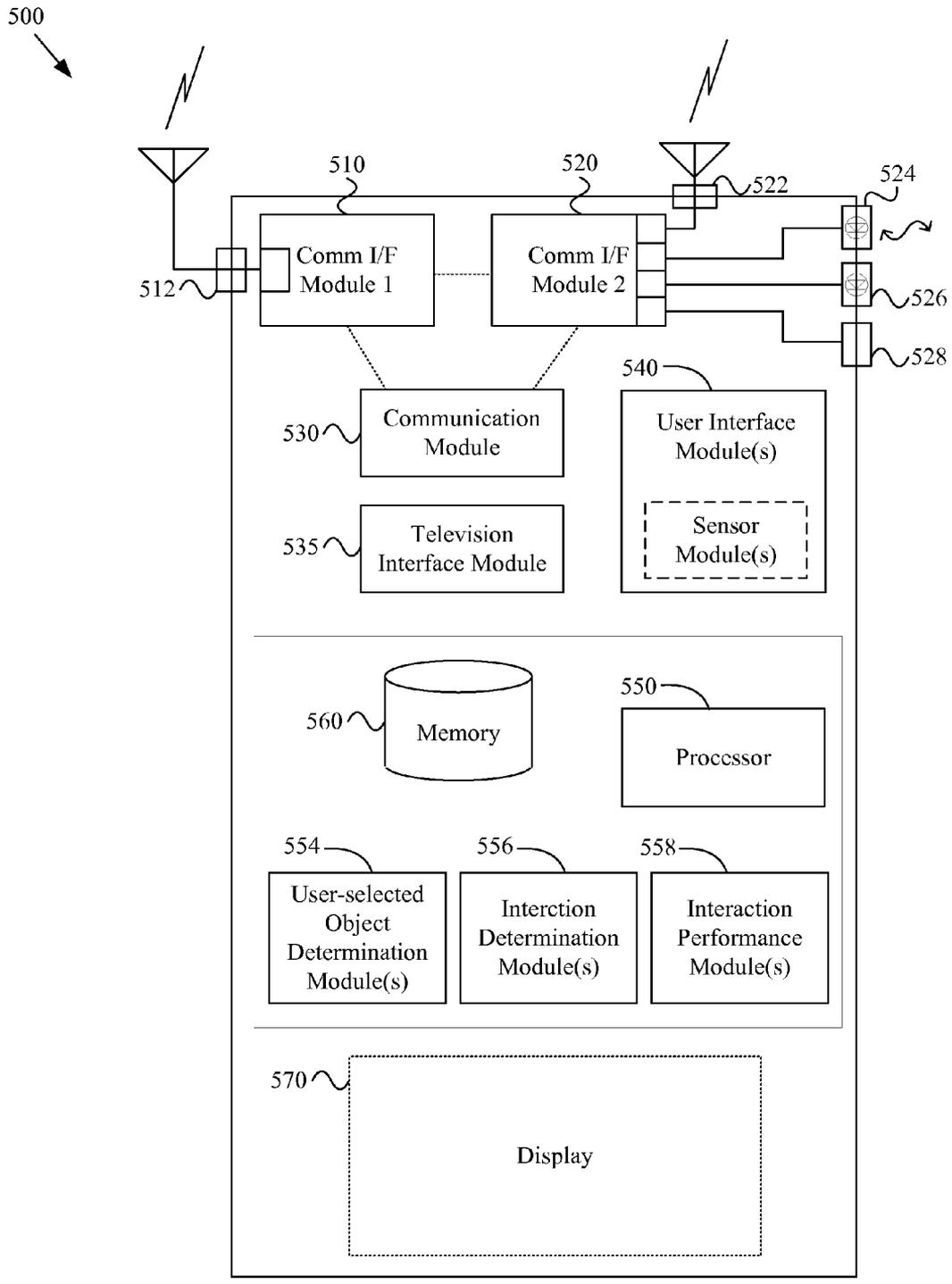


Figure 5

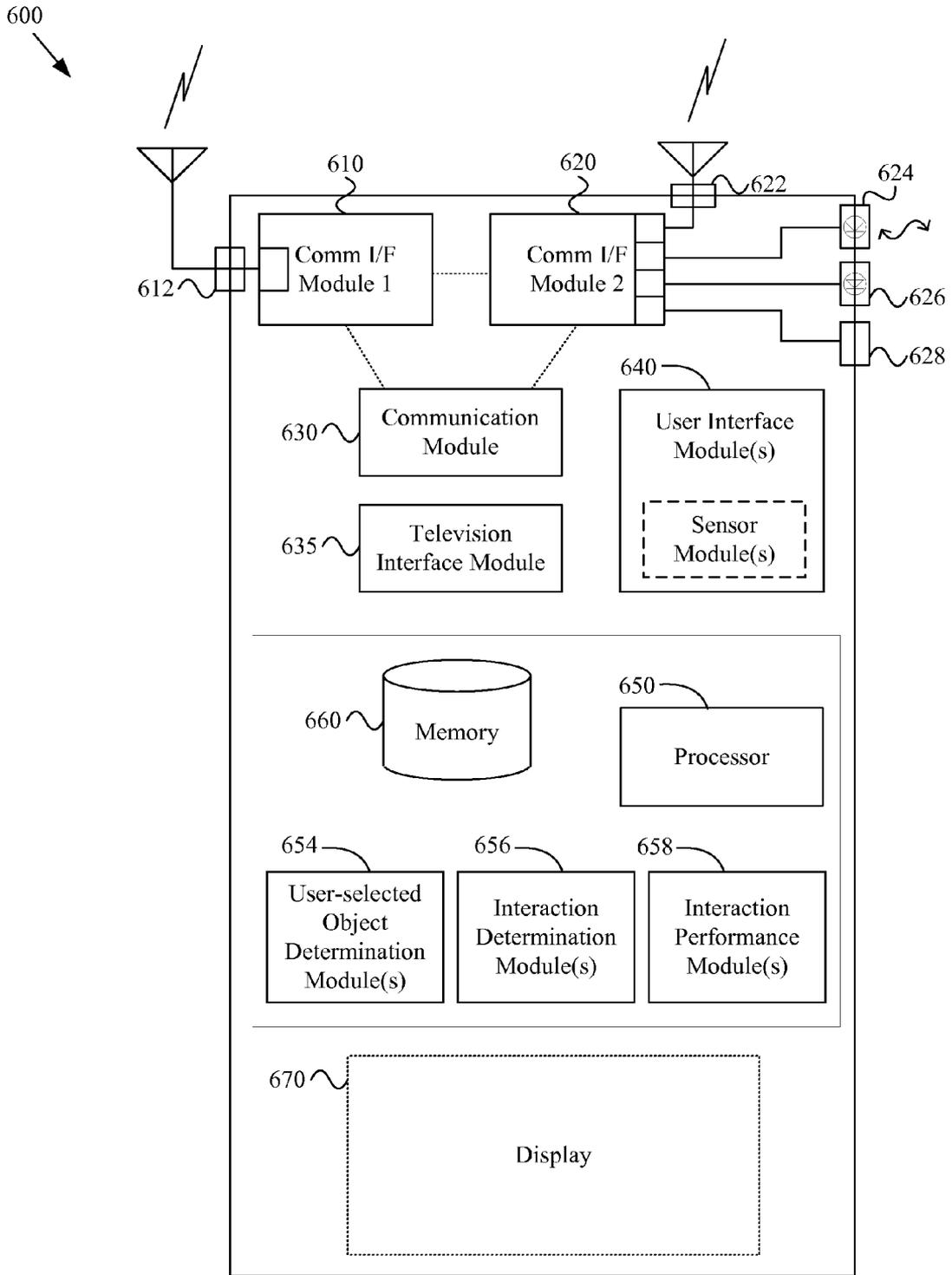


Figure 6

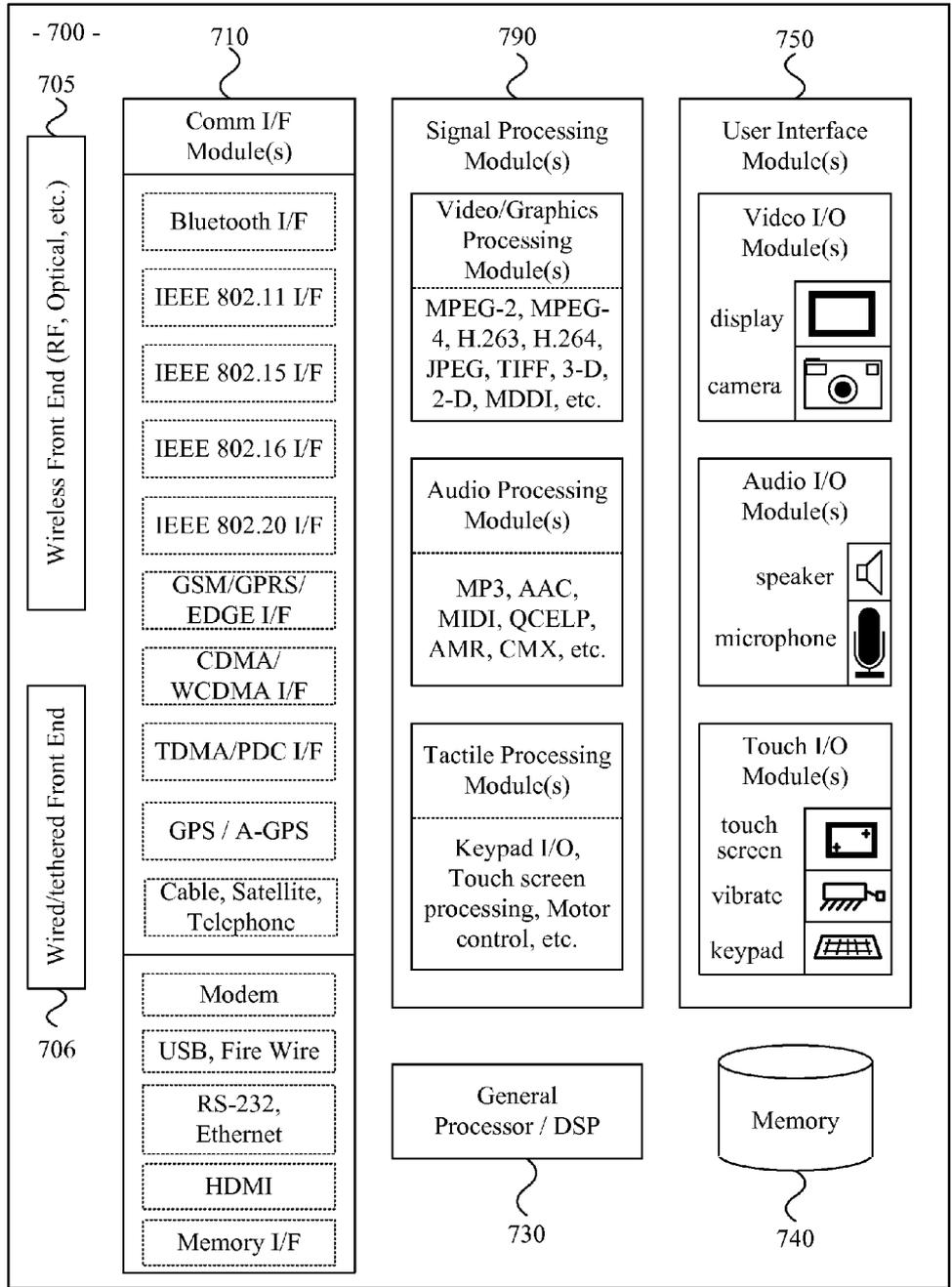


Figure 7

SYSTEM AND METHOD IN A DISTRIBUTED SYSTEM FOR RESPONDING TO USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM

CROSS-REFERENCE TO RELATED APPLICATIONS/INCORPORATION BY REFERENCE

[0001] This patent application is related to and claims priority from provisional patent application Ser. No. 61/242,234 filed Sep. 14, 2009, and titled "TELEVISION SYSTEM," the contents of which are hereby incorporated herein by reference in their entirety. This patent application is also related to U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A LOCAL TELEVISION SYSTEM FOR RESPONDING TO USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21046US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION SYSTEM FOR RESPONDING TO USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM BASED ON USER LOCATION", Attorney Docket No. 21047US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION SYSTEM FOR PRESENTING INFORMATION ASSOCIATED WITH A USER-SELECTED OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21048U502; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION SYSTEM FOR PRESENTING INFORMATION ASSOCIATED WITH A USER-SELECTED OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21049US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION SYSTEM FOR PROVIDING FOR USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21050US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION SYSTEM FOR PROVIDING FOR USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21051US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A PARALLEL TELEVISION SYSTEM FOR PROVIDING USER-SELECTION OF OBJECTS IN A TELEVISION PROGRAM", Attorney Docket No. 21052U502; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION FOR PROVIDING ADVERTISING INFORMATION ASSOCIATED WITH A USER-SELECTED OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21053US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION FOR PROVIDING INFORMATION ASSOCIATED WITH A USER-SELECTED PERSON IN A TELEVISION PROGRAM", Attorney Docket No. 21054U502; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION FOR PROVIDING INFORMATION ASSOCIATED WITH A USER-SELECTED INFORMATION ELEMENT IN A TELEVISION

PROGRAM", Attorney Docket No. 21055US02. The contents of each of the above-mentioned applications are hereby incorporated herein by reference in their entirety.

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] [Not Applicable]

SEQUENCE LISTING

[0003] [Not Applicable]

MICROFICHE/COPYRIGHT REFERENCE

[0004] [Not Applicable]

BACKGROUND OF THE INVENTION

[0005] Present television systems are incapable of providing for and/or conveniently providing for user-selection of objects in a television program, much less responding to such selection. Further limitations and disadvantages of conventional and traditional approaches will become apparent to one of skill in the art, through comparison of such systems with the present invention as set forth in the remainder of the present application with reference to the drawings.

BRIEF SUMMARY OF THE INVENTION

[0006] Various aspects of the present invention provide a system and method in a distributed television system for responding to user-selection of an object in a television program, substantially as shown in and/or described in connection with at least one of the figures, as set forth more completely in the claims. These and other advantages, aspects and novel features of the present invention, as well as details of illustrative aspects thereof, will be more fully understood from the following description and drawings.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

[0007] FIG. 1 is a diagram illustrating an exemplary television system, in accordance with various aspects of the present invention.

[0008] FIG. 2 is a flow diagram illustrating an exemplary method for responding to user-selection of objects in television programming, in accordance with various aspects of the present invention.

[0009] FIG. 3 is a flow diagram illustrating an exemplary method for responding to user-selection of objects in television programming, in accordance with various aspects of the present invention.

[0010] FIG. 4 is a diagram illustrating an exemplary television, in accordance with various aspects of the present invention.

[0011] FIG. 5 is a diagram illustrating an exemplary television receiver, in accordance with various aspects of the present invention.

[0012] FIG. 6 is a diagram illustrating an exemplary television controller, in accordance with various aspects of the present invention.

[0013] FIG. 7 is a diagram illustrating exemplary modules and/or sub-modules for a local television system, in accordance with various aspects of the present invention.

DETAILED DESCRIPTION OF VARIOUS ASPECTS OF THE INVENTION

[0014] The following discussion will refer to various communication modules, components or circuits. Such modules, components or circuits may generally comprise hardware and/or a combination of hardware and software (e.g., including firmware). Such modules may also, for example, comprise a computer readable medium (e.g., a non-transitory medium) comprising instructions (e.g., software instructions) that, when executed by a processor, cause the processor to perform various functional aspects of the present invention. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular hardware and/or software implementations of a module, component or circuit unless explicitly claimed as such. For example and without limitation, various aspects of the present invention may be implemented by one or more processors (e.g., a microprocessor, digital signal processor, baseband processor, microcontroller, etc.) executing software instructions (e.g., stored in volatile and/or non-volatile memory). Also for example, various aspects of the present invention may be implemented by an application-specific integrated circuit (“ASIC”) and/or other hardware components.

[0015] Additionally, the following discussion will refer to various television system modules (e.g., television modules, television receiver modules, television controller modules, modules of a user’s local television system, modules of a geographically distributed television system, etc.). It should be noted that the following discussion of such various modules is segmented into such modules for the sake of illustrative clarity. However, in actual implementation, the boundaries between various modules may be blurred. For example, any or all of the functional modules discussed herein may share various hardware and/or software components. For example, any or all of the functional modules discussed herein may be implemented wholly or in-part by a shared processor executing software instructions. Additionally, various software sub-modules that may be executed by one or more processors may be shared between various software modules. Accordingly, the scope of various aspects of the present invention should not be limited by arbitrary boundaries between various hardware and/or software components, unless explicitly claimed.

[0016] The following discussion may also refer to communication networks and various aspects thereof. For the following discussion, a communication network is generally the communication infrastructure through which a communication device (e.g., a portable communication device, television, television control device, television provider, television programming provider, television receiver, video recording device, etc.) may communicate with other systems. For example and without limitation, a communication network may comprise a cable and/or satellite television communication network, a cellular communication network, a wireless metropolitan area network (WMAN), a wireless local area network (WLAN), a wireless personal area network (WPAN), any home or premises communication network, etc. A particular communication network may, for example, generally have a corresponding communication protocol according to which a communication device may communi-

cate with the communication network. Unless so claimed, the scope of various aspects of the present invention should not be limited by characteristics of a particular type of communication network.

[0017] The following discussion may at times refer to an on-screen pointing location. Such a pointing location refers to a location on the television screen (e.g., a primary television screen, a secondary television screen, etc.) to which a user (either directly or with a pointing device) is pointing. Such a pointing location is to be distinguished from other types of on-screen location identification, such as, for example, using arrow keys and/or a mouse to move a cursor or to traverse blocks (e.g., on an on-screen program guide) without pointing. Various aspects of the present invention, while referring to on-screen pointing location, are also readily extensible to such other forms of on-screen location identification.

[0018] Additionally, the following discussion will at times refer to television programming. Such television programming generally includes various types of television programming (e.g., television programs, news programs, sports programs, music television, movies, television series programs and/or associated advertisements, educational programs, live or recorded television programming, broadcast/multicast/unicast television programming, etc.). Such television programming may, for example, comprise real-time television broadcast programming (or multicast or unicast television programming) and/or user-stored television programming that is stored in a user device (e.g., a VCR, PVR, etc.). Such television programming video content is to be distinguished from other non-programming video content that may be displayed on a television screen (e.g., an electronic program guide, user interface menu, a television set-up menu, a typical web page, a document, a graphical video game, etc.). Various aspects of the present invention may, for example in a television system, comprise receiving a television program, presenting such received television program to a user, determining an object in the television program that has been selected by the user, determining based on the user-selected object one or more interactions to perform with entities remote from the user’s local television system, and performing such determined one or more interactions.

[0019] Also, the following discussion will at times refer to user-selectable objects in television programming. Such user-selectable objects include both animate (i.e., living) and inanimate (i.e., non-living) objects, both still and moving. Such objects may, for example, comprise characteristics of any of a variety of objects present in television programming. Such objects may, for example and without limitation, comprise inanimate objects, such as consumer good objects (e.g., clothing, automobiles, shoes, jewelry, furniture, food, beverages, appliances, electronics, toys, artwork, cosmetics, recreational vehicles, sports equipment, safety equipment, computer equipment, communication devices, books, etc.), premises objects (e.g., business locations, stores, hotels, signs, doors, buildings, landmarks, historical sites, entertainment venues, hospitals, government buildings, etc.), objects related to services (e.g., objects related to transportation, objects related to emergency services, objects related to general government services, objects related to entertainment services, objects related to food and/or drink services, etc.), objects related to location (e.g., parks, landmarks, streets, signs, road signs, etc.), etc. Such objects may, for example, comprise animate objects, such as people (e.g., actors/actresses, athletes, musicians, salespeople, commentators,

reports, analysts, hosts/hostesses, entertainers, etc.), animals (e.g., pets, zoo animals, wild animals, etc.) and plants (e.g., flowers, trees, shrubs, fruits, vegetables, cacti, etc.).

[0020] Turning first to FIG. 1, such figure is a diagram illustrating a non-limiting exemplary television system 100 in accordance with various aspects of the present invention. The exemplary system 100 includes a television provider 110. The television provider 110 may, for example, comprise a television network company, a cable company, a movie-providing company, a news company, an educational institution, etc. The television provider 110 may, for example, be an original source of television programming (or related information). Also for example, the television provider 110 may be a communication company that provides programming distribution services (e.g., a cable television company, a satellite television company, a telecommunication company, a data network provider, etc.). The television provider 110 may, for example, provide television programming and non-programming information and/or video content. The television provider 110 may, for example, provide information related to a television program (e.g., information describing or otherwise related to selectable objects in programming, etc.). The television provider 110 may, for example, operate to (which includes “operate when enabled to”) perform any or all of the functionality discussed herein.

[0021] The exemplary television system 100 may also include a third party program information provider 120. Such a provider may, for example, provide information related to a television program. Such information may, for example, comprise information describing selectable objects in programming, information to provide to a user upon selection of a selectable object in programming, information related to various interactions that may be performed (e.g., with networked entities remote from the user’s local television system) upon user selection of a selectable object, program guide information, etc. The third party program information provider 120 may, for example, operate to (which includes “operate when enabled to”) perform any or all of the functionality discussed herein.

[0022] The exemplary television system 100 may include one or more communication networks (e.g., the communication network(s) 130). The exemplary communication network 130 may comprise characteristics of any of a variety of types of communication networks over which television programming and/or information related to television programming (e.g., information identifying and/or describing and/or otherwise related to user-selectable objects in television programming) may be communicated. For example and without limitation, the communication network 130 may comprise characteristics of any one or more of: a cable television network, a satellite television network, a telecommunication network, a general data network, the Internet, a local area network (LAN), a personal area network (PAN), a metropolitan area network (MAN), any of a variety of different types of home networks, etc.

[0023] The exemplary television system 100 may include a first television 140. Such a first television 140 may, for example, comprise networking capability enabling such television 140 to communicate directly with the communication network 130. For example, the first television 140 may comprise one or more embedded television receivers or transceivers (e.g., a cable television receiver, satellite television transceiver, Internet modem, etc.). Also for example, the first television 140 may comprise one or more recording devices

(e.g., for recording and/or playing back video content, television programming, etc.). The first television 140 may, for example, operate to (which includes “operate when enabled to”) perform any or all of the functionality discussed herein.

[0024] The exemplary television system 100 may include a first television controller 160. Such a first television controller 160 may, for example, operate to (e.g., which includes “operate when enabled to”) control operation of the first television 140. The first television controller 160 may comprise characteristics of any of a variety of television controlling devices. For example and without limitation, the first television controller 160 may comprise characteristics of a dedicated television control device, a universal remote control, a cellular telephone or personal computing device with television control capability, any personal electronic device with television control capability, etc. The first television controller 160 may, for example, operate to (which includes “operate when enabled to”) perform any or all of the functionality discussed herein. In a non-limiting exemplary configuration, the first television controller 160 may comprise an on-board display which may operate as a television screen (e.g., a primary, secondary and/or parallel television screen) via which the first television controller 160 may present television programming and/or interface with a user regarding user-selectable objects in television programming.

[0025] The first television controller 160 (or television control device) may, for example, transmit signals directly to the first television 140 to control operation of the first television 140. The first television controller 160 may also, for example, operate to transmit signals (e.g., via the communication network 130) to the television provider 110 to control television programming (or related information) being provided to the first television 140, or to conduct other transactions (e.g., business transactions, etc.).

[0026] As will be discussed in more detail later, the first television controller 160 may operate to communicate screen pointing and/or object selection information with the first television 140 and/or other devices. Also, as will be discussed in more detail later, various aspects of the present invention include a user selecting a user-selectable object in programming. Such selection may, for example, be performed by the user pointing to a location on a television screen (e.g., pointing to an animate or inanimate object presented in television programming). In such a scenario, the user may perform such pointing in any of a variety of manners. One of such exemplary manners includes pointing with a television control device. The first television controller 160 provides a non-limiting example of a device that a user may utilize to point to an on-screen location.

[0027] As will be mentioned throughout the following discussion, various aspects of the invention will be performed by one or more devices, components and/or modules of a user’s local television system. The first television 140 and first television controller 160 provide a non-limiting example of a user’s local television system. Such a user’s local television system, for example, generally refers to the television-related devices that are local to the television system currently being utilized by the user. For example, when a user is utilizing a television system located at the user’s home, the user’s local television system generally refers to the television-related devices that make up the user’s home television system. Also for example, when a user is utilizing a television system at a premises away from the user’s home (e.g., at another home, at a hotel, at an office, etc.), the user’s local television system

generally refers to the television-related devices that make up the premises television system. Such a user's local television system does not, for example, comprise television network infrastructure devices that are generally outside of the user's current premises (e.g., cable and/or satellite head-end apparatus, cable and/or satellite communication intermediate communication network nodes) and/or programming source devices that are generally managed by television enterprises and generally exist outside of the user's home. Such entities, which may be communicatively coupled to the user's local television system may be considered to be entities remote from the user's local television system (or "remote entities").

[0028] The exemplary television system 100 may also include a television receiver 151. The television receiver 151 may, for example, operate to (e.g., which includes "operate when enabled to") provide a communication link between a television and/or television controller and a communication network and/or information provider. For example, the television receiver 151 may operate to provide a communication link between the second television 141 and the communication network 130, or between the second television 141 and the television provider 110 (and/or third party program information provider 120) via the communication network 130.

[0029] The television receiver 151 may comprise characteristics of any of a variety of types of television receivers. For example and without limitation, the television receiver 151 may comprise characteristics of a cable television receiver, a satellite television receiver, etc. Also for example, the television receiver 151 may comprise a data communication network modem for data network communications (e.g., with the Internet, a LAN, PAN, MAN, telecommunication network, etc.). The television receiver 151 may also, for example, comprise recording capability (e.g., programming recording and playback, etc.). The television receiver 151 may, for example, be a stand-alone component (e.g., a set top box) or may be integrated with any of a variety of other television system components (e.g., a television, a video recorder, a gaming station, etc.). The television receiver 151 may, for example, operate to (which includes "operate when enabled to") perform any or all of the functionality discussed herein.

[0030] The exemplary television system 100 may include a second television controller 161. Such a second television controller 161 may, for example, operate to (e.g., which includes "operate when enabled to") control operation of the second television 141 and the television receiver 151. The second television controller 161 may comprise characteristics of any of a variety of television controlling devices. For example and without limitation, the second television controller 161 may comprise characteristics of a dedicated television control device, a dedicated television receiver control device, a universal remote control, a cellular telephone or personal computing device with television control capability, any personal electronic device with television control capability, etc.

[0031] The second television controller 161 may, for example, operate to transmit signals directly to the second television 141 to control operation of the second television 141. The second television controller 161 may, for example, operate to transmit signals directly to the television receiver 151 to control operation of the television receiver 151. The second television controller 161 may additionally, for example, operate to transmit signals (e.g., via the television receiver 151 and the communication network 130) to the television provider 110 to control television programming (or

related information) being provided to the television receiver 151, or to conduct other transactions (e.g., business transactions, etc.). The second television controller 161 may further, for example, operate to receive signals from the second television 141 and/or television receiver 151. Such signals may, for example, comprise signals communicating television programming, information identifying and/or describing user-selectable objects in television programming and/or any of a variety of other information to the second television controller 161. As a non-limiting example, the second television controller 161 may comprise an on-board display which may operate as a television (e.g., a primary television, secondary television, parallel television (presenting on the on-board display a same television program as that being presented by the second television 141), etc.). In such a configuration, the second television controller 161 may, for example, operate to perform any or all of the functionality discussed herein.

[0032] As will be discussed in more detail later, various aspects of the present invention include a user selecting a user-selectable object in programming. Such selection may, for example, comprise the user pointing to a location on a television screen (e.g., pointing to an animate or inanimate object presented in television programming). In such a scenario, the user may perform such pointing in any of a variety of manners. One of such exemplary manners includes pointing with a television control device. The second television controller 161 provides one non-limiting example of a device that a user may utilize to point to an on-screen location. Also, in a scenario in which the second television controller 161 comprises a touch screen, a user may touch a location of such touch screen to point to an on-screen location (e.g., to select a user-selectable object).

[0033] As will be mentioned throughout the following discussion, and as mentioned previously in the discussion of the first television 140 and television controller 160, various aspects of the invention will be performed by one or more devices, components and/or modules of a user's local television system. The second television 141, television receiver 151 and second television controller 161 provide another non-limiting example of a user's local television system.

[0034] The exemplary television system 100 was provided to provide a non-limiting illustrative foundation for discussion of various aspects of the present invention. Thus, the scope of various aspects of the present invention should not be limited by any characteristics of the exemplary television system 100 unless explicitly claimed.

[0035] FIG. 2 is a flow diagram illustrating an exemplary method 200 for responding to user-selection of objects in television programming, in accordance with various aspects of the present invention. Any or all aspects of the exemplary method 200 may, for example, be implemented in one or more devices (or components or modules) of a user's local television system (e.g., in any one or more of the first television 140 and/or second television 141, the television receiver 151, the first television controller 160 and/or second television controller 161, etc., shown in FIG. 1 and discussed previously).

[0036] The exemplary method 200 may, for example, begin executing at step 205. The exemplary method 200 may begin executing in response to any of a variety of causes and/or conditions, non-limiting examples of which will now be provided. For example, the exemplary method 200 may begin executing in response to a user command to begin, in response to user selection of a user-selectable object in a television program, upon television and/or television receiver and/or

television controller reset or power-up, in response to a user input indicating a desire to provide object selection capability to the user, in response to identification of a user and/or user equipment for which object selection capability is to be provided, in response to receipt and/or presentation of a television program comprising user-selectable objects, in response to user payment of a fee, etc.

[0037] The exemplary method **200** may, for example at step **220**, comprise determining an identity of a user-selected object in a television program being presented to a user. Step **220** may comprise performing such determining in any of a variety of manners, non-limiting examples of which will now be provided.

[0038] For example, step **220** may comprise analyzing various sensor readings to identify an object in television programming selected by a user. For example, step **220** may comprise performing such analysis in a local television system component (or device) implementing the exemplary method **200**. Also for example, step **220** may comprise receiving information from another television system component (or device) identifying an object in a television program that has been selected by a user. In such an exemplary scenario, step **220** may, for example, comprise receiving object identification information from another television system component (or device) of the user's local television system and/or from another television system component remote from the user's local television system (e.g., via a direct communication link; via a personal area network, local area network or home area network; via the Internet, etc.).

[0039] Many examples of such object-selection determination are provided in U.S. Provisional Patent Application 61/242,234, which is hereby incorporated herein by reference in its entirety. Additionally, examples of such object-selection determination are also provided in: U.S. patent application Ser. No. 12/774,380, filed May 5, 2010, titled "SYSTEM AND METHOD IN A TELEVISION FOR PROVIDING USER SELECTION OF OBJECTS IN A TELEVISION PROGRAM", Attorney Docket No. 21037US02; U.S. patent application Ser. No. ___/_____, filed _____, titled "SYSTEM AND METHOD IN A DISTRIBUTED SYSTEM FOR PROVIDING USER-SELECTION OF OBJECTS IN A TELEVISION PROGRAM", Attorney Docket No. 21038US02; U.S. patent application Ser. No. ___/_____, filed _____, titled "SYSTEM AND METHOD IN A TELEVISION RECEIVER FOR PROVIDING USER-SELECTION OF OBJECTS IN A TELEVISION PROGRAM", Attorney Docket No. 21039US02; U.S. patent application Ser. No. ___/_____, filed _____, titled "SYSTEM AND METHOD IN A TELEVISION CONTROLLER FOR PROVIDING USER-SELECTION OF OBJECTS IN A TELEVISION PROGRAM", Attorney Docket No. 21040US02; U.S. patent application Ser. No. ___/_____, filed _____, titled "SYSTEM AND METHOD IN A TELEVISION CONTROLLER FOR PROVIDING USER-SELECTION OF OBJECTS IN A TELEVISION PROGRAM", Attorney Docket No. 21041US02; U.S. patent application Ser. No. ___/_____, filed concurrently herewith, titled "SYSTEM AND METHOD IN A TELEVISION SYSTEM FOR PROVIDING FOR USER-SELECTION OF AN OBJECT IN A TELEVISION PROGRAM", Attorney Docket No. 21051US02; and U.S. patent application Ser. No. ___/_____, filed _____, titled "SYSTEM AND METHOD IN A PARALLEL TELEVISION SYSTEM FOR PROVIDING USER-SELECTION OF OBJECTS IN A TELEVISION PRO-

GRAM", Attorney Docket No. 21052US02. The contents of each of the above-mentioned applications are hereby incorporated herein by reference in their entirety.

[0040] A user-selectable object in a television program may be identified by one or more identifiers comprising any of a variety of characteristics. For example, a user-selectable object may be identified by a universally (or globally) unique serial number. For example, a user-selectable object may be identified by a data structure that includes a plurality of code fields (e.g., country field, a company or enterprise ID field, a product type field, a product model field, a date/time field, a language field, a personal identifier, etc.). Also for example, a user-selectable object may be identified, at least in part, by a communication network address at which information about a user-selectable object may be obtained (e.g., a Universal Resource Locator (URL), an Internet address, a memory address, a database identifier, a server identifier and/or address, etc.).

[0041] In general, step **220** may comprise determining an identity of a user-selected object in a television program being presented to a user. Accordingly, the scope of various aspects of the present invention should not be limited by particular characteristics of any particular type of identification and/or of any particular manner of making such a determination unless explicitly claimed.

[0042] The exemplary method **200** may, at step **230**, comprise determining, based at least in part on the determined object identity, one or more interactions in which to engage with an entity remote from the user's local television system (e.g., remote from the user's premises). Step **230** may comprise determining any of a variety of different types of interactions and may comprise making such determination in any of a variety of manners, non-limiting examples of which will now be provided.

[0043] The determined interactions may comprise any of a variety of characteristics, non-limiting examples of which will also be provided. Such interactions may, for example, comprise determining information to present to the user (e.g., retrieving such information from a known location at an entity (e.g., a television system component, networked non-television system component, etc.) remote from the user's local television system, conducting a search for such information in one or more entities remote from the user's local television system (e.g., searching only in such entities or in addition to searching in various components of the user's local television system), etc.), notifying one or more other entities (e.g., a television system component, network non-television system component, etc.) of the user's selection of the user-selected object (e.g., notifying a television network enterprise, a production enterprise, a distribution enterprise, a rating company, an advertising agency, etc.), establishing a communication session by which a user may interact with networked entities (e.g., one or more entities remote from the user's local television system) associated with a user-selected object (e.g., communicating regarding general object information, communicating regarding obtaining a user-selected object, communicating regarding membership in an organization related to the user-selected object, etc.), interacting with a user regarding local television system control and/or control of a remote television system component, interacting with a user regarding display of a user-selected object and/or associated information, etc.

[0044] For example, step **230** may comprise determining, based at least in part on the determined object identity, to

obtain (or acquire) one or more sets of information from a remote system entity (e.g., remote from the user's local television system), where such information may then, for example, be presented to the user. Such information obtaining may comprise characteristics of any of a variety of different manners of obtaining such information.

[0045] For example, step 230 may comprise determining a memory address of a remote entity associated with the information, and retrieving the information from the determined memory address. For example, such memory address information may be stored in a table or other data structure indexed by object identity (e.g., by general object type or name, by exact object identity, by object source, etc.). Such a memory may, for example, be part of a user's local television system component (or device) implementing the step 230. Such a memory may also, for example, be a memory of another local television system component that is communicatively coupled to the component implementing step 230 (e.g., a memory accessible by direct memory access, via an information retrieval communication protocol between components, etc.). Such a memory may additionally, for example, be a memory of a system entity that is remote from the user's local television system that is communicatively coupled to the component implementing step 230 (e.g., a memory accessible by direct memory access, via an information retrieval communication protocol between components, etc.).

[0046] Also for example, step 230 may comprise determining, based at least in part on the determined object identity, a communication network address (e.g., a network address of a one or more components remote from the user's local television system, a television communication network address, an Internet address, etc.). For example, such network address information may be stored in a table or other data structure indexed by object identity (e.g., by general object type or name, by exact object identity, by object source, etc.). Such a network address may, for example, correspond to a network address at which information corresponding to the identified object may be obtained, a network address of a component with which a communication session may be initiated and/or conducted (e.g., to obtain information regarding the user-selected object, to interact with the user regarding the selected object, etc.), etc.

[0047] In an information-determining scenario, the information may comprise any of a variety of different types of information related to the user-selected object. For example and without limitation, the determined information may comprise information describing the object (e.g., information describing aspects of the object, history of the object, design of the object, source of the object, price of the object, critiques of the object, information provided by commercial enterprises producing and/or providing such object, etc.), information indicating to the user how the user may obtain the selected object, information indicating how the user may utilize the selected object, etc. The information may, for example, comprise information of one or more non-commercial organizations associated with, and/or having information pertaining to, the identified user-selected object (e.g., non-profit and/or government organization contact information, web site address information, etc.). In general, step 230 may comprise determining to obtain any of a variety of types of information corresponding to the identified user-selected object (e.g., from an entity remote from the user's local tele-

vision system), where such information may for example, be presented to the user and/or utilized to perform additional actions on behalf of the user.

[0048] Step 230 may also, for example, comprise determining to conduct, based at least in part on the determined object identity, a search for information corresponding to the identified user-selected object. Such a search may, for example, comprise a search of one or more entities (or system components) remote from the user's local television system (e.g., a search only of such remote entities or a search of such remote entities in addition to one or more components of the user's local television system, home communication network, etc.).

[0049] For example, step 230 may comprise determining, based at least in part on the determined object identity, network search terms that may be utilized in a search engine to search for information corresponding to the user-selected object. For example, such search term information may be stored in a table or other data structure indexed by object identity (e.g., by general object type or name, by exact object identity, by object source, etc.).

[0050] In another exemplary scenario, step 230 may comprise determining to request information for a particular user-selected object or type of user-selected object from a remote entity. For example, step 230 may comprise determining a network address of a remote information server and communicating a request for a particular user-selected object from such information server. In an exemplary scenario comprising a plurality of different information sources (e.g., remote information sources) for respective user-selectable objects, step 230 may comprise determining to which of the plurality of different information servers the information request should be sent.

[0051] As discussed above, one or more actions determined at step 230 may comprise determining to obtain information corresponding to the user-selected object, where such information determining may, for example, comprise accessing such information directly from memory, searching for such information in a variety of manners, etc.

[0052] In an exemplary scenario in which such information corresponding to user-selectable objects is stored in one or more television system entities (or other networked entities) remote from the user's local television system, step 230 may comprise determining to initiate an interactive session with the user to more clearly identify information desired by the user. For example, step 230 may comprise determining that, since a relatively large amount of information corresponding to a user-selected object in the television program is available, additional interaction with the user is necessary to reduce the amount of information that may ultimately be presented to the user. For example, step 230 may comprise determining to provide a list (or menu) of types of information available to the user and solicit input from the user regarding the selection of one or more of the listed types of information for presentation to the user.

[0053] As discussed above, one or more of the actions determined at step 230 may comprise establishing a communication session (e.g., a one-way and/or two-way communication session via the second communication network) by which a user may interact with networked entities associated with a user-selected object. For example, such networked entities may comprise components (or devices) remote from the user's local television system. In an exemplary scenario, step 230 may comprise determining to open a user interface session with an object information database (or server)

remote from the user's local television system. Such database may, for example, comprise a television system entity, but may also comprise a database independent of a television system (e.g., a server with a general Internet presence, a server on a Local Area Network (LAN) to which the user's local television system has access, etc.). Also for example, in an exemplary scenario (e.g., in which a user selects an object in a television program associated with a particular person), step 230 may comprise determining to open a communication session with such person and/or an associated organization or other entity (e.g., a telephone call may be placed, an Internet chat session may be opened, an Internet blog may be entered, an email may be sent, an instant message may be sent, standard mail may be sent, a facsimile may be transmitted, etc.).

[0054] Such a user interface (e.g., a two-way user interface) may be utilized by the user to interact with networked entities associated with a user-selected object. For example, such a communication interface may be utilized by the user to interact with one or more entities remote from the user's local television system to communicate regarding general object information, communicate regarding the user acquiring a user-selected object, communicate regarding membership in an organization and/or service related to the user-selected object, etc.

[0055] Also for example, such a user interface may be utilized to interact with a user regarding local television system control and/or control of a remote television system component. For example, such a user interface may be utilized to provide user control of television program presentation (e.g., user control of remote and/or local television program sources).

[0056] Additionally for example, such a user interface may be utilized to interact with a user regarding display of information associated with a user-selected object (e.g., interacting with a menu structure associated with retrieved and/or available object information, interacting with the user regarding screen location for presentation of such information, regarding size of presented information, regarding information scrolling control, regarding duration of information presentation, regarding whether to pause presentation of the television program while such information is being presented to the user, etc.

[0057] Also as discussed above, one or more of the actions determined at step 230 may comprise providing a user interface by which a user may control presentation of the user-selected object to the user. Such an action may, for example, comprise providing a user interface by which the user may pause the television program, center the object on the screen, zoom in and/or out on the object, etc. Such an action may, for example in an exemplary scenario where 3-D object information is available (e.g., stored in a networked entity remote from the user's local television system, stored in a component of the user's local television system, etc.), comprise providing a user interface by which a user may rotate the user-selected object to provide the user with a more complete understanding of the user-selected object. In another exemplary scenario, for example a scenario in which information regarding ordering the user-selected object is available for the user to consider, such an action may comprise providing a user interface by which the user may explore optional characteristics of the user-selected object (e.g., different available coloration, add-ons, delivery options, etc.).

[0058] Step 230 may, for example, comprise determining to perform an interaction comprising notifying an entity remote

from the user's local television system of the selection of the user-selected object. For example, step 230 may comprise establishing a communication link with any of a variety of remote entities (e.g., enterprises providing an object or related service, enterprises advertising an object or related service, a television program server, a television network operator, etc.).

[0059] For example, in a non-limiting exemplary scenario in which a user select an object in a television program representing a good and/or service, step 230 may comprise determining to communicate a message to a commercial enterprise providing such a good and/or service. In another exemplary scenario in which a user selects an object in a television program representing a good and/or service, a message may be sent to a third party service that tracks user interest in such a good and/or service. In yet another exemplary scenario in which a user selects an object in a television program representing a particular person (e.g., an actor, spokesperson, athlete, politician, comedian, etc.), step 230 may comprise determining to communicate a message (e.g., an email message) to the particular person (and/or a representative thereof) notifying such particular person of the user selection.

[0060] As shown above, various user-selectable objects (or types of objects) may, for example, be associated with any of a variety of respective actions that may be taken (e.g., by one or more components of the user's local television system) upon selection of a respective user-selectable object by a user. Such actions (e.g., information retrieval, information searching, television system control, communication session management, etc.) may, for example, be included in a table or other data structure. In such a scenario, for example, when a user selects object A in a television program, step 230 may comprise analyzing a table to determine that object A is associated with presentation of remotely stored information to the user and providing the user a mechanism by which the user may view such object at different angles. In another example, when a user selects object B in a television program (e.g., where object B is an baseball player), step 230 may comprise analyzing a table to determine that the baseball player is associated with presentation of season and lifetime statistics, and provision of a menu-based interface to the user by which the user may access (e.g., at a remote information server associated with the player, a team on which the player plays, a league in which the user plays, etc.) any of a variety of types of additional personal and/or professional information regarding the baseball player.

[0061] In yet another example, when a user selects a landmark in a movie, step 230 may comprise analyzing a data structure to determine that the landmark is associated with acquisition (e.g., from a remote server) of history information regarding such landmark and hours of operation and presentation of such acquired information to the user, providing a user interface to the user by which the user may request map and/or travel directions from a remote information server to see such landmark, and providing a user interface to the user by which the user may peruse an album of photographs of the landmark where such album is stored at a remote database. In still another example, when a user selects an actor in a movie, step 230 may comprise analyzing a table to determine that all actors are associated with searching a remote database for personal and/or filmography information, and providing a user interface to the user by which the user may peruse an album of photographs of the actor.

[0062] As discussed previously, step **230** may comprise determining one or interactions to perform based on general type of a user-selected object or based on specific identity of a user-selected object. Step **230** may also comprising determining one or more interactions to perform based on the general type of a user-selected object and determining one or more interactions to perform based on specific identity (or other more specific identifying characteristics) of a user-selected object. For example, in a non-limiting exemplary scenario, user-selection of an actor may cause execution of an interaction generally associated with all actors (e.g., acquisition of general information of the actor from a database remote from the user's local television system, for example the actor's name, to the user on a television screen), and user-selection of the specific actor may cause execution of an interaction specifically associated with the selected actor (e.g., acquisition of specific information of the actor from the specific actor's personal website and providing a user interface enabling the user to interact with the actor's personal website).

[0063] Note that in all of the examples above, any or all of the descriptive information, user interface information, and/or user interface capability may reside autonomously in the user's local television system (i.e., in one or more components thereof) and/or may reside in a system entity remote from the user's local television system and communicatively coupled to the user's local television system.

[0064] In general, step **230** may comprise determining, based at least in part on the determined object identity, one or more interactions in which to engage with an entity remote from the user's local television system (e.g., remote from the user's premises). Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of any particular user-selected object, characteristics of any particular interaction and/or any particular manner of determining to perform any particular interaction unless explicitly claimed.

[0065] As discussed above, one or more actions determined at step **230** may comprise determining to perform interactions with remote entities, where such interactions may comprise accessing such information directly from memory of a remote entity, searching for such information in a remote entity, directly requesting a remote entity for information of a user-selected object, establishing a communication link with a remote entity, etc. In such an exemplary scenario, information related to determining one or more interactions to perform and/or determining how to perform such one or more determined interactions may be stored in one or more components of the user's local television system. Such information (or a remote portion thereof) may also, for example, be stored in a remote entity.

[0066] In an exemplary scenario in which such information corresponding to selection and/or performance of interactions associated with user-selectable objects is stored in one or more components of the user's local television system (e.g., a television, a television receiver, a television controller, etc.), the method **200** may comprise receiving data associating a user-selectable object in the television program with one or more interactions and/or the performance thereof. For example, the method **200** may comprise receiving a data stream (or other data communication format, for example, a file) comprising such information, and storing such informa-

tion in a memory (or database) of the user's local television system (e.g., before a need arises to access and/or utilize such information).

[0067] For example, in such a scenario, such data receiving may comprise receiving such data embedded in a same television program signal that communicates the television program to the user's local television system. Also for example, such data receiving may comprise receiving the data in parallel with receipt of a television program signal that communicates the television program to the user's local television system. Additionally for example, such data receiving may comprise receiving the data in a signal that is independent of a television program signal that communicates the television program to the user's local television system (e.g., receiving such signals from a same source and/or from different respective sources). Further for example, such data receiving may comprise receiving the data in a plurality of different signals from a plurality of different respective sources.

[0068] As discussed previously, the received object information may be stored in memory (e.g., of the user's local television system) indexed by object identification, object type, television program in which the object appears, scene and/or frame of the television program in which the object appears or to which an object selection window corresponds, etc. Also for example, the received object information may be stored in memory indexed (or otherwise accessible) by search terms.

[0069] Turning next to step **240**, such step may comprise performing the one or more interactions determined at step **230**. Step **240** may comprise performing such one or more interactions in any of a variety of manners, non-limiting examples of which will be presented below. Step **240** may, for example, comprise performing such one or more interactions in respective manners dependent on the respective natures of such one or more interactions.

[0070] For example, in an exemplary scenario in which a determined interaction comprises determining (or acquiring) information associated with a user-selected object, step **240** may comprise performing such information determining. For example, step **240** may comprise acquiring information associated with the user-selected object from a memory (or database) of an entity remote from the user's local television system.

[0071] Also for example, in an exemplary scenario in which a determined interaction comprises determining (or acquiring) information associated with a user-selected object, step **240** may comprise determining search terms (or other searching information) and performing such searching. Performing such searching may, for example, comprise searching a storage of a remote entity for such search terms, querying an entity remote from the user's local television system with such search terms, requesting information from a remote entity concerning a particular user-selected object (or type thereof), etc.

[0072] After information is determined, step **240** may, for example, comprise presenting such determined information to the user. Such presenting may, for example, comprise displaying and/or generating a signal that causes the display of the determined information on a screen of the user's local television system (e.g., on a screen of a television, on a screen of a television remote control, on a screen of a television receiver and/or another component of the user's local television system, etc.).

[0073] Additionally for example, in an exemplary scenario in which a determined interaction comprises establishing a communication session by which a user may interact with networked entities associated with a user-selected object (e.g., other components of a television system remote from the user's local television system, other components independent of the television system and remote from the user's local television system, etc.), step 240 may comprise establishing and/or managing such communication session utilizing the appropriate communication protocol(s) (e.g., wired and/or wireless network communication protocols).

[0074] Further for example, in an exemplary scenario in which a determined interaction comprises providing a user interface by which the user can control user-selected object information being presented to the user, by which the user can manipulate a view of a selected object, by which a user can interface with one or more components (or devices) of an entity remote from the user's local television system, etc., step 240 may comprise providing such user interface to the user (e.g., by utilizing the various user I/O devices in the user's local television system).

[0075] In general, step 240 may comprise performing the one or more interactions determined at step 230. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of any particular type of interaction nor by characteristics of any particular manner of performing such interaction unless explicitly claimed.

[0076] The exemplary method 200 may, at step 295, comprise performing continued operation. Such continued operation may comprise characteristics of any of a variety of different types of continued operation, non-limiting examples of which will be presented below.

[0077] For example, step 295 may comprise looping execution flow of the exemplary method 200 back to step 220 for continued user-selected object determination, interaction determination and performing. Also for example, step 295 may comprise looping execution flow of the exemplary method 200 back to step 230 for continued interaction determination and performance regarding a user-selected object. Additionally for example, step 295 may comprise performing additional user interaction with the user to further refine the user-selected object interactions determined at step 230 and/or performed at step 240. For example, step 295 may comprise interfacing with a user to determine which interactions to perform and/or how such interactions should be performed. Additionally for example, upon completion of the one or more interactions performed at step 240 (e.g., in a scenario in which television program presentation is paused during the performance of such actions) step 295 may comprise resuming normal presentation of the television program.

[0078] Also for example, step 295 may comprise determining when the interaction(s) being performed at step 240 is complete. Step 295 may, for example, comprise making such a determination in any of a variety of manners. For example and without limitation, step 295 may comprise determining that the interaction performance is complete based, at least in part, on explicit user command indicating that the user no longer desires to interact with the entity remote from the user's local television system regarding user-selectable objects in television programming. Also for example, step 295 may comprise determining that the interaction performance is complete based, at least in part, on user dismissal of presented information associated with a user-selected object (e.g., closing an information window and/or other GUI

mechanism associated with the user-selected object). Additionally for example, step 295 may comprise determining that the interaction performance is complete based, at least in part, on a timer (e.g., making such determination a predetermined amount of time after an information and/or a GUI interface is presented to a user, after a user has last interacted with the system regarding a user-selected object, etc.). Further for example, step 295 may comprise determining that the interaction performance is complete based on a user command to perform some other action (e.g., a user command for normal television program play to resume (if halted), a user command for television program play at fast-forward until caught up to real-time, a user command to jump presentation of the television program to real-time, etc.).

[0079] In general, step 295 may comprise performing continued operation. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of any particular type of continued operation unless explicitly claimed.

[0080] The exemplary method 200 may be performed in any one or more components (or devices) of a user's local television system. For example, the method 200 (or a portion thereof) may be performed in a television. Also for example, the method 200 (or a portion thereof) may be performed in a television receiver (e.g., a stand-alone cable and/or satellite television receiver (or set top box), a digital video recorder with television receiver capability, a gaming device with television receiver capability, etc.). Additionally for example, the method 200 (or a portion thereof) may be performed in a television controller (e.g., a dedicated television or entertainment system remote control, a personal electronic device with television control capability, etc.). Further for example, the method 200 may be performed in any combination of the user's local television system components. For example, in a non-limiting exemplary scenario, one or more modules of a television may operate to perform at least step 220, one or more modules of a television controller may operate to perform at least step 230, and one or more modules of a television receiver may operate to perform at least step 240. Additionally, various portions of any of the above-mentioned method steps (e.g., step 220, 230 and 240) may be performed in any one or more components (or devices) remote from the user's local television system.

[0081] Additionally, the steps of the exemplary method 200 (or aspects thereof) may, for example, be performed in real-time. In such manner, the user may have relatively expeditious access to functionality associated with the user-selected object. Alternatively for example, the exemplary method 200 (or aspects thereof) may be performed off-line in a manner in which functionality associated with the user-selected object is provided to the user at a later time (e.g., after presentation of the television program, upon the user logging into the user's computer system, upon the user accessing email, etc.).

[0082] Further, any or all of the steps of the exemplary method 200 may be performed for user selection of an object in television programming as the programming is broadcast in real-time and/or may be performed for user selection of an object in television programming that has been recorded on a user (or home) television programming recorder (e.g., a personal video recorder (PVR), video cassette recorder (VCR), etc.) and is currently being presented to the user (e.g., at step 220) in a time-shifted manner. For example, a user may record a broadcast television program on a PVR for later viewing, view such recorded programming at a later time, and while

viewing such time-shifted television programming at a later time, select user-selectable objects in such programming.

[0083] Similarly, any or all of the steps of the exemplary method **200** may be performed for user selection of an object in television programming that has been provided to the user (or stored by the user) on a physical storage medium (e.g., on a digital versatile disc (DVD), video cassette recorder tape, non-volatile memory device, etc.). For example, a user may purchase a set of DVDs including all episodes of a season of a television series, view each of such episodes at the convenience of the user, and while viewing such episodes, select user-selectable objects in such programming. Such DVDs may, for example, comprise any or all of the above-mentioned information (e.g., memory and/or network addressing for entities remote from the user's local television system, general information corresponding to user-selectable objects, user interface information corresponding to user-selectable objects, executable software corresponding to user-selectable objects, etc.).

[0084] Turning next to FIG. 3, such figure is a flow diagram illustrating an exemplary method **300** for responding to user-selection of objects in television programming, in accordance with various aspects of the present invention. The exemplary method **300** may share any or all characteristics with the exemplary method **200** illustrated in FIG. 2 and discussed previously.

[0085] As with the exemplary method **200** discussed above, any or all aspects of the exemplary method **300** may, for example, be implemented in the user's local television system (e.g., any or all or the first television **140** and/or second television **141**, the television receiver **151**, the first television controller **160** and/or second television controller **161**, etc., shown in FIG. 1 and discussed previously). Also as with the exemplary method **200** discussed above, portions of any of the exemplary steps of the method **300** may also be implemented in one or more components remote from the user's local television system.

[0086] The exemplary method **300** may, for example, begin executing at step **305**. The exemplary method **300** may begin executing in response to any of a variety of causes or conditions. Step **305** may, for example, share any or all characteristics with step **205** of the exemplary method **200** illustrated in FIG. 2 and discussed previously.

[0087] The exemplary method **300** may, for example at step **310**, comprise presenting a television program to a user, where the program comprises user-selectable objects in the program. Step **310** may comprise presenting such television program to a user in any of a variety of manners, non-limiting examples of which will now be provided.

[0088] For example, step **310** may comprise receiving television programming. Many non-limiting examples of such television programming were provided above. Step **310** may comprise receiving the television programming from any of a variety of sources. For example and without limitation, step **310** may comprise receiving the television programming from a television broadcasting company, from a movie streaming company, from a user (or consumer) video recording and/or playback device (e.g., internal and/or external to the television), from an Internet television programming provider, from a gaming device comprising television program capability, from a DVD player, etc.

[0089] Step **310** may also comprise receiving the television programming via any of a variety of types of communication networks. Such networks may, for example, comprise a wire-

less television network (e.g., terrestrial and/or satellite) and/or cable television network. Such networks may, for example, comprise any of variety of data communication networks (e.g., the Internet, a local area network, a personal area network, a metropolitan area network, etc.).

[0090] Step **310** may also, for example, comprise presenting received television programming to a user. Step **310** may, for example, comprise presenting television programming received (e.g., received from a local and/or non-local television program source) to a user in any of a variety of manners. For example, step **310** may comprise presenting the television programming on one or more of a screen of a television, television controller comprising a screen, television receiver comprising a screen, personal computer system, handheld computer, etc.

[0091] The presented television programming may, for example, comprise user-selectable objects in the television programming. Many non-limiting examples of such user-selectable objects were presented above. In general, such user-selectable objects may, for example, comprise animate and/or inanimate objects in television programming that a user may select (e.g., using a pointing device, touch screen, or other user interface by which a user may identify an object in television programming being presented to the user).

[0092] In general, step **310** may comprise presenting a television program to a user, where the program comprises user-selectable objects in the program. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of any particular manner of receiving and/or presenting such a television program to a user unless explicitly claimed.

[0093] The exemplary method **300** may, at step **320**, comprise determining an identity of a user-selected object in a television program being presented to a user. Step **320** may share any or all characteristics with step **220** of the exemplary method **200** shown in FIG. 2 and discussed previously.

[0094] For example and without limitation, step **320** may comprise (e.g., at sub-step **322**) locally determining such identity of a user-selected object (e.g., in a component (or device) of the user's local television system, for example, in a television, television receiver, television controller, etc.). Also for example, step **320** may comprise (e.g., at sub-step **324**) receiving identity information regarding such a user-selected object from another component (or device) of the user's local television system (e.g., from a component of the user's local television system different from the component implementing step **320**) and/or from another television system component (or device) remote from the user's local television system.

[0095] The exemplary method **300** may, at step **330**, comprise determining, based at least in part on the determined object identity, one or more interactions in which to engage with an entity remote from the user's local television system (e.g., remote from the user's premises). Step **330** may, for example, share any or all characteristics with step **230** of the exemplary method **200** illustrated in FIG. 2 and discussed previously.

[0096] The exemplary method **300** may, at step **340**, comprise performing the one or more interactions determined at step **330**. Step **340** may, for example, share any or all characteristics with step **240** of the exemplary method **200** illustrated in FIG. 2 and discussed previously.

[0097] For example and without limitation, step **340** may comprise retrieving and/or presenting information associated

with a user-selectable object. Such retrieving may comprise retrieving such information from a memory of an entity (e.g., a component or device) remote from the user's local television system. Such retrieving may also, for example, comprise conducting a search for such information in one or more components of a television system (or other network) remote from the user's local television system. Such retrieving may additionally, for example, comprise interacting with one or more other entities (e.g., one or more other components remote from the user's local television system) to retrieve such information. Step 340 may then, for example, comprise presenting the retrieved information to the user.

[0098] Also for example, step 340 may comprise notifying one or more other television system entities of the user's selection of the user-selected object (e.g., a production enterprise, a distribution enterprise, a rating company, an advertising agency, etc.). Additionally for example, step 340 may comprise establishing a communication session by which a user may interact with networked entities (e.g., remote from the user's local television system) associated with a user-selected object (e.g., communicating regarding general object information, communicating regarding obtaining a user-selected object, communicating regarding membership in an organization related to the user-selected object, etc.). Further for example, step 340 may comprise interacting with a user regarding local television system control and/or control of a remote television system component, interacting with a user regarding display of a user-selected object and/or associated information, etc.

[0099] The exemplary method 300 may, for example at step 395, comprise performing continued operations. Step 395 may, for example, share any or all characteristics with step 295 of the exemplary method 200 illustrated in FIG. 2 and discussed previously.

[0100] As discussed previously, any or all portion of the exemplary methods 200 and 300 may be implemented in one or more components (or devices) of a user's local television system. Various non-limiting examples of such implementation will now be presented in the discussion of FIGS. 4-7. Note that, as discussed previously, at least portions of the previously-discussed steps may also be performed in components remote from the user's local television system. Accordingly, the scope of various aspects of the present invention should not be limited by the following focus on various entities of the user's local television system unless explicitly claimed.

[0101] Turning next to FIG. 4, such figure is a diagram illustrating an exemplary television 400, in accordance with various aspects of the present invention. The exemplary television 400 may, for example, share any or all characteristics with one or more of the exemplary televisions 140 and 141 illustrated in FIG. 1 and discussed previously. Also, the exemplary television 400 (e.g., various modules thereof) may operate to perform any or all of the functionality discussed previously with regard to the exemplary methods 200 and 300 illustrated in FIGS. 2-3 and discussed previously.

[0102] The exemplary television 400 includes a first communication interface module 410. The first communication interface module 410 may, for example, operate to communicate over any of a variety of communication media and utilizing any of a variety of communication protocols. For example, though the first communication interface module 410 is illustrated coupled to a wireless RF antenna via a wireless port 412, the wireless medium is merely illustrative

and non-limiting. The first communication interface module 410 may, for example, operate to communicate with one or more communication networks (e.g., cable television networks, satellite television networks, telecommunication networks, the Internet, local area networks, personal area networks, metropolitan area networks, etc.) via which television video content (e.g., television programming) and/or other data is communicated. Also for example, the first communication interface module 410 may operate to communicate with local sources of television video content (e.g., video recorders, receivers, gaming devices, etc.). Additionally, for example, the first communication interface module 410 may operate to communicate with a television controller and/or a television receiver external to the television 400 (e.g., directly or via one or more intermediate communication networks).

[0103] The exemplary television 400 includes a second communication interface module 420. The second communication interface module 420 may, for example, operate to communicate over any of a variety of communication media and utilizing any of a variety of communication protocols. For example, the second communication interface module 420 may communicate via a wireless RF communication port 422 and antenna, or may communicate via a non-tethered optical communication port 424 (e.g., utilizing laser diodes, photodiodes, etc.). Also for example, the second communication interface module 420 may communicate via a tethered optical communication port 426 (e.g., utilizing a fiber optic cable), or may communicate via a wired communication port 428 (e.g., utilizing coaxial cable, twisted pair, HDMI cable, Ethernet cable, any of a variety of wired component and/or composite video connections, etc.). The second communication interface module 420 may, for example, operate to communicate with one or more communication networks (e.g., cable television networks, satellite television networks, telecommunication networks, the Internet, local area networks, personal area networks, metropolitan area networks, etc.) via which television video content (e.g., television programming) and/or other data is communicated. Also for example, the second communication module 420 may operate to communicate with local sources of television video content (e.g., video recorders, receivers, gaming devices, etc.). Additionally, for example, the second communication module 420 may operate to communicate with a television controller (e.g., directly or via one or more intervening communication networks).

[0104] The exemplary television 400 may also comprise additional communication interface modules, which are not illustrated. Such additional communication interface modules may, for example, share any or all aspects with the first 410 and second 420 communication interface modules discussed above.

[0105] The exemplary television 400 may also comprise a communication module 430. The communication module 430 may, for example, operate to control and/or coordinate operation of the first communication interface module 410 and the second communication interface module 420 (and/or additional communication interface modules as needed). The communication module 430 may, for example, provide a convenient communication interface by which other components of the television 400 may utilize the first 410 and second 420 communication interface modules. Additionally, for example, in an exemplary scenario where a plurality of communication interface modules are sharing a medium and/or network, the communication module 430 may coordinate

communications to reduce collisions and/or other interference between the communication interface modules.

[0106] The exemplary television 400 may additionally comprise one or more user interface modules 440. The user interface module(s) 440 may generally operate to provide user interface functionality to a user of the television 400. For example, and without limitation, the user interface module(s) 440 may operate to provide for user control of any or all standard television commands (e.g., channel control, volume control, on/off, screen settings, input selection, etc.). The user interface module(s) 440 may, for example, operate and/or respond to user commands utilizing user interface features disposed on the television (e.g., buttons, etc.) and may also utilize the communication module 430 (and/or first 410 and second 420 communication interface modules) to communicate with a television controller (e.g., a dedicated television remote control, a universal remote control, a cellular telephone, personal computing device, gaming controller, etc.).

[0107] The user interface module(s) 440 may also comprise one or more sensor modules that operate to interface with and/or control operation of any of a variety of sensors that may be utilized to ascertain an on-screen pointing location. For example and without limitation, the user interface module 440 (or sensor module(s) thereof) may operate to receive signals associated with respective sensors (e.g., raw or processed signals directly from the sensors, through intermediate devices, via the communication interface modules 410, 420, etc.). Also for example, in scenarios in which such sensors are active sensors (as opposed to purely passive sensors), the user interface module(s) 440 (or sensor module(s) thereof) may operate to control the transmission of signals (e.g., RF signals, optical signals, acoustic signals, etc.) from such sensors. Additionally, the user interface module(s) 440 may perform any of a variety of video output functions (e.g., presenting television programming to a user, providing visual feedback to a user regarding an identified user-selected object in the presented television programming, etc.).

[0108] The exemplary television 400 may comprise one or more processors 450. The processor(s) 450 may, for example, comprise a general purpose processor, digital signal processor, application-specific processor, microcontroller, micro-processor, etc. For example, the processor 450 may operate in accordance with software (or firmware) instructions. As mentioned previously, any or all functionality discussed herein may be performed (in-part or in-whole) by a processor executing instructions. For example, though various modules are illustrated as separate blocks or modules in FIG. 4, such illustrative modules, or a portion thereof, may be implemented by the processor 450.

[0109] The exemplary television 400 may comprise one or more memories 460. As discussed above, various aspects may be performed by one or more processors executing instructions. Such instructions may, for example, be stored in the one or more memories 460. Such memory 460 may, for example, comprise characteristics of any of a variety of types of memory. For example and without limitation, such memory 460 may comprise one or more memory chips (e.g., ROM, RAM, EPROM, EEPROM, flash memory, one-time-programmable OTP memory, etc.), hard drive memory, CD memory, DVD memory, etc.

[0110] Also as discussed previously, various information corresponding to user-selectable objects in television programming (e.g., descriptive information, communication information, user interaction information, user control infor-

mation, information describing interactions with local and/or remote devices and associated with user-selectable objects, etc.) may be stored in memory. The memory 460 provides one non-limiting example of a memory in which such information may be stored. Note that such memory 460 (or a portion thereof) may also be external to the television 400 and communicatively coupled thereto.

[0111] The exemplary television 400 may comprise one or more modules (not explicitly illustrated in FIG. 4) that operate to receive and present a television program to a user. Such one or more modules may, for example, operate to utilize one or more of the user interface module(s) 440 to present the television program on the display 470. The one or more modules may, for example, operate to perform step 310 of the exemplary method 300 discussed previously.

[0112] The exemplary television 400 may comprise one or more user-selected object determination modules 454 that operate to determining an identity of a user-selected object in a television program being presented to a user. For example, such module(s) 454 may operate to perform step 220 of the exemplary method 200 discussed previously and/or step 320 of the exemplary method 300 discussed previously.

[0113] For example, in an exemplary scenario in which the television 400 locally determines an identify of a user-selected object, the module(s) 454 may operate to utilize one or more of the user interface module(s) 440 to interface with various sensors. Additionally, for example, the module(s) 454 may operate to utilize the communication module 430 (and communication interface modules 410 and 420) to communicate with external systems regarding various sensor signals.

[0114] Also for example, in another exemplary scenario in which the television 400 operates to receive information of the identity of a user-selected object in a television program from a source external to the television 400, the module(s) 454 may operate to utilize the communication module 430 (and communication interface modules 410 and 420) to communicate with such external source.

[0115] The exemplary television 400 may also, for example, comprise one or more interaction determination module(s) 456 that operate to determine (e.g., based at least in part on the determined identity of a user-selected object in a television program) one or more interactions in which to engage with an entity remote from the user's local television system. For example, such module(s) 456 may operate to perform step 230 of the exemplary method 200 discussed previously and/or step 330 of the exemplary method 300 discussed previously.

[0116] For example, in a non-limiting exemplary scenario in which such interaction determination comprises analyzing a table or other data structure correlating object identification characteristics to particular interactions, the module(s) 456 may operate to analyze such a table and/or other data structure stored in the memory 460. Additionally for example, in an exemplary scenario in which such interaction determination comprises interacting with the user to determine an initial interaction and/or subsequent interaction related to the identified user-selected object, the module(s) 456 may operate to utilize the user interface module(s) 440 to perform such user interaction.

[0117] The exemplary television 400 may additionally comprise one or more interaction performance modules 458 that operate to perform the one or more interactions determined by the interaction determination module(s) 456. For example, the interaction performance module(s) 458 may

operate to perform step 240 of the exemplary method 200 discussed previously and/or step 340 of the exemplary method 300 discussed previously.

[0118] For example, in a non-limiting exemplary scenario in which a determined interaction comprises retrieving information associated with an object from a memory of an entity remote from the user's local television system, the module(s) 458 may operate to communicate with such memory (e.g., either directly, for example, utilizing DMA and/or indirectly utilizing an interface of the remote entity) of the remote entity. For example, the module(s) 458 may operate to utilize the communication module 430 (and first communication interface module 410 and/or second communication interface module 420) to communicate with such remote entity. Such a remote entity may, for example, comprise a communication infrastructure component of a television system, a television server component, a cable and/or satellite head-end station, a networked information server, a remote computer communicatively coupled to the television, etc.

[0119] Also for example, in a non-limiting scenario in which a determined interaction comprises searching for information, the module(s) 458 may operate to perform a search for such information. In such a scenario, the module(s) 458 may, for example, operate to perform such a search in memory of other television system components and/or other networked entities that are remote from the user's local television system (e.g., directly utilizing direct memory access and/or utilizing a search interface provided by a remote entity). For example, the module(s) 458 may operate to perform such a search in such remote entities utilizing the communication module 430 (and first communication interface module 410 and/or second communication interface module 420) to communicate with such remote entities. For example, such remote entities may provide an interface specifically adapted to request and/or search for information stored in and/or accessible to such remote entities. In such a scenario, the module(s) 458 may operate in accordance with such interface.

[0120] In an exemplary scenario, a remote entity may operate in accordance with a protocol in which a requestor requests (via a communication network) information associated with a particular user-selected object, and the remote entity responds to such a request by communicating the requested information back to the requestor. In such a scenario, the module(s) 458 would operate in accordance with such protocol when interacting with the remote entity via the communication network.

[0121] Additionally for example, in a non-limiting scenario in which a determined interaction comprises interfacing with a user of the television 400, the module(s) 458 may operate to utilize the user interface module(s) 440 to provide the user interface.

[0122] For example, in an exemplary scenario in which a determined interaction comprises presenting object information and/or different views of the object to a user, the module(s) 458 may operate to utilize the user interface module(s) 440 to perform such output (e.g., on the display 470 of the television 400). Also for example, the module(s) 458 may operate to utilize the communication module 430 (and first communication interface module 410 and/or second communication interface module 420) to communicate with one or more other local television system components to provide such information to such one or more other local television system com-

ponents for presentation on respective output displays of such one or more other local television system components.

[0123] Further for example, in a non-limiting scenario in which a determined interaction comprises establishing and/or managing a communication session between the user and another system entity (e.g., a television system and/or non-television system entity remote from the user's local television system), the module(s) 458 may operate to utilize the user interface module(s) 440 to provide the user interface and utilize the communication module(s) 430 (and first communication interface module 410 and/or second communication interface module 420) to communicate to perform communication link establishment and/or management.

[0124] Still further for example, in a non-limiting scenario in which a determined interaction comprises notifying one or more other television system entities of the user's selection of the user-selected object (e.g., a production enterprise, a distribution enterprise, a rating company, an advertising agency, etc.), the module(s) 458 may operate to utilize the communication module(s) 430 (and first communication interface module 410 and/or second communication interface module 420) to perform such notification.

[0125] Though not illustrated, the exemplary television 400 may, for example, comprise one or more modules that operate to perform any or all of the continued processing discussed previously with regard to step 295 of the exemplary method 200 and step 395 of the exemplary method 300, discussed previously. Such modules (e.g., as with the one or more modules 454, 456 and 458) may be performed by the processor(s) 450 executing instructions stored in the memory 460.

[0126] Turning next to FIG. 5, such figure is a diagram illustrating an exemplary television receiver 500, in accordance with various aspects of the present invention. The exemplary television receiver 500 may, for example, share any or all characteristics with the exemplary television receiver 151 illustrated in FIG. 1 and discussed previously. Also, the exemplary television receiver 500 may, for example, share any or all characteristics with the exemplary television 400 illustrated in FIG. 4 and discussed previously. For example, the exemplary television receiver 500 (e.g., various modules thereof) may operate to perform any or all of the functionality discussed previously with regard to the exemplary methods 200 and 300 illustrated in FIGS. 2-3 and discussed previously.

[0127] The exemplary television receiver 500 includes a first communication interface module 510. The first communication interface module 510 may, for example, operate to communicate over any of a variety of communication media and utilizing any of a variety of communication protocols. For example, though the first communication interface module 510 is illustrated coupled to a wireless RF antenna via a wireless port 512, the wireless medium is merely illustrative and non-limiting. The first communication interface module 510 may, for example, operate to communicate with one or more communication networks (e.g., cable television networks, satellite television networks, telecommunication networks, the Internet, local area networks, personal area networks, metropolitan area networks, etc.) via which television video content (e.g., television programming) and/or other data is communicated. Also for example, the first communication interface module 510 may operate to communicate with local sources of television video content (e.g., video recorders, receivers, gaming devices, etc.). Additionally, for example, the first communication interface module 510 may

operate to communicate with a television controller and/or a television (e.g., directly or via one or more intermediate communication networks).

[0128] The exemplary television receiver **500** includes a second communication interface module **520**. The second communication interface module **520** may, for example, operate to communicate over any of a variety of communication media and utilizing any of a variety of communication protocols. For example, the second communication interface module **520** may communicate via a wireless RF communication port **522** and antenna, or may communicate via a non-tethered optical communication port **524** (e.g., utilizing laser diodes, photodiodes, etc.). Also for example, the second communication interface module **520** may communicate via a tethered optical communication port **526** (e.g., utilizing a fiber optic cable), or may communicate via a wired communication port **528** (e.g., utilizing coaxial cable, twisted pair, HDMI cable, Ethernet cable, any of a variety of wired component and/or composite video connections, etc.). The second communication interface module **520** may, for example, operate to communicate with one or more communication networks (e.g., cable television networks, satellite television networks, telecommunication networks, the Internet, local area networks, personal area networks, metropolitan area networks, etc.) via which television video content (e.g., television programming) and/or other data is communicated. Also for example, the second communication module **520** may operate to communicate with local sources of television video content (e.g., video recorders, receivers, gaming devices, etc.). Additionally, for example, the second communication module **520** may operate to communicate with a television controller and/or a television external to the television receiver **500** (e.g., directly or via one or more intervening communication networks). The second communication interface module **520** may, for example, operate to communicate video and/or graphics information to a television and/or television receiver (e.g., using any of the previous interfaces mentioned above).

[0129] The exemplary television receiver **500** may also comprise additional communication interface modules, which are not illustrated. Such additional communication interface modules may, for example, share any or all aspects with the first **510** and second **520** communication interface modules discussed above.

[0130] The exemplary television receiver **500** may also comprise a communication module **530**. The communication module **530** may, for example, operate to control and/or coordinate operation of the first communication interface module **510** and the second communication interface module **520** (and/or additional communication interface modules as needed). The communication module **530** may, for example, provide a convenient communication interface by which other components of the television receiver **500** may utilize the first **510** and second **520** communication interface modules. Additionally, for example, in an exemplary scenario where a plurality of communication interface modules are sharing a medium and/or network, the communication module **530** may coordinate communications to reduce collisions and/or other interference between the communication interface modules.

[0131] The exemplary television receiver **500** may also comprise one or more television interface modules **535** that operate to provide an interface between the television receiver **500** and a television (e.g., a television external to the televi-

sion receiver **500** or housed with the television receiver). For example, the television interface module(s) **535** may operate to provide video, graphical and/or textual information to a television (e.g., via the communication module **530**, first communication interface module(s) **510** and/or second communication interface module(s) **520**).

[0132] The exemplary television receiver **500** may additionally comprise one or more user interface modules **540**. The user interface module(s) **540** may generally operate to provide user interface functionality to a user of the television receiver **500**. For example, and without limitation, the user interface module(s) **540** may operate to provide for user control of any or all standard television commands (e.g., channel control, volume control, on/off, screen settings, input selection, etc.). The user interface module(s) **540** may, for example, operate and/or respond to user commands utilizing user interface features disposed on the television receiver **500** (e.g., buttons, etc.) and may also utilize the communication module **530** (and/or first **510** and second **520** communication interface modules) to communicate with a television controller (e.g., a dedicated television remote control, a universal remote control, a cellular telephone, personal computing device, gaming controller, etc.).

[0133] The user interface module(s) **540** may also comprise one or more sensor modules that operate to interface with and/or control operation of any of a variety of sensors that may be utilized to ascertain an on-screen pointing location. For example and without limitation, the user interface module **540** (or sensor module(s) thereof) may operate to receive signals associated with respective sensors (e.g., raw or processed signals directly from the sensors, through intermediate devices, via the communication interface modules **510**, **520**, etc.). Also for example, in scenarios in which such sensors are active sensors (as opposed to purely passive sensors), the user interface module(s) **540** (or sensor module(s) thereof) may operate to control the transmission of signals (e.g., RF signals, optical signals, acoustic signals, etc.) from such sensors. Additionally, the user interface module(s) **540** may perform any of a variety of video output functions (e.g., presenting television programming to a user, providing visual feedback to a user regarding an identified user-selected object in the presented television programming, etc.).

[0134] The exemplary television receiver **500** may comprise one or more processors **550**. The processor(s) **550** may, for example, comprise a general purpose processor, digital signal processor, application-specific processor, microcontroller, microprocessor, etc. For example, the processor **550** may operate in accordance with software (or firmware) instructions. As mentioned previously, any or all functionality discussed herein may be performed by a processor executing instructions. For example, though various modules are illustrated as separate blocks or modules in FIG. 5, such illustrative modules, or a portion thereof, may be implemented by the processor **550**.

[0135] The exemplary television receiver **500** may comprise one or more memories **560**. As discussed above, various aspects may be performed by one or more processors executing instructions. Such instructions may, for example, be stored in the one or more memories **560**. Such memory **560** may, for example, comprise characteristics of any of a variety of types of memory. For example and without limitation, such memory **560** may comprise one or more memory chips (e.g.,

ROM, RAM, EPROM, EEPROM, flash memory, one-time-programmable OTP memory, etc.), hard drive memory, CD memory, DVD memory, etc.

[0136] Also as discussed previously, various information corresponding to user-selectable objects in television programming (e.g., descriptive information, communication information, user interaction information, user control information, information describing interactions with local and/or remote entities and associated with user-selectable objects, etc.) may be stored in memory. The memory 560 provides one non-limiting example of a memory in which such information may be stored. Note that such memory 560 (or a portion thereof) may also be external to the television 500 and communicatively coupled thereto.

[0137] The exemplary television receiver 500 may comprise one or more modules (not explicitly illustrated in FIG. 5) that operate to receive and present a television program to a user. Such one or more modules may, for example, operate to utilize one or more of the user interface module(s) 540 to present the television program on the optional display 570 (if present with the receiver 500 and/or communicatively coupled thereto). The one or more modules may, for example, operate to perform step 310 of the exemplary method 300 discussed previously.

[0138] The exemplary television receiver 500 may comprise one or more user-selected object determination modules 554 that operate to determining an identity of a user-selected object in a television program being presented to a user. For example, such module(s) 554 may operate to perform step 220 of the exemplary method 200 discussed previously and/or step 320 of the exemplary method 300 discussed previously.

[0139] For example, in an exemplary scenario in which the television receiver 500 locally determines an identity of a user-selected object, the module(s) 554 may operate to utilize one or more of the user interface module(s) 540 to interface with various sensors. Additionally, for example, the module(s) 554 may operate to utilize the communication module 530 (and communication interface modules 510 and 520) to communicate with external systems regarding various sensor signals.

[0140] Also for example, in another exemplary scenario in which the television receiver 500 operates to receive information of the identity of a user-selected object in a television program from a source external to the television receiver 500, the module(s) 554 may operate to utilize the communication module 530 (and communication interface modules 510 and 520) to communicate with such external source.

[0141] The exemplary television receiver 500 may also, for example, comprise one or more interaction determination module(s) 556 that operate to determine (e.g., based at least in part on the determined identity of a user-selected object in a television program, one or more interactions in which to engage with an entity remote from the user's local television system. For example, such module(s) 556 may operate to perform step 230 of the exemplary method 200 discussed previously and/or step 330 of the exemplary method 300 discussed previously.

[0142] For example, in a non-limiting exemplary scenario in which such interaction determination comprises analyzing a table or other data structure correlating object identification characteristics to particular interactions, the module(s) 556 may operate to analyze such a table and/or other data structure stored in the memory 560. Additionally for example, in an

exemplary scenario in which such interaction determination comprises interacting with the user to determine an initial interaction and/or subsequent interaction related to the identified user-selected object, the module(s) 556 may operate to utilize the user interface module(s) 540 to perform such user interaction.

[0143] The exemplary television receiver 500 may additionally comprise one or more interaction performance modules 558 that operate to perform the one or more interactions determined by the interaction determination module(s) 556. For example, the interaction performance module(s) 558 may operate to perform step 240 of the exemplary method 200 discussed previously and/or step 340 of the exemplary method 300 discussed previously.

[0144] For example, in a non-limiting exemplary scenario in which a determined interaction comprises retrieving information associated with an object from a memory of an entity remote from the user's local television system, the module(s) 558 may operate to communicate with such memory of the remote entity (e.g., either directly, for example, utilizing DMA and/or indirectly utilizing an interface of the remote entity). For example, the module(s) 558 may operate to utilize the communication module 530 (and first communication interface module 510 and/or second communication interface module 520) to communicate with such remote entity. Such a remote entity may, for example, comprise a communication infrastructure component of a television system, a television server component, a cable and/or satellite head-end station, a networked information server, a remote computer communicatively coupled to the television, etc.

[0145] Also for example, in a non-limiting scenario in which a determined interaction comprises searching for information, the module(s) 558 may operate to perform a search for such information. In such a scenario, the module(s) 558 may, for example, operate to perform such a search in memory of other television system components and/or other networked entities that are remote from the user's local television system (e.g., directly utilizing direct memory access and/or utilizing a search interface provided by a remote entity). For example, the module(s) 558 may operate to perform such a search in such remote entities utilizing the communication module 530 (and first communication interface module 510 and/or second communication interface module 520) to communicate with such remote entities. For example, such remote entities may provide an interface specifically adapted to request and/or search for information stored in and/or accessible to such remote entities. In such a scenario, the module(s) 558 may operate in accordance with such interface.

[0146] In an exemplary scenario, a remote entity may operate in accordance with a protocol in which a requestor requests (via a communication network) information associated with a particular user-selected object, and the remote entity responds to such a request by communicating the requested information back to the requestor. In such a scenario, the module(s) 558 would operate in accordance with such protocol when interacting with the remote entity via the communication network.

[0147] Additionally for example, in a non-limiting scenario in which a determined interaction comprises interfacing with a user of the television receiver 500, the module(s) 558 may operate to utilize the user interface module(s) 540 to provide the user interface.

[0148] For example, in an exemplary scenario in which a determined interaction comprises presenting object information and/or different views of the object to a user, the module(s) 558 may operate to utilize the user interface module(s) 540 to perform such output (e.g., on the optional display 570 of the television receiver 500 if such a display 570 is included). Also for example, the module(s) 558 may operate to utilize the communication module 530 (and first communication interface module 510 and/or second communication interface module 520) to communicate with one or more other local television system components (e.g., a television, television controller, personal computing device or system, etc. coupled to the television receiver 500) to provide such information to such one or more other local television system components for presentation on respective output displays of such one or more other local television system components.

[0149] Further for example, in a non-limiting scenario in which a determined interaction comprises establishing and/or managing a communication session between the user and another system entity, the module(s) 558 may operate to utilize the user interface module(s) 540 to provide the user interface and utilize the communication module(s) 530 (and first communication interface module 510 and/or second communication interface module 520) to communicate to perform communication link establishment and/or management.

[0150] Still further for example, in a non-limiting scenario in which a determined interaction comprises notifying one or more other television system entities of the user's selection of the user-selected object (e.g., a production enterprise, a distribution enterprise, a rating company, an advertising agency, etc.), the module(s) 558 may operate to utilize the communication module(s) 530 (and first communication interface module 510 and/or second communication interface module 520) to perform such notification.

[0151] Though not illustrated, the exemplary television receiver 500 may, for example, comprise one or more modules that operate to perform any or all of the continued processing discussed previously with regard to step 295 of the exemplary method 200 and step 395 of the exemplary method 300, discussed previously. Such modules (e.g., as with the one or more modules 554, 556 and 558) may be performed by the processor(s) 550 executing instructions stored in the memory 560.

[0152] Turning next to FIG. 6, such figure is a diagram illustrating an exemplary television controller 600, in accordance with various aspects of the present invention. The exemplary television controller 600 may, for example, share any or all characteristics with the exemplary television controllers 160 and 161 illustrated in FIG. 1 and discussed previously. Also, the exemplary television controller 600 may, for example, share any or all characteristics with the exemplary television 400 illustrated in FIG. 4 and discussed previously and/or with the exemplary television receiver 500 illustrated in FIG. 5 and discussed previously. For example, the exemplary television controller 600 (e.g., various modules thereof) may operate to perform any or all of the functionality discussed previously with regard to the exemplary methods 200 and 300 illustrated in FIGS. 2-3 and discussed previously.

[0153] The exemplary television controller 600 includes a first communication interface module 610. The first communication interface module 610 may, for example, operate to communicate over any of a variety of communication media

and utilizing any of a variety of communication protocols. For example, though the first communication interface module 610 is illustrated coupled to a wireless RF antenna via a wireless port 612, the wireless medium is merely illustrative and non-limiting. The first communication interface module 610 may, for example, operate to communicate with one or more communication networks (e.g., cable television networks, satellite television networks, telecommunication networks, the Internet, local area networks, personal area networks, metropolitan area networks, etc.) via which television video content (e.g., television programming) and/or other data is communicated. Also for example, the first communication interface module 610 may operate to communicate with local sources of television video content (e.g., video recorders, receivers, gaming devices, etc.). Additionally, for example, the first communication interface module 610 may operate to communicate with a television controller and/or a television (e.g., directly or via one or more intermediate communication networks).

[0154] The exemplary television controller 600 includes a second communication interface module 620. The second communication interface module 620 may, for example, operate to communicate over any of a variety of communication media and utilizing any of a variety of communication protocols. For example, the second communication interface module 620 may communicate via a wireless RF communication port 622 and antenna, or may communicate via a non-tethered optical communication port 624 (e.g., utilizing laser diodes, photodiodes, etc.). Also for example, the second communication interface module 620 may communicate via a tethered optical communication port 626 (e.g., utilizing a fiber optic cable), or may communicate via a wired communication port 628 (e.g., utilizing coaxial cable, twisted pair, HDMI cable, Ethernet cable, any of a variety of wired component and/or composite video connections, etc.). The second communication interface module 620 may, for example, operate to communicate with one or more communication networks (e.g., cable television networks, satellite television networks, telecommunication networks, the Internet, local area networks, personal area networks, metropolitan area networks, etc.) via which television video content (e.g., television programming) and/or other data is communicated. Also for example, the second communication module 620 may operate to communicate with local sources of television video content (e.g., video recorders, receivers, gaming devices, etc.). Additionally, for example, the second communication module 620 may operate to communicate with a television controller and/or a television external to the television controller 600 (e.g., directly or via one or more intervening communication networks). The second communication interface module 620 may, for example, operate to communicate video and/or graphics information to a television and/or television receiver (e.g., using any of the previous interfaces mentioned above).

[0155] The exemplary television controller 600 may also comprise additional communication interface modules, which are not illustrated. Such additional communication interface modules may, for example, share any or all aspects with the first 610 and second 620 communication interface modules discussed above.

[0156] The exemplary television controller 600 may also comprise a communication module 630. The communication module 630 may, for example, operate to control and/or coordinate operation of the first communication interface module

610 and the second communication interface module **620** (and/or additional communication interface modules as needed). The communication module **630** may, for example, provide a convenient communication interface by which other components of the television controller **600** may utilize the first **610** and second **620** communication interface modules. Additionally, for example, in an exemplary scenario where a plurality of communication interface modules are sharing a medium and/or network, the communication module **630** may coordinate communications to reduce collisions and/or other interference between the communication interface modules.

[0157] The exemplary television controller **600** may also comprise one or more television interface modules **635** that operate to provide an interface between the television controller **600** and a television (e.g., a television external to the television controller **600**). For example, the television interface module(s) **635** may operate to provide video, graphical and/or textual information to a television and/or television receiver (e.g., via the communication module **630**, first communication interface module(s) **610** and/or second communication interface module(s) **620**).

[0158] The exemplary television controller **600** may additionally comprise one or more user interface modules **640**. The user interface module(s) **640** may generally operate to provide user interface functionality to a user of the television controller **600**. For example, and without limitation, the user interface module(s) **640** may operate to provide for user control of any or all standard television commands (e.g., channel control, volume control, on/off, screen settings, input selection, etc.). The user interface module(s) **640** may, for example, operate and/or respond to user commands utilizing user interface features disposed on the television controller **600** (e.g., buttons, etc.) and may also utilize the communication module **630** (and/or first **610** and second **620** communication interface modules) to communicate with a television and/or television receiver.

[0159] The user interface module(s) **640** may also comprise one or more sensor modules that operate to interface with and/or control operation of any of a variety of sensors that may be utilized to ascertain an on-screen pointing location. For example and without limitation, the user interface module **640** (or sensor module(s) thereof) may operate to receive signals associated with respective sensors (e.g., raw or processed signals directly from the sensors, through intermediate devices, via the communication interface modules **610**, **620**, etc.). Also for example, in scenarios in which such sensors are active sensors (as opposed to purely passive sensors), the user interface module(s) **640** (or sensor module(s) thereof) may operate to control the transmission of signals (e.g., RF signals, optical signals, acoustic signals, etc.) from such sensors. Additionally, the user interface module(s) **640** may perform any of a variety of video output functions (e.g., presenting television programming to a user, providing visual feedback to a user regarding an identified user-selected object in the presented television programming, etc.).

[0160] The exemplary television controller **600** may comprise one or more processors **650**. The processor(s) **650** may, for example, comprise a general purpose processor, digital signal processor, application-specific processor, microcontroller, microprocessor, etc. For example, the processor **650** may operate in accordance with software (or firmware) instructions. As mentioned previously, any or all functionality discussed herein may be performed by a processor executing

instructions. For example, though various modules are illustrated as separate blocks or modules in FIG. 6, such illustrative modules, or a portion thereof, may be implemented by the processor **650**.

[0161] The exemplary television controller **600** may comprise one or more memories **660**. As discussed above, various aspects may be performed by one or more processors executing instructions. Such instructions may, for example, be stored in the one or more memories **660**. Such memory **660** may, for example, comprise characteristics of any of a variety of types of memory. For example and without limitation, such memory **660** may comprise one or more memory chips (e.g., ROM, RAM, EPROM, EEPROM, flash memory, one-time-programmable OTP memory, etc.), hard drive memory, CD memory, DVD memory, etc.

[0162] Also as discussed previously, various information corresponding to user-selectable objects in television programming (e.g., descriptive information, communication information, user interaction information, user control information, information describing interactions with local and/or remote entities and associated with user-selectable objects, etc.) may be stored in memory. The memory **660** provides one non-limiting example of a memory in which such information may be stored. Note that such memory **660** (or a portion thereof) may also be external to the television **600** and communicatively coupled thereto.

[0163] The exemplary television controller **600** may comprise one or more modules (not explicitly illustrated in FIG. 6) that operate to receive and present a television program to a user. Such one or more modules may, for example, operate to utilize one or more of the user interface module(s) **640** to present the television program on the optional display **670** (if present with the television controller **600** and/or communicatively coupled thereto). The one or more modules may, for example, operate to perform step **310** of the exemplary method **300** discussed previously.

[0164] The exemplary television controller **600** may comprise one or more user-selected object determination modules **654** that operate to determine an identity of a user-selected object in a television program being presented to a user. For example, such module(s) **654** may operate to perform step **220** of the exemplary method **200** discussed previously and/or step **320** of the exemplary method **300** discussed previously.

[0165] For example, in an exemplary scenario in which the television controller **600** locally determines an identity of a user-selected object, the module(s) **654** may operate to utilize one or more of the user interface module(s) **640** to interface with various sensors. Additionally, for example, the module(s) **654** may operate to utilize the communication module **630** (and communication interface modules **610** and **620**) to communicate with external systems regarding various sensor signals.

[0166] Also for example, in another exemplary scenario in which the television controller **600** operates to receive information of the identity of a user-selected object in a television program from a source external to the television controller **600**, the module(s) **654** may operate to utilize the communication module **630** (and communication interface modules **610** and **620**) to communicate with such external source.

[0167] The exemplary television controller **600** may also, for example, comprise one or more interaction determination module(s) **656** that operate to determine (e.g., based at least in part on the determined identity of a user-selected object in a

television program, one or more interactions in which to engage with an entity remote from the user's local television system. For example, such module(s) 656 may operate to perform step 230 of the exemplary method 200 discussed previously and/or step 330 of the exemplary method 300 discussed previously.

[0168] For example, in a non-limiting exemplary scenario in which such interaction determination comprises analyzing a table or other data structure correlating object identification characteristics to particular interactions, the module(s) 656 may operate to analyze such a table and/or other data structure stored in the memory 660. Additionally for example, in an exemplary scenario in which such interaction determination comprises interacting with the user to determine an initial interaction and/or subsequent interaction related to the identified user-selected object, the module(s) 656 may operate to utilize the user interface module(s) 640 to perform such user interaction.

[0169] The exemplary television controller 600 may additionally comprise one or more action performance modules 658 that operate to perform the one or more interactions determined by the interaction determination module(s) 656. For example, the interaction performance module(s) 658 may operate to perform step 240 of the exemplary method 200 discussed previously and/or step 340 of the exemplary method 300 discussed previously.

[0170] For example, in a non-limiting exemplary scenario in which a determined interaction comprises retrieving information associated with an object from memory of an entity remote from the user's local television system, the module(s) 658 may operate to communicate with such memory of the remote entity (e.g., either directly, for example, utilizing DMA and/or indirectly utilizing an interface of the remote entity). For example, the module(s) 658 may operate to utilize the communication module 630 (and first communication interface module 610 and/or second communication interface module 620) to communicate with such remote entity. Such a remote entity may, for example, comprise a communication infrastructure component of a television system, a television server component, a cable and/or satellite head-end station, a networked information server, a remote computer communicatively coupled to the television, etc.

[0171] Also for example, in a non-limiting scenario in which a determined interaction comprises searching for information, the module(s) 658 may operate to perform a search for such information. In such a scenario, the module(s) 658 may, for example, operate to perform such a search in memory of other television system components and/or other networked entities that are remote from the user's local television system (e.g., directly utilizing direct memory access and/or utilizing a search interface provided by a remote entity). For example, the module(s) 658 may operate to perform such a search in such remote entities utilizing the communication module 630 (and first communication interface module 610 and/or second communication interface module 620) to communicate with such remote entities. For example, such remote entities may provide an interface specifically adapted to request and/or search for information stored in and/or accessible to such remote entities. In such a scenario, the module(s) 658 may operate in accordance with such interface.

[0172] In an exemplary scenario, a remote entity may operate in accordance with a protocol in which a requestor requests (via a communication network) information associ-

ated with a particular user-selected object, and the remote entity responds to such a request by communicating the requested information back to the requestor. In such a scenario, the module(s) 658 would operate in accordance with such protocol when interacting with the remote entity via the communication network.

[0173] Additionally for example, in a non-limiting scenario in which a determined interaction comprises interfacing with a user of the television controller 600, the module(s) 658 may operate to utilize the user interface module(s) 640 to provide the user interface.

[0174] For example, in an exemplary scenario in which a determined interaction comprises presenting object information and/or different views of the object to a user, the module(s) 658 may operate to utilize the user interface module(s) 640 to perform such output (e.g., on the optional display 670 of the television controller 600 if such a display 670 is included). Also for example, the module(s) 658 may operate to utilize the communication module 630 (and first communication interface module 610 and/or second communication interface module 620) to communicate with one or more other local television system components (e.g., a television, television receiver, personal computing device or system, etc. coupled to the television controller 600) to provide such information to such one or more other local television system components for presentation on respective output displays of such one or more other local television system components.

[0175] Further for example, in a non-limiting scenario in which a determined interaction comprises establishing and/or managing a communication session between the user and another system entity, the module(s) 658 may operate to utilize the user interface module(s) 640 to provide the user interface and utilize the communication module(s) 630 (and first communication interface module 610 and/or second communication interface module 620) to perform communication link establishment and/or management.

[0176] Still further for example, in a non-limiting scenario in which a determined interaction comprises notifying one or more other television system entities of the user's selection of the user-selected object (e.g., a production enterprise, a distribution enterprise, a rating company, an advertising agency, etc.), the module(s) 658 may operate to utilize the communication module(s) 630 (and first communication interface module 610 and/or second communication interface module 620) to perform such notification.

[0177] Though not illustrated, the exemplary television controller 600 may, for example, comprise one or more modules that operate to perform any or all of the continued processing discussed previously with regard to step 295 of the exemplary method 200 and step 395 of the exemplary method 300, discussed previously. Such modules (e.g., as with the one or more modules 654, 656 and 658) may be performed by the processor(s) 650 executing instructions stored in the memory 660.

[0178] Though the previous discussions of FIGS. 4-6 presented various exemplary modules of a television 400, television receiver 500 and television controller 600, as discussed previously, various aspects of the present invention may be performed in a distributed system (e.g., by a plurality of components of the user's local television system). Accordingly, the scope of various aspects of the present invention should not be limited to performance by a single television system component (or device) unless explicitly claimed.

[0179] Turning next to FIG. 7, such figure is a diagram illustrating exemplary modules and/or sub-modules for a local television system, in accordance with various aspects of the present invention. The exemplary local television system 700 may share any or all aspects with any of the television 400, television receiver 500 and/or television controller 600 illustrated in FIGS. 4-6 and discussed above. The exemplary local television system 700 may, for example, share any or all characteristics with one or more of the exemplary televisions 140 and 141, television controllers 160 and 161, television receiver 151, television provider 110 and/or third party program information provider illustrated in FIG. 1 and discussed previously. Also, the exemplary local television system 700 (e.g., various modules thereof) may operate to perform any or all of the functionality discussed previously with regard to the exemplary methods 200 and 300 illustrated in FIGS. 2-3 and discussed previously. The components of the exemplary local television system 700 may be disposed in a single television system component (e.g., a single television, a single television receiver, a single television controller, etc.) or dispersed in a plurality of television system components (e.g., a plurality of components of a user's local television system, a combination of components comprising one or more components of the user's local television system and one or more components remote to the user's local television system, etc.).

[0180] For example, the local television system 700 comprises a processor 730. Such a processor 730 may, for example, share any or all characteristics with the processors 450, 550 and 650 discussed with regard to FIGS. 4-6. Also for example, the local television system 700 comprises a memory 740. Such memory 740 may, for example, share any or all characteristics with the memory 460, 560 and 660 discussed with regard to FIGS. 4-6.

[0181] Also for example, the local television system 700 may comprise any of a variety of user interface module(s) 750. Such user interface module(s) 750 may, for example, share any or all characteristics with the user interface module(s) 440, 540 and 640 discussed previously with regard to FIGS. 4-6. For example and without limitation, the user interface module(s) 750 may comprise: a display device, a camera (for still or moving picture acquisition), a speaker, an earphone (e.g., wired or wireless), a microphone, a video screen (e.g., a touch screen), a vibrating mechanism, a keypad, and/or any of a variety of other user interface devices (e.g., a mouse, a trackball, a touch pad, touch screen, light pen, game controlling device, etc.).

[0182] The exemplary local television system 700 may also, for example, comprise any of a variety of communication modules (705, 706, and 710). Such communication module(s) may, for example, share any or all characteristics with the communication interface module(s) 410, 420, 510, 520, 610 and 620 discussed previously with regard to FIGS. 4-6. For example and without limitation, the communication interface module(s) 710 may comprise: a Bluetooth interface module; an IEEE 802.11, 802.15, 802.16 and/or 802.20 module; any of a variety of cellular telecommunication interface modules (e.g., GSM/GPRS/EDGE, CDMA/CDMA2000/1X-EV-DO, WCDMA/HSDPA/HSUPA, TDMA/PDC, WiMAX, etc.); any of a variety of position-related communication interface modules (e.g., GPS, A-GPS, etc.); any of a variety of wired/tethered communication interface modules (e.g., USB, Fire Wire, RS-232, HDMI, Ethernet, wireline and/or cable modem, etc.); any of a variety of communication interface modules related to communicating with external memory

devices; etc. The exemplary local television system 700 is also illustrated as comprising various wired 706 and/or wireless 705 front-end modules that may, for example, be included in the communication interface modules and/or utilized thereby.

[0183] The exemplary local television system 700 may also comprise any of a variety of signal processing module(s) 790. Such signal processing module(s) 790 may share any or all characteristics with modules of the exemplary television 400, television receiver 500 and/or television controller 600 that perform signal processing. Such signal processing module(s) 790 may, for example, be utilized to assist in processing various types of information discussed previously (e.g., with regard to sensor processing, position determination, video processing, image processing, audio processing, general user interface information data processing, etc.). For example and without limitation, the signal processing module(s) 790 may comprise: video/graphics processing modules (e.g. MPEG-2, MPEG-4, H.263, H.264, JPEG, TIFF, 3-D, 2-D, MDDI, etc.); audio processing modules (e.g., MP3, AAC, MIDI, QCELP, AMR, CMX, etc.); and/or tactile processing modules (e.g., Keypad I/O, touch screen processing, motor control, etc.).

[0184] In summary, various aspects of the present invention provide a system and method in a distributed television system for responding to user-selection of an object in a television program. While the invention has been described with reference to certain aspects and embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the scope of the invention. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from its scope. Therefore, it is intended that the invention not be limited to the particular embodiment disclosed, but that the invention will include all embodiments falling within the scope of the appended claims.

What is claimed is:

1. A method, in a user's local television system, for responding to user selection of an object in television programming, the method comprising:

in a user's local television system, at least:

- determining an identity of a user-selected object in a television program being presented to a user;
- determining, based at least in part on the determined object identity, one or more interactions in which to engage with an entity remote from the user's local television system; and
- performing the determined one or more interactions.

2. The method of claim 1, wherein the determined one or more interactions comprises acquiring information associated with the identified user-selected object from the remote entity.

3. The method of claim 2, wherein said acquiring information from the remote entity comprises determining a memory address of the remote entity associated with the information, and retrieving the information from the determined memory address.

4. The method of claim 2, wherein said acquiring information from the remote entity comprises determining a network address of the remote entity, and interacting with the remote entity at the determined network address to acquire the information.

5. The method of claim 2, comprising providing a user interface by which the user may control the manner in which the acquired information is presented to the user.

6. The method of claim 1, wherein the determined one or more interactions comprises notifying the remote entity of the selection of the user-selected object.

7. The method of claim 1, wherein the determined one or more interactions comprises establishing a two-way communication session with the remote entity.

8. The method of claim 1, wherein the determined one or more interactions comprises providing a user interface by which the user may control the manner in which the user-selected object is presented to the user.

9. The method of claim 1, comprising:
receiving data associating a user-selectable object in the television program with one or more interactions in which to engage with an entity remote from the user's local television system; and
storing the received data in memory of the user's local television system.

10. The method of claim 9, wherein said storing the received data in memory comprises storing the received data in the memory indexed by object identification.

11. The method of claim 2, wherein said acquiring information comprises determining one or more search terms associated with the identified user-selected object.

12. The method of claim 11, wherein said acquiring information comprises searching, based at least in part on the determined one or more search terms, the remote entity for information associated with the identified user-selected object.

13. The method of claim 1, wherein said interaction determining and said performing are performed in a television.

14. The method of claim 1, wherein said interaction determining and said performing are performed in a set top box.

15. A user's local television system for responding to user selection of an object in television programming, the user's local television system comprising:

- at least one module operable to, at least:
 - determine an identity of a user-selected object in a television program being presented to a user;
 - determine, based at least in part on the determined object identity, one or more interactions in which to engage with an entity remote from the user's local television system; and
- perform the determined one or more interactions.

16. The television system of claim 15, wherein the determined one or more interactions comprises acquiring information associated with the identified user-selected object from the remote entity.

17. The television system of claim 16, wherein said at least one module is operable to acquire information associated with the identified user-selected object from the remote entity by, at least in part, operating to determine a memory address

of the remote entity associated with the information and retrieve the information from the determined memory address.

18. The television system of claim 16, wherein said at least one module is operable to acquire information associated with the identified user-selected object from the remote entity by, at least in part, operating to determine a network address of the remote entity and interact with the remote entity at the determined network address to acquire the information.

19. The television system of claim 16, wherein said at least one module is operable to provide a user interface by which the user may control the manner in which the acquired information is presented to the user.

20. The television system of claim 15, wherein the determined one or more interactions comprises notifying the remote entity of the selection of the user-selected object.

21. The television system of claim 15, wherein the determined one or more interactions comprises establishing a two-way communication session with the remote entity.

22. The television system of claim 15, wherein the determined one or more interactions comprises providing a user interface by which the user may control the manner in which the user-selected object is presented to the user.

23. The television system of claim 15, wherein said at least one module is operable to:

- receive data associating a user-selectable object in the television program with one or more interactions in which to engage with an entity remote from the user's local television system; and
- store the received data in memory of the user's local television system.

24. The television system of claim 23, wherein said at least one module is operable to store the received data in memory by, at least in part, operating to store the received data in the memory indexed by object identification.

25. The television system of claim 16, wherein said at least one module is operable to acquire information associated with the identified user-selected object from the remote entity by, at least in part, operating to determine one or more search terms associated with the identified user-selected object.

26. The television system of claim 25, wherein said at least one module is operable to acquire information associated with the identified user-selected object from the remote entity by, at least in part, operating to search, based at least in part on the determined one or more search terms, the remote entity for information associated with the identified user-selected object.

27. The television system of claim 15, wherein said at least one module operable to determine one or more interactions and operable to perform the determined one or more interactions are located in a television.

28. The television system of claim 15, wherein said at least one module operable to determine one or more interactions and operable to perform the determined one or more interactions are located in a set top box.

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