

US007363129B1

(12) United States Patent

Barnicle et al.

IAT

(10) Patent No.: US 7,363,129 B1 (45) Date of Patent: Apr. 22, 2008

(54) APPARATUS, SYSTEM AND METHOD THAT INTERFACES WITH AN AUTOMOBILE ENGINE CONTROL UNIT

(75) Inventors: **Daniel Barnicle**, San Luis Obispo, CA (US); **Joseph A. Mancuso**, Santa Maria, CA (US); **Peter J. Ryan**, Arroyo

Grande, CA (US)

(73) Assignee: Moon Valley Software, Arroyo Grande,

CA (US)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 11/620,633

(22) Filed: Jan. 5, 2007

(51) **Int. Cl.**

G01M 17/00 (2006.01) G05D 1/00 (2006.01)

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

6,687,584	B2	2/2004	Andreasen et al.
7,089,099	B2 *	8/2006	Shostak et al 701/32
7,103,460	B1 *	9/2006	Breed 701/29
RE39,619	E	5/2007	Andreasen et al.
2002/0133273	A1	9/2002	Lowrey et al.
2003/0231118	A1	12/2003	Kitson
2004/0024502	A1*	2/2004	Squires et al 701/33
2005/0119809	A1	6/2005	Chen

2005/0192727 A1*	9/2005	Shostak et al 701/37
2005/0207936 A1*	9/2005	Berryhill et al 422/63
2005/0216145 A1*	9/2005	Bellinger et al 701/29
2006/0090077 A1*	4/2006	Little et al 713/184

OTHER PUBLICATIONS

Air Logic Co., Ltd., "Bluetooth Module Application Note," Class 1, Bluetooth Module Production Information Data Sheet, Aug. 2004, 9 pages.

Elm Electronics, "ELM327 OBD to RS232 Interpreter," (Quick Summary), www.elmelectronics.com, Copyright 2005, 5 pages. Elm Electronics, "ELM327 OBD to RS232 Interpreter,"(Data Sheet), www.elmelectronics.com, Copyright 2005, 43 pages. Microchip Technology Inc., "PIC18FXX8 Data Sheet," 28/40-Pin

Microchip Technology Inc., "PIC18FXX8 Data Sheet," 28/40-Pin High-Performance, Enhanced Flash Microcontrollers with CAN Module, Aug. 29, 2006, pp. 1-200. Microchip Technology Inc., "PIC18FXX8 Data Sheet," 28/40-Pin

Microchip Technology Inc., "PIC18FXX8 Data Sheet," 28/40-Pin High-Performance, Enhanced Flash Microcontrollers with CAN Module, Aug. 29, 2006, pp. 201-402.

IDSC Holdings, LLC. "PN 125033 Blue-Link?", Nexiq Technologies, http://www.nexiq.com/catalog/product_detail.asp?GID=6 &item_Id=8, Copyright 2007, printed May 11, 2007, 2 pages.

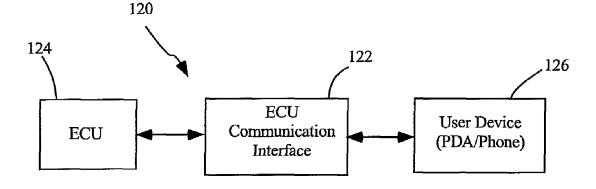
(Continued)

Primary Examiner—John T. Kwon (74) Attorney, Agent, or Firm—Thomas F. Lebens; Sinshelmer Juhnke Lebens & McIvor, LLP

(57) ABSTRACT

The present embodiments provide methods, apparatuses, and systems that interface with automobile Engine Control Units (ECU). In some embodiments, methods are provided that communicate with an ECU by establishing a wireless communication link with a remote device, coupling with an ECU, pairing the remote device with the ECU, identifying a protocol to communicate with the ECU, and transferring communications between the remote device and the ECU.

17 Claims, 18 Drawing Sheets





OTHER PUBLICATIONS

Davis, "CarChip All-in-one Driving and Engine Performance Monitor," Davis Automotive, http://www.davisnet.com/drive/products/carchip.asp, printed May 11, 2007, 3 pages.

Performance Scan, LLC., "Digimoto 5.0 DigiScan Bluetooth Pack-

Performance Scan, LLC., "Digimoto 5.0 DigiScan Bluetooth Package," Digimoto, http://www.digimoto.com/shop/pc-25-4-digimoto-50-digiscan-bluetooth-package.aspx, Copyright 2006, printed May 11, 2007, 1 page.

Carmd.com Corporation, "About the Product—How to Use," CarMD.com, http://www.carmd.com/AboutTheProduct/HowToUse.aspx, Copyright 2005-2007, printed May 8, 2007, 2 pages.

Autoenginuity, LLC, "OBD 2 Scan Tool—Professional PC and PDA Diagnostics," http://www.autoenginuity.com/index.html, Copyright 2003-2007, printed May 8, 2007, 2 pages.

Vital Engineering Limited, "The Car-Pal OBD-II Vehicle Interface Unit," http://www.vitalengineering.co.uk, Copyright 2006, printed May 7, 2007, 3 pages.

KBM Systems Ltd., "OBDKey Product Range:: OBD Bluetooth," http://obdkey.com/obd_bluetooth_info.asp?, Copyright 2007, printed May 7, 2007, 2 pages.

Carcheckup LLC, "Know Before You Go!" http://www.carcheckup.com/, Copyright 2002-2007,printed May 8, 2007, 2 pages.

Scantool.net, "ElmScan 5 Wireless," http://www.scantool.net/products/product_info.php?cPath=8_6&product_id=37, printed May 8, 2007, 1 page.

Burger, Guido, "Bluetooth Project Based on OBD-2 Chipset," www.blueobd.com/, Copyright 2007-2007, printed May 8, 2007, 3 pages.

I+ME ACTIA, "Blue XS Prototype," www.ime-actia.com, printed May 14, 2007, 2 pages.

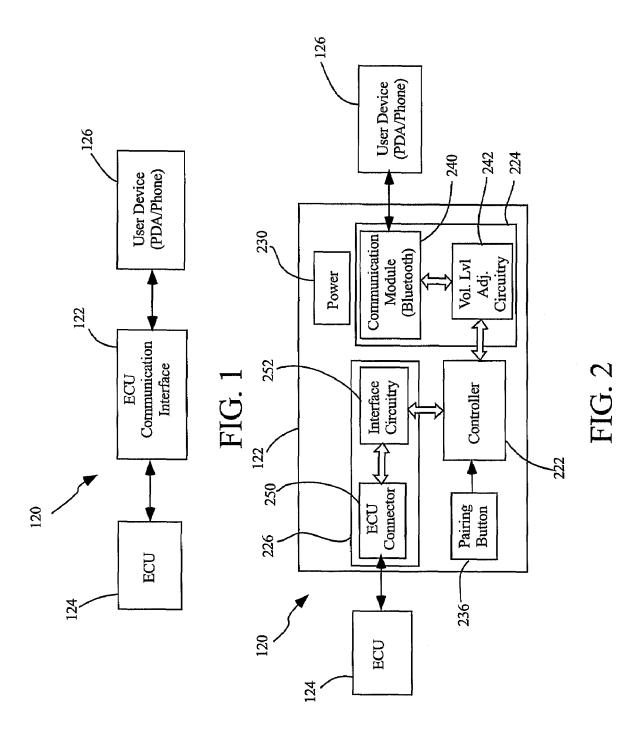
UKOBD, Ltd., MBD3200BT mOByDic Bluetooth Interface, http://www.ukobd.co.uk, date first learned of publication: Jun. 8, 2007, 2 pages.

Mobile Computing Solutions, Bluetooth OBD II Interface, http://store.mo-co-so.com/bluetooth-obd-ii-interface-p-31.html, date first learned of publication: Jun. 8, 2007, 2 pages.

Ebay Motors, OBDII Scan Tool Bluetooth ISO Wireless, http://cgi.ebay.com/ebaymotors/OBDII-OBD-II-OBD2-2-Scan-Tools, date first learned of publication: Jun. 8, 2007, 6 pages.

* cited by examiner







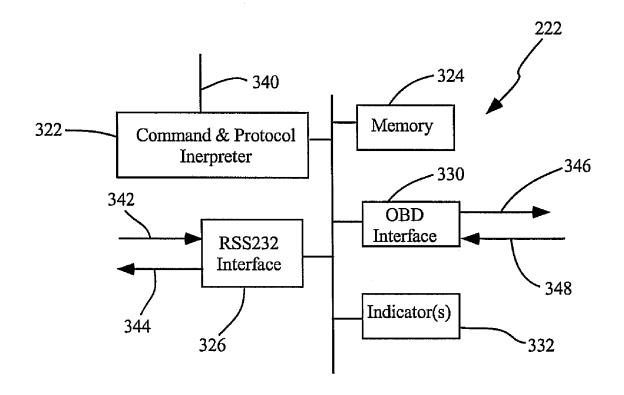


FIG. 3

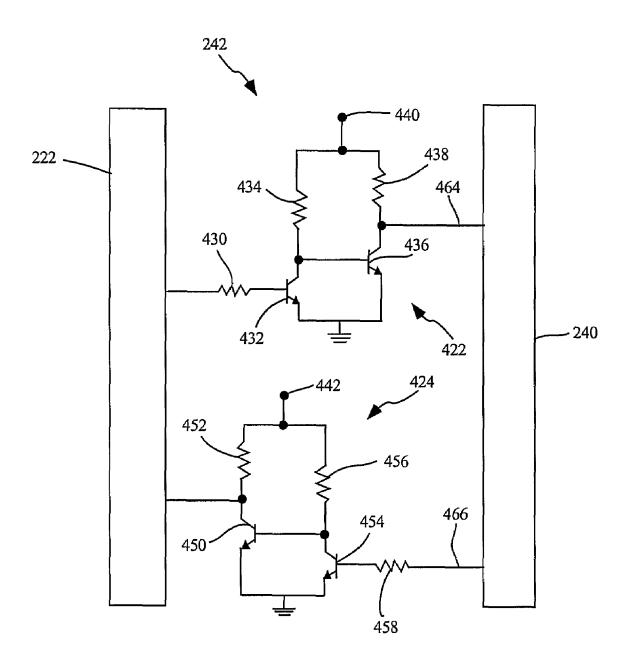


FIG. 4



DOCKET

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.

