

(12) **United States Patent**
Quy

(10) **Patent No.:** **US 6,602,191 B2**
(45) **Date of Patent:** **Aug. 5, 2003**

(54) **METHOD AND APPARATUS FOR HEALTH AND DISEASE MANAGEMENT COMBINING PATIENT DATA MONITORING WITH WIRELESS INTERNET CONNECTIVITY**

(75) Inventor: **Roger J. Quy**, Mill Valley, CA (US)

(73) Assignee: **Q-tec Systems LLP**, Wilmington, DE (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 199 days.

(21) Appl. No.: **09/738,270**

(22) Filed: **Dec. 15, 2000**

(65) **Prior Publication Data**

US 2001/0047125 A1 Nov. 29, 2001

Related U.S. Application Data

(60) Provisional application No. 60/172,486, filed on Dec. 17, 1999.

(51) **Int. Cl.**⁷ **A61B 5/00**

(52) **U.S. Cl.** **600/300**; 128/903; 128/904; 128/923

(58) **Field of Search** 600/300, 301, 600/345, 365, 481, 483, 485, 509, 529; 607/27, 30, 31, 32, 60; 128/902, 903, 904, 905, 920, 923, 924; 709/204, 205, 230, 238, 245, 246; 705/2, 3; 707/6

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 4,282,883 A 8/1981 Yerushalmy
- 5,307,263 A 4/1994 Brown
- 5,357,427 A * 10/1994 Langen et al. 600/300
- 5,544,661 A 8/1996 Davis et al.
- 5,549,117 A 8/1996 Tacklind et al.
- 5,601,435 A * 2/1997 Quy 434/307 R
- 5,626,144 A 5/1997 Tacklind et al.

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

| | | |
|----|-------------|---------|
| WO | WO 95/32480 | 11/1995 |
| WO | WO 97/28736 | 8/1997 |
| WO | OW 97/28737 | 8/1997 |
| WO | WO 98/24358 | 6/1998 |
| WO | WO 98/38909 | 9/1998 |
| WO | WO 99/04687 | 2/1999 |
| WO | WO 99/14882 | 3/1999 |
| WO | WO 99/41682 | 8/1999 |
| WO | WO 99/44494 | 9/1999 |
| WO | WO 99/46718 | 9/1999 |
| WO | WO 00/36900 | 6/2000 |
| WO | WO 00/40145 | 7/2000 |
| WO | WO 00/54205 | 9/2000 |
| WO | WO 00/54206 | 9/2000 |
| WO | WO 00/62662 | 10/2000 |

OTHER PUBLICATIONS

EFI Framework Draft Version 0.8 (Jun. 3, 2000); External Functionality Interface Framework; pp. 1-35, Jun. 3, 2000. Internet press release: New York Business Wire (Sep. 25, 2000); MedSearch Technologies, Inc. Develops a Revolutionary Home-Care Wireless Technology Utilizing PDAs Personal Organizers-as Patient Monitors.

(List continued on next page.)

Primary Examiner—Willis R. Wolfe

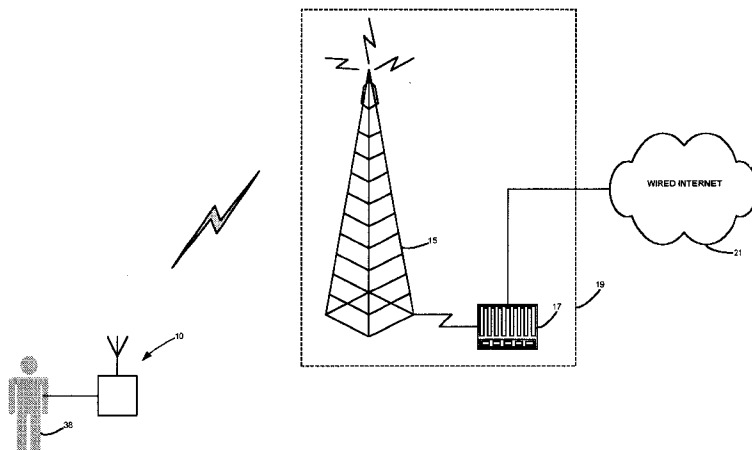
(74) *Attorney, Agent, or Firm*—Mark D. Wiczorek

(57)

ABSTRACT

A method and apparatus for a wireless health monitoring system for interactively monitoring a disease or health condition of a patient by connecting an internet-enabled wireless web device ("WWD") to a health monitoring device which may be a medical device or other health related device. The WWD may be connected to the health monitoring device directly by a wired connection to a generic input/output port of the WWD or wirelessly connected to the health monitoring device, such as via an infrared or radio frequency connection. The health related data is transmitted from the WWD to a server using standard internet protocols. The server calculates a response using a software program while providing for review by a physician or health specialist. The user may interact with the server, for example, the server transmits a response to the WWD and the user may answer the response or provide other information.

105 Claims, 8 Drawing Sheets



U.S. PATENT DOCUMENTS

| | | | | |
|--------------|------|---------|------------------|-----------|
| 5,678,562 | A | 10/1997 | Sellers | |
| 5,704,366 | A | 1/1998 | Tacklind et al. | |
| 5,724,025 | A | 3/1998 | Tavori | |
| 5,732,709 | A | 3/1998 | Tacklind et al. | |
| 5,735,285 | A | 4/1998 | Albert et al. | |
| 5,752,917 | A | 5/1998 | Fuchs | |
| 5,772,586 | A * | 6/1998 | Heinonen et al. | 600/300 |
| 5,791,342 | A | 8/1998 | Woodard | |
| 5,933,136 | A | 8/1999 | Brown | |
| 5,935,060 | A | 8/1999 | Iliff | |
| 5,951,300 | A | 9/1999 | Brown | |
| 5,964,701 | A | 10/1999 | Asada et al. | |
| 5,987,519 | A | 11/1999 | Peifer et al. | |
| 5,997,476 | A | 12/1999 | Brown | |
| 6,022,315 | A | 2/2000 | Iliff | |
| 6,055,506 | A | 4/2000 | Frasca, Jr. | |
| 6,057,758 | A | 5/2000 | Dempsey et al. | |
| 6,059,692 | A | 5/2000 | Hickman | |
| 6,083,156 | A | 7/2000 | Lisiecki | |
| 6,101,478 | A | 8/2000 | Brown | |
| 6,144,837 | A * | 11/2000 | Quy | 434/307 R |
| 6,168,563 | B1 | 1/2001 | Brown | |
| 6,319,199 | B1 * | 11/2001 | Sheehan et al. | 600/300 |
| 6,336,900 | B1 * | 1/2002 | Alleckson et al. | 600/300 |
| 6,416,471 | B1 * | 7/2002 | Kumar et al. | 600/300 |
| 6,440,068 | B1 * | 8/2002 | Brown et al. | 600/300 |
| 6,450,955 | B1 * | 9/2002 | Brown et al. | 600/300 |
| 6,458,080 | B1 * | 10/2002 | Brown et al. | 600/300 |
| 2002/0019584 | A1 * | 2/2002 | Schulze et al. | 600/300 |

OTHER PUBLICATIONS

Jyrki Oraskari; "Bluetooth versus WLAN IEEE 802.1x"; Helsinki University of Technology (Department of Computer Science and Engineering) Nov., 2000.

Jack Smith; "Your Personal Health Buddy"; ABCNews.com; <http://abcnews.go.com/sections/tech/Cuttingedge/cuttingedge990225.html>; 3 pages; Nov. 24, 2000.

"The Health Hero Communications Platform"; The Health Hero Network Online Services; <http://www.hhn.com/products/index.html>; 2 pages; Nov. 24, 2000.

"Painless Blood-Glucose Monitoring"; Kumetrix Technology Overview; <http://www.kumetrix.com/technology.html>; 2 pages; Nov. 24, 2000.

"Technology & Clinical Results—Simple Solutions Through Technology—Progression of Glucose Monitoring Technology"; Amira; http://www.amira.com/tech/tc_tech.htm; 2 pages; Nov. 24, 2000.

"Wired for Wellness"; LifeChart.com; <http://www.lifechart.com>; 2 pages; Nov. 24, 2000.

"About Data Critical Corporation"; Yahoo—Data Critical to provide Mallinckrodt with Wireless Connectivity for Ventilators; <http://biz.yahoo.com/prnews/001012/mo.mallinc.html>; 1 page; Nov. 24, 2000.

"Bluetooth wireless technology—bridging the gap between computing and communication"; Bluetooth Technology; <http://www.intell.com/mobile/bluetooth/>; 2 pages; Nov. 28, 2000.

"Bluetooth resource center"; "What is Bluetooth?"; palowireless.com; <http://www.palowireless.com/infotooth/whatis.asp>; 3 pages; Nov. 28, 2000.

"Bluetooth Tutorial"; palowireless.com—bluetooth resource center; <http://www.palowireless.com/infotooth/tutorial/tutorial.asp>; 4 pages; Nov. 28, 2000.

"Bluetooth Profiles"; palowireless.com—bluetooth resource center; <http://www.palowireless.com/infotooth/tutorial/profiles.asp>; 4 pages; Nov. 28, 2000.

Nick Hunt; "Bluetooth Versus 802.11"; TDK Systems; http://www.cellular.co.za/bluetooth_versus_802.htm; 4 pages; Nov. 28, 2000.

"Bluetooth vs. Airport (802.11 Network)"; palowireless.com—bluetooth resource center; <http://www.palowireless.com/infotooth/knowledge/othernetworks/15.asp>; 3 pages; Nov. 28, 2000.

"Personal Digital Assistants—A2 Anytime/Anywhere—A Weekly on Wireless Infrastructure and Data Services"; Thomas Weisel Partners (Merchant Banking); 5 pages; Nov. 29, 2000.

Ashlee Vance; "Ericsson and Intel make Bluetooth pact"; InfoWorld.com; <http://www2.infoworld.com/articles/hn/xml/00/12/04/001204hnericintel.xml?T.../printarticle.htm>; 1 page; Dec. 4, 2000.

"Personal Portable Office"; Nokia 9000il digital; <http://www.nokiausa.com/9000il>; 4 pages; Dec. 7, 2000.

Pui-Wing Tam, "Handspring Hopes"; Article from The Wall Street Journal; Section B (Nov. 2000).

Author Unknown; Articles on Phones and New Technologies; Article from The Wall Street Journal; (Nov. 2000).

David Pringle, "Sagem to Launch Hand-held Computer that Doubles as Top-End Mobile Phone"; Article from The Wall Street Journal; (Nov. 2000).

* cited by examiner

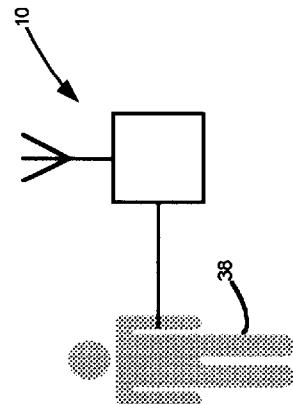
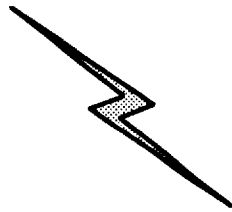
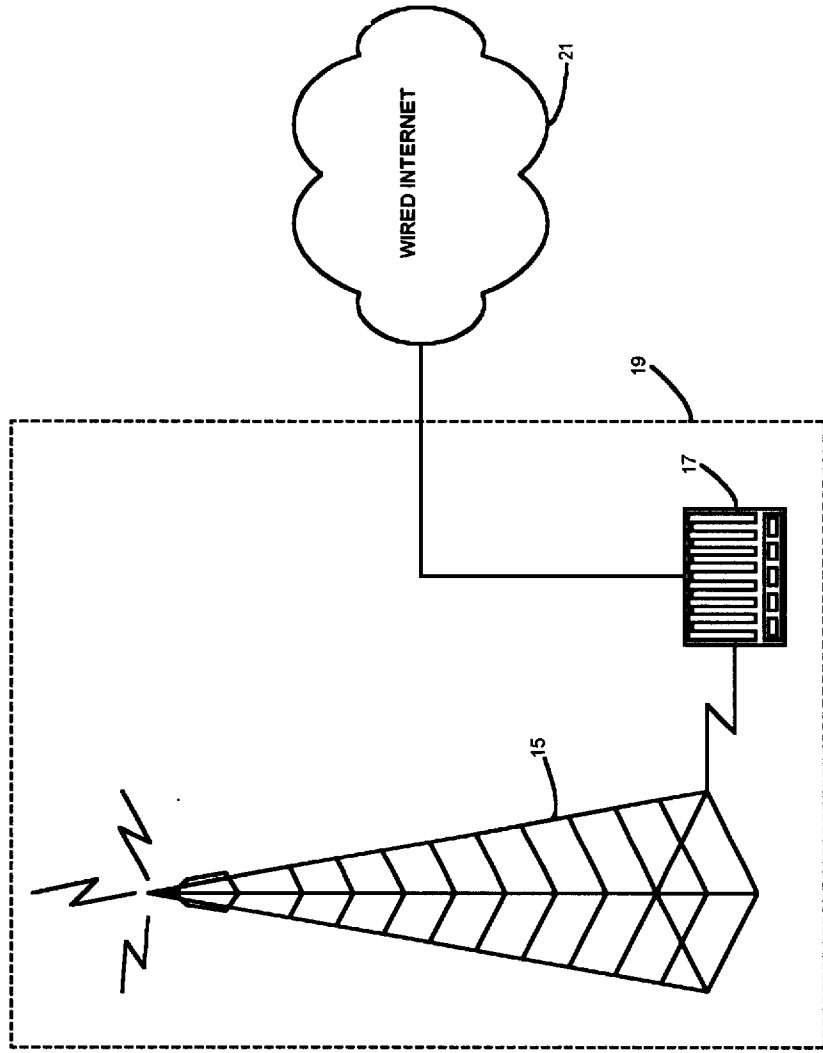


FIG. 1

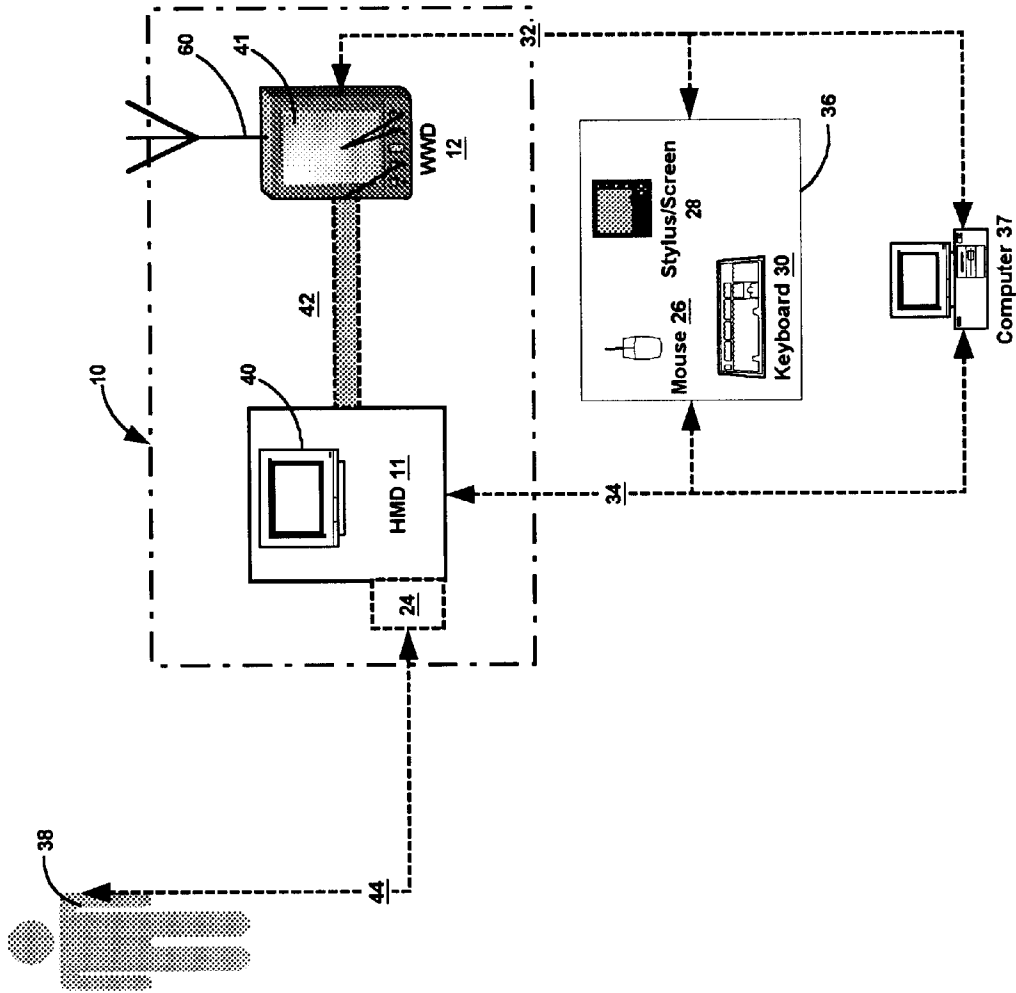


FIG. 2

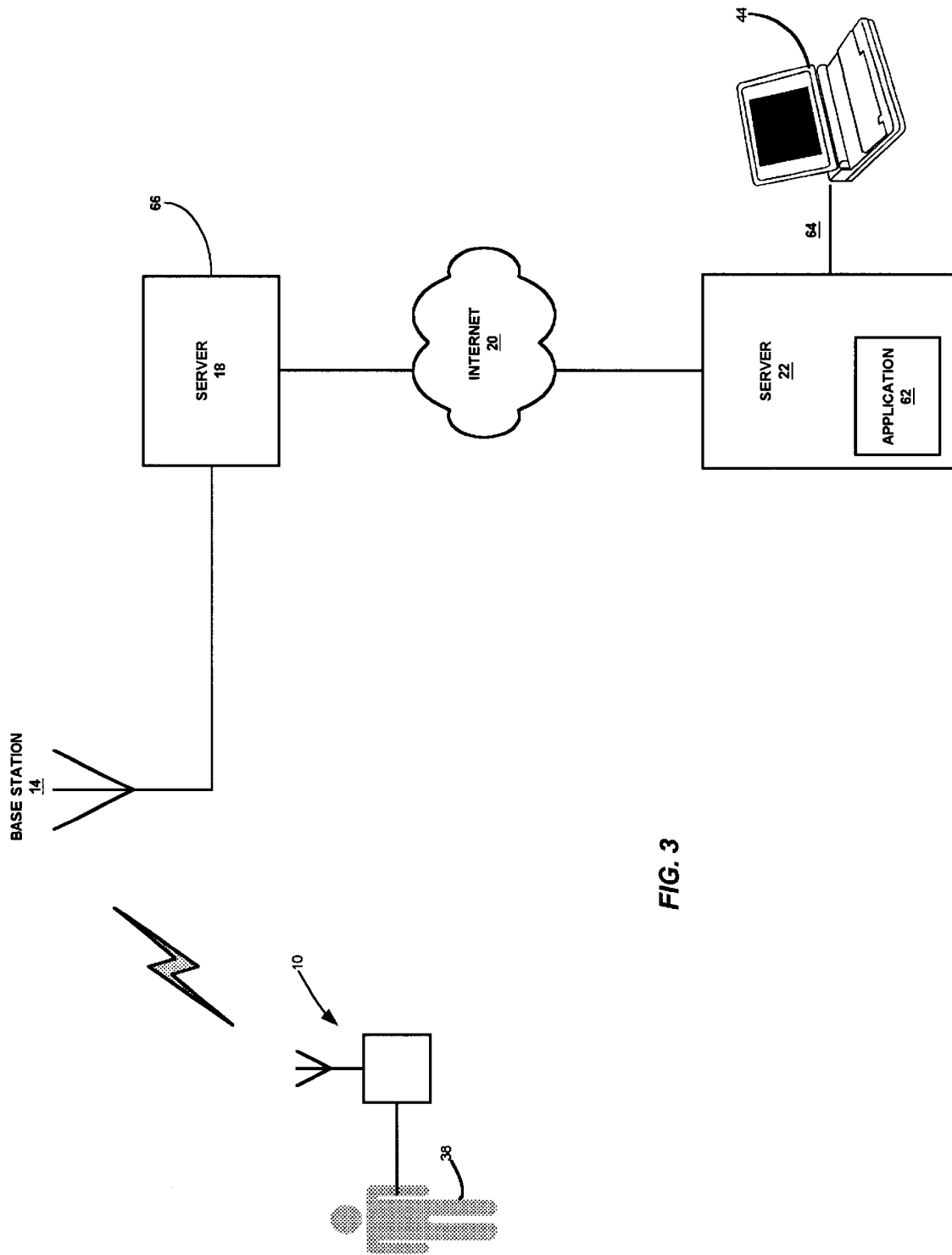


FIG. 3

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.