

US006779185B1

(10) Patent No.:

(45) Date of Patent:

US 6,779,185 B1

Aug. 17, 2004

(12) United States Patent

Roukbi et al.

(54) BLUETOOTH MINIPORT DRIVER MODEL

- (75) Inventors: Husni Roukbi, Seattle, WA (US); Louis J. Giliberto, Redmond, WA (US); Doron J. Holan, Seattle, WA (US); Kenneth D. Ray, Redmond, WA (US)
- (73) Assignce: Microsoft Corporation, Redmond, WA (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 576 days.
- (21) Appl. No.: 09/587,749
- (22) Filed: Jun. 5, 2000

Related U.S. Application Data

- (63) Continuation-in-part of application No. 09/556,568, filed on Apr. 24, 2000.
- (51) Int. Cl.⁷ G06F 3/00; G06F 9/44;
- G06F 9/46; G06F 13/00
- (58) Field of Search 709/321, 327

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,219,707 B1 * 4/2001 Gooderum et al. 709/225 6,470,397 B1 * 10/2002 Shah et al. 709/250

OTHER PUBLICATIONS

Tomlinson, Plug and Play, Windows Developer's Journal, Dec. 1995, pp. 1–6.*

Microsoft, Plug and Play for Windows NT 5.0, 1997, pp. 1–14.*

Cant, Windows Driver Model (WDM) Device Drivers, EXE Magazine, Jan. 1999.*

Udell, Windows NT Up Close: An in-depth look at Microsoft's next-generation operating system, 1996, McGraw-Hill.*

Specification of the Bluetooth System, v.1.0B, Dec. 1, 1999. Riku Mettala et al., *Bluetooth Protocol Architecture* (White Paper), v1.0, Nokia Mobile Phones, Sep. 29, 1999.

Brent Miller et al., *Mapping Salutation Architecture APIs to Bluetooth Service Discovery Layer* (White Paper), v. 1.0, IBM Corporation, Jul. 1, 1999.

IEEE Standard, 802.11, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, 1st Ed. 1999, and Supplements 802.11a–1999 and 802.11b–1999.

Bob O'Hara and Al Petrick, *IEEE 802.11 Handbook A Designer's Companion*, Dec. 1999.

Pat Megowan et al., *IrDA Object Exchange Protocol*, v1.2, Counterpoint Systems Foundry, Inc. Microsoft Corporation, Mar. 18, 1999.

Universal Plug and Play Device Architecture, v1.0, Microsoft Corporation, Jun. 8, 2000.

Golden G. Richard III, "Service Advertisement and Discovery: Enabling Universal Device Cooperation," http://computer.org/internet/, Sep.–Oct. 2000.

ETSI TS 101 369 v7.1.0 (Nov. 1999), Digital Cellular Telecommunications System (Phase 2+); Terminal Equipment to Mobile Station (TE–MS) Multiplexer Protocol, Global System for Mobile Communications (GSM 07.10 v7.1.0 Release 1998).

* cited by examiner

Primary Examiner-Meng-Al T. An

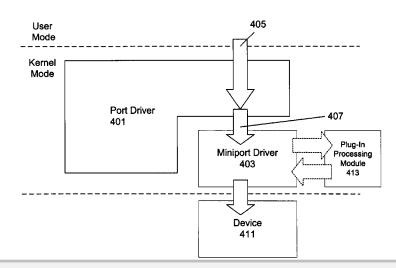
Assistant Examiner—Diem Cao

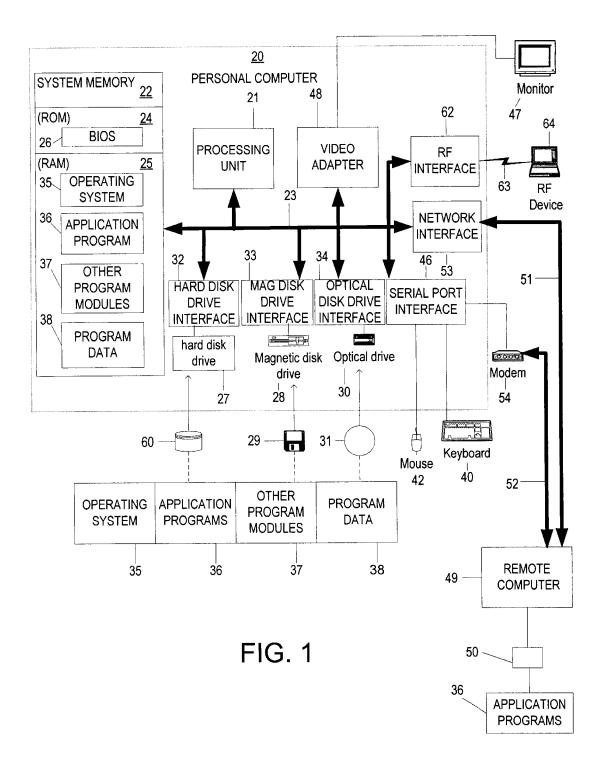
(74) Attorney, Agent, or Firm-Leydig, Voit & Mayer, Ltd.

(57) ABSTRACT

A system and method of Bluetooth compliant architecture and communication uses a miniport driver structure to efficiently implement the Bluetooth protocol layers, while allowing simple communication with underlying hardware.

20 Claims, 8 Drawing Sheets





Δ

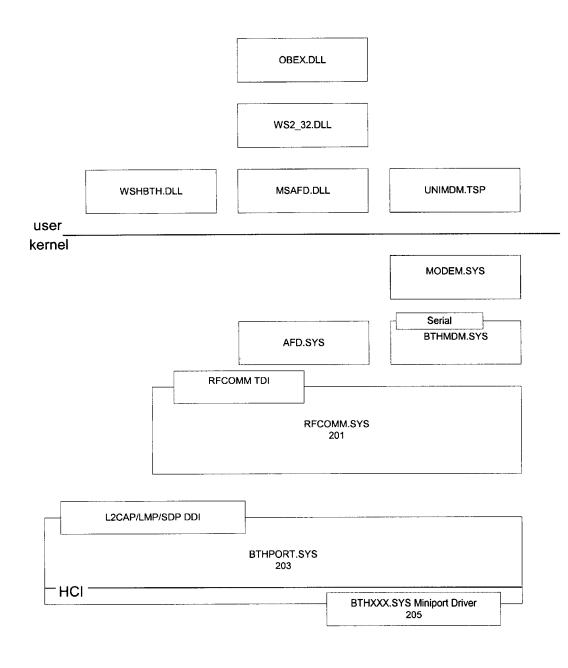


FIG. 2

DOCKE

Δ

R

M

Δ

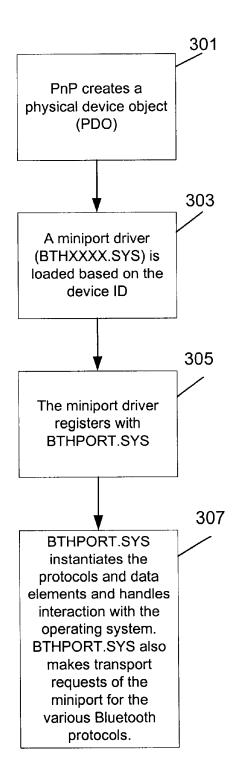


FIG. 3

Find authenticated court documents without watermarks at docketalarm.com.

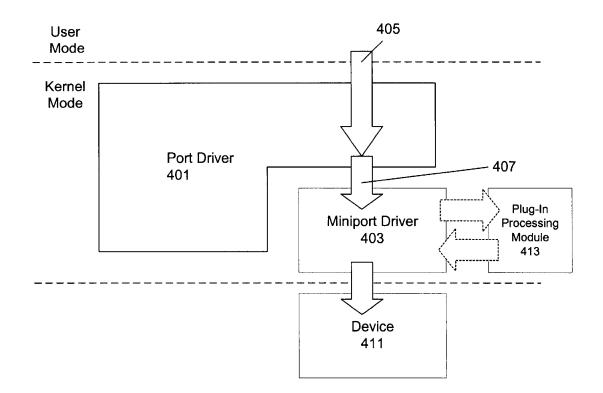


FIG. 4

DOCKET A L A R M Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

DOCKET A L A R M



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.