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(12) **United States Patent**
Humpleman et al.

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(45) **Date of Patent:** ***May 9, 2006**

(54) **METHOD AND APPARATUS FOR UNIVERSALLY ACCESSIBLE COMMAND AND CONTROL INFORMATION IN A NETWORK**

5,347,304 A 9/1994 Moura et al.
5,387,927 A 2/1995 Look et al.
5,389,963 A 2/1995 Lepley et al.

(Continued)

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FOREIGN PATENT DOCUMENTS

EP 84110755.0 9/1984

(Continued)

(73) Assignee: **Samsung Electronics Co., Ltd.**, Suwon (KR)

OTHER PUBLICATIONS

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

Evans , G. "Solving home automation problems using artificial intelligence techniques", IEEE Trans. on Consumer Electronics, pp. 395-400, Aug. 1991.*

(Continued)

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(21) Appl. No.: **09/307,004**

(22) Filed: **May 7, 1999**

(57) **ABSTRACT**

Related U.S. Application Data

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(51) **Int. Cl.**
G06F 15/173 (2006.01)
G06F 15/16 (2006.01)

(52) **U.S. Cl.** **709/208; 709/223**

(58) **Field of Classification Search** **709/223, 709/208, 328, 227; 345/329, 733, 734; 707/102; 715/733, 734; 719/317, 328**

See application file for complete search history.

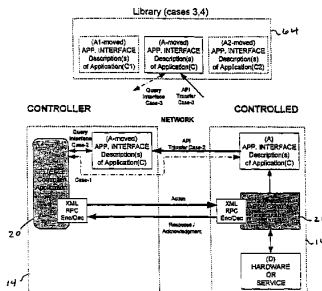
A method and system for performing a service on a home network, by: connecting a first and a second home device to the home network; providing a database including a plurality of application interface description data objects, where each application interface description data object includes information in a structured format for commanding and controlling of a home device by one or more other home devices connected to the network; the second home device accessing a first application interface description object for the first home device in the database; the first home device accessing a second application interface description object for the second home device in the database; sending control and command data from the first home device to the second home device utilizing the second application interface description object over the network; and sending control and command data from the second home device to the first home device utilizing the first application interface description object over the network. Whereby, the first and second home devices perform said service.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,031,543 A 6/1977 Holz
4,860,006 A 8/1989 Barall
5,249,043 A 9/1993 Grandmougin
5,257,366 A * 10/1993 Adair et al. 707/4
5,293,635 A 3/1994 Faulk, Jr. et al.

27 Claims, 14 Drawing Sheets



Case 1. XML Application-C INTERFACE (A) for remote query by (E)
Case 2. Move XML Application-C INTERFACE (A) to controller for local query by (E)
Case 3. Move XML Application-C INTERFACE (A) to 3rd party device—a collecting place (Library) for all interfaces for remote query by (E). The library would have to have the address (URL) of the associated application available for direct control action and responses.
Case 4. is case 3 but the "indirect" control action (and response) is also directed at the library device, in this case the library is built with a "forwarder".

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U.S. PATENT DOCUMENTS

5,392,033 A 2/1995 Oman et al.
 5,452,291 A 9/1995 Eisenhandler et al.
 5,488,412 A 1/1996 Majeti et al.
 5,495,561 A * 2/1996 Holt 358/1.15
 5,526,483 A * 6/1996 French et al. 714/4
 5,546,484 A 8/1996 Fling et al.
 5,561,709 A 10/1996 Remillard et al.
 5,570,085 A * 10/1996 Bertsch 340/3.54
 5,572,643 A 11/1996 Judson
 5,579,308 A 11/1996 Humpleman
 5,596,702 A * 1/1997 Stucka et al. 345/746
 5,612,730 A 3/1997 Lewis
 5,636,211 A * 6/1997 Newlin et al. 370/465
 5,657,221 A * 8/1997 Warman et al. 700/83
 5,740,362 A * 4/1998 Buickel et al. 709/201
 5,778,226 A * 7/1998 Adams et al. 709/311
 5,790,789 A * 8/1998 Suarez 709/202
 5,826,000 A 10/1998 Hamilton
 5,860,010 A * 1/1999 Attal 717/137
 5,864,669 A * 1/1999 Osterman et al. 709/203
 5,886,732 A 3/1999 Humpleman
 5,909,183 A * 6/1999 Borgstahl et al. 340/825.22
 5,940,072 A 8/1999 Jahanghir et al.
 5,940,387 A 8/1999 Humpleman
 5,953,526 A * 9/1999 Day et al. 717/108
 5,956,487 A * 9/1999 Venkatraman et al. 709/218
 6,005,861 A 12/1999 Humpleman
 6,020,924 A 2/2000 Jahanghir
 6,032,202 A * 2/2000 Lea et al. 710/8
 6,037,933 A 3/2000 Blonstein et al.
 6,052,750 A 4/2000 Lea et al.
 6,078,783 A 6/2000 Kawamura et al.
 6,085,236 A 7/2000 Lea
 6,101,499 A 8/2000 Ford et al.
 6,128,619 A * 10/2000 Fogarasi et al. 707/102
 6,134,594 A * 10/2000 Helland et al. 709/229
 6,151,624 A * 11/2000 Teare et al. 709/217
 6,175,362 B1 1/2001 Harms et al.
 6,181,333 B1 1/2001 Chaney et al.
 6,182,094 B1 1/2001 Humpleman et al.
 6,188,397 B1 2/2001 Humpleman
 6,189,019 B1 * 2/2001 Blumer et al. 707/513
 6,191,781 B1 2/2001 Chaney et al.
 6,198,479 B1 * 3/2001 Humpleman et al. 345/733
 6,288,716 B1 * 9/2001 Humpleman et al. 345/733
 6,349,352 B1 * 2/2002 Lea 710/72

6,466,971 B1 * 10/2002 Humpleman et al. 709/220
 6,539,422 B1 * 3/2003 Hunt et al. 709/217
 6,546,419 B1 * 4/2003 Humpleman et al. 709/223
 6,560,639 B1 * 5/2003 Dan et al. 709/218
 6,618,764 B1 * 9/2003 Shteyn 709/249

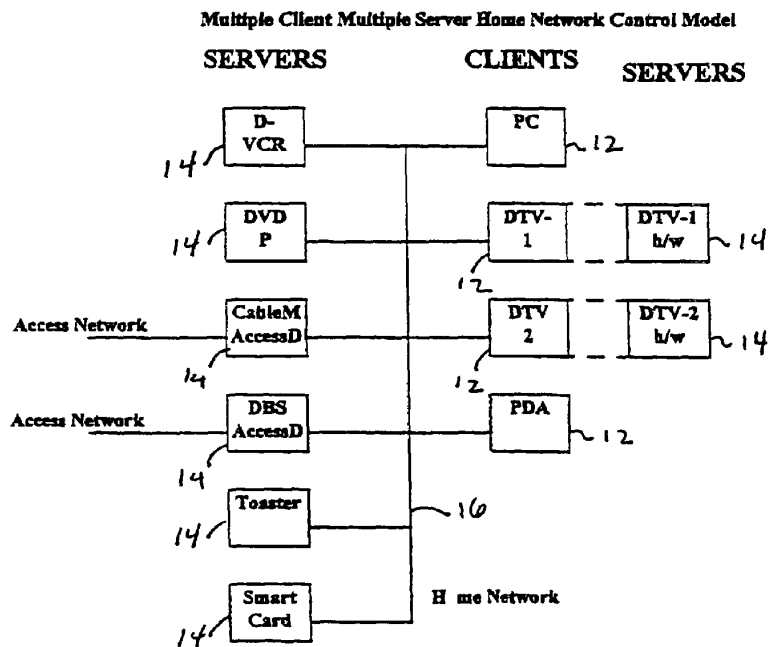
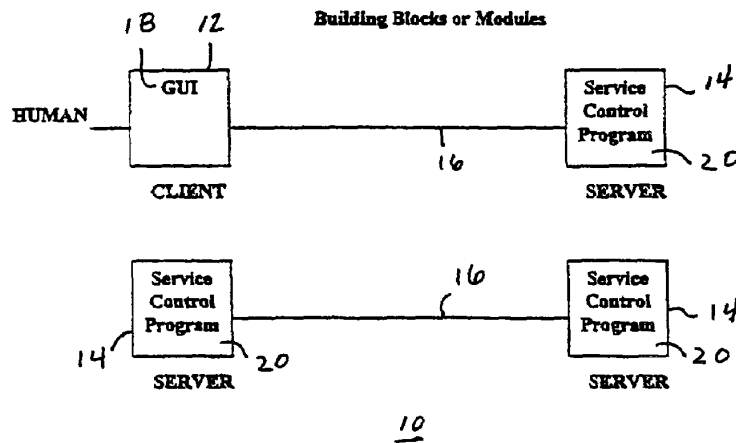
FOREIGN PATENT DOCUMENTS

EP 90305213.2 5/1990
 EP 91401245.5 5/1991
 EP 96304706.3 6/1996
 EP 96306507.3 9/1996
 EP 96307200.4 9/1996
 EP 96116873.9 10/1996
 EP 97100356.1 1/1997
 EP 97117812.4 10/1997
 JP 9-261355 10/1997
 JP 9-282263 10/1997
 JP 10-145773 5/1998
 JP 11-88406 3/1999
 JP 11-194987 7/1999
 JP 11-317756 11/1999
 JP 11-355294 12/1999
 JP 11-355357 12/1999
 WO PCT/EP95/00191 1/1995
 WO PCT/US95/00354 11/1995
 WO PCT/US95/17108 12/1995
 WO PCT/US96/18798 11/1996
 WO PCT/US97/08490 5/1997

OTHER PUBLICATIONS

Deng, Shuang "Capture effect in residential Ethernet LAN", IEEE GLOBEC, ISBN: 0-7803-2509-5, pp. 1678-1682, Nov. 1995.*
 Kokubun, T. et al. "Object-oriented database system with GIS for optical cable network operation", IEEE GLOBEC, ISBN: 0-7803-3336-5, pp. 1521-1527, Nov. 1996.*
 Corcoran, P.M. et al. "Browser-style interfaces to a home automation network", IEEE Trans. on Consumer Electronics, pp. 1063-1069, Jun. 1997.*
 Corcoran, P.M. "Mapping home-network appliances to TCP/IP sockets using three-tiered home architecture", IEEE Trans on Consumer Electronics, pp. 729-736, Jun. 1998.*

* cited by examiner



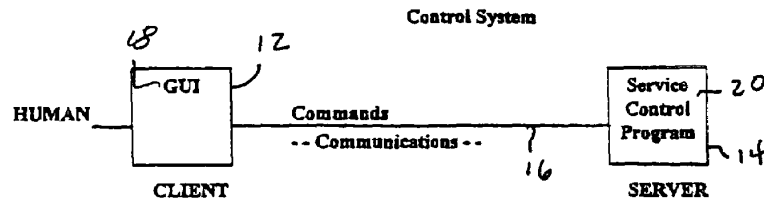
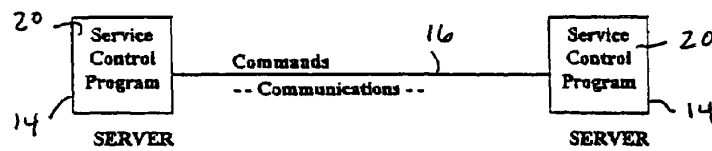


FIG. 2



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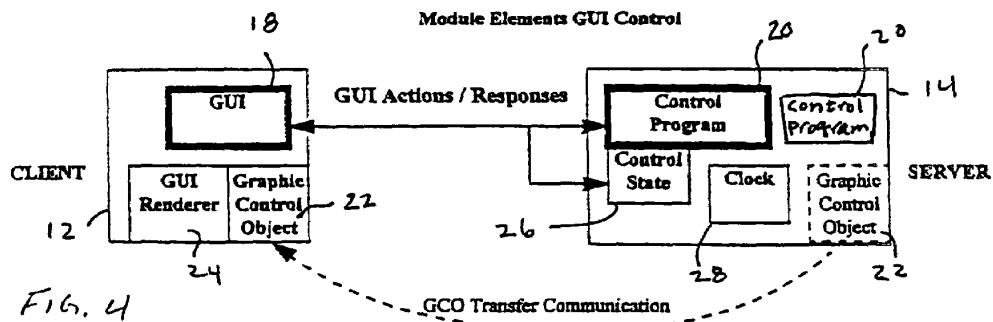


FIG. 4

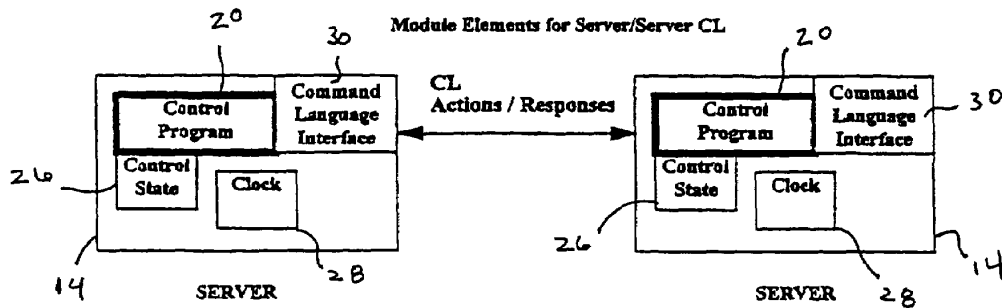
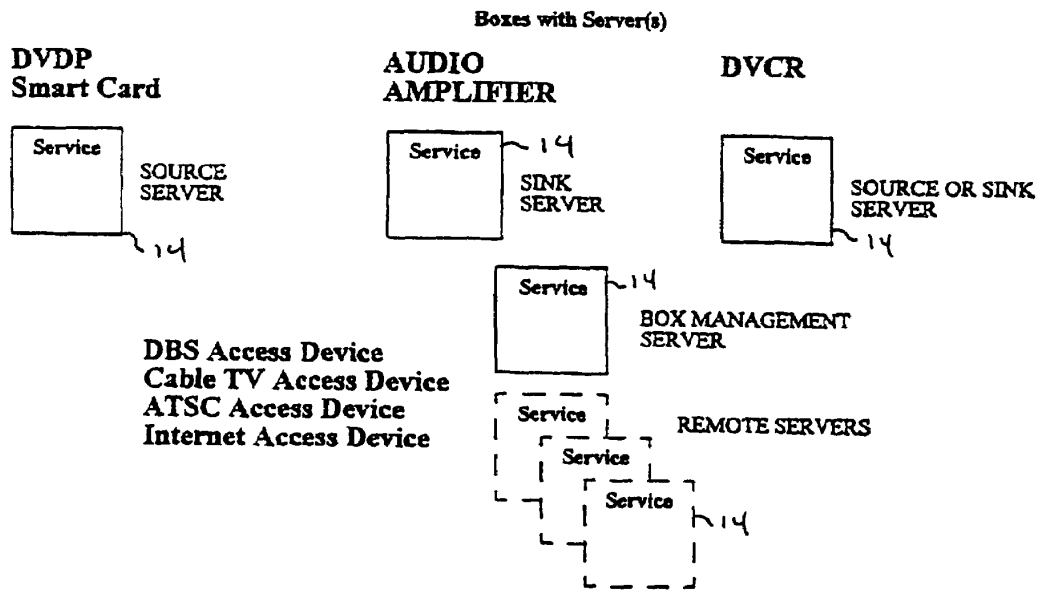
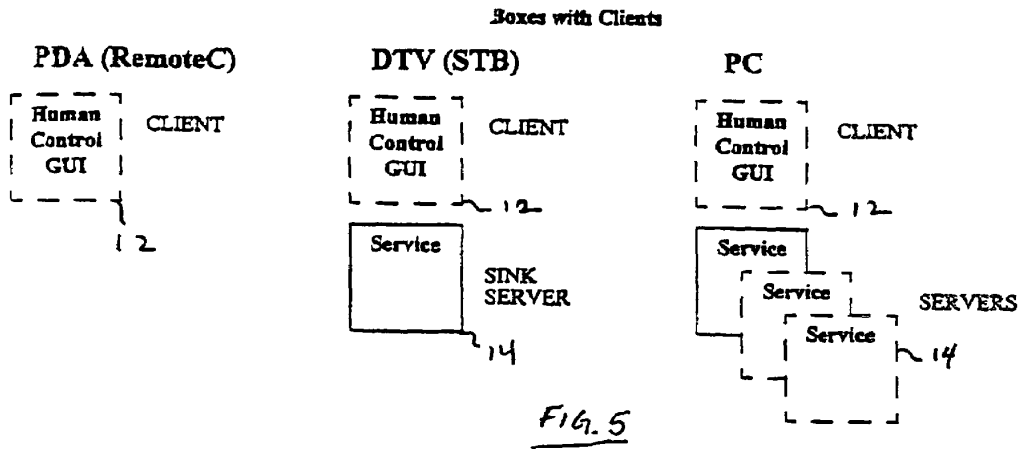


FIG. 7



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