Element B: Documentation and analysis of prior solution attempts

We began to research other products that would validate our problem, and evaluate different design ideas. We researched different OBDII readers that can be found in stores and online. Additionally, we researched related patents to OBDII readers and the onboard computer. Therefore, we used search terms such as OBDII readers, and onboard computer. Our experts, Mr. Allan Malecki and Mr. Thomas Kennedy Sr., helped us evaluate the pros and cons of each existing product. They gave us new information on how the OBDII reader works and the different features found in different models.

Upon researching existing products and patents, we discovered that all of them are based on the same OBDII system (On-Board Diagnostics). For products, we focused on OBDII readers that connect to the onboard computer inside the car to interpret the car's diagnostic code. There are a wide variety of OBDII readers. Therefore, we searched and started by analyzing two. Upon gathering materials we will look up more to determine which OBDII reader best serves our solution. Patents were also limited as the two most common and basic patents related to this issue were the onboard computer and the basic OBDII reader.

Existing Products:

- Maxi Scan Ms409 OBDII scanner[1]
  - A type of OBDII reader that reads car diagnostics.
  - $85
  - Pros:
    - Quickly reads car diagnostics: This allows a hassle free and immediate car diagnostic.
    - User friendly: Anyone can use this OBDII reader.
    - Up to date with newer vehicles: Will work on any vehicle.
  - Cons:
    - Out of the car: The OBDII reader is an accessory that would have to be stored in the car to use while driving.
    - Expensive
    - Requires skill/ prior knowledge: The OBDII reader gives the code; you would have to know what the code means if you wish to fix your vehicle.

- Equus 3030 Innova Diagnostic code reader for OBDII vehicles[2]
  - $60
  - Pros:
    - Helps keep tabs on engine light warnings
    - Accesses technical engine information and retrieves trouble codes easily
    - Works on all cars made after 1996
    - Compatible with domestic and import cars
    - Updates every 30 seconds
    - Easy to verify repair completion All-in-one screen display
    - No batteries needed
  - Cons:
    - Requires car knowledge or research to know what the code means
    - Problem remains unknown without device plugged i
    - Only gives a code, not text describing problem

- Torque APP[3]
  - Application (APP) for Android Devices
  - $4.95 to buy full APP version
  - Pros:
    - Receive OBDII fault codes/car performance/sensor data
    - Connects to Bluetooth OBDII reader
    - Easily Accessible on Android device
    - Provides a lists of retrieved data from Onboard computer
    - Inexpensive
  - Cons:
    - Too much information displayed while driving
    - Requires car knowledge or research on diagnostic information

Existing Patents:

- Method, apparatus, and systems for acquiring and analyzing vehicle data and generating an electronic representation of vehicle operations.[4] "OBDII Reader."
  - Application/ Patent Number: 12/753699
  - Filling Date: April 2, 2010
  - Abstract: "Geo-referenced and/or time-referenced electronic drawings may be generated based on electronic vehicle information to facilitate documentation of a vehicle-related event. A symbols library, a collection of geo-referenced images, and any data acquired from one or more vehicles may be stored in memory for use in connection with generation of such drawings, and a drawing tool graphical user interface (GUI) may be provided for electronically processing vehicle data and geo-referenced images. Processed geo-referenced images may be saved as event-specific images, which may be integrated into, for example, an electronic vehicle accident report for accurately depicting a vehicle accident."
  - Pros:
  -

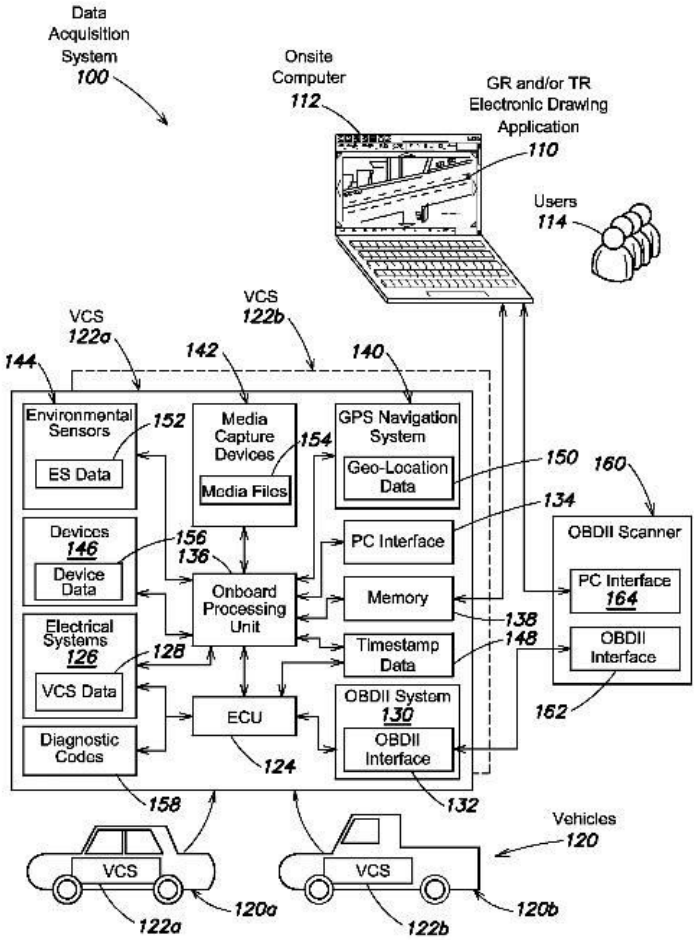
ws users to diagnose vehicle
lems
es more time efficient
ostic by providing an easy

plug in device to read the car diagnostic (OBDII reader).

- Unable to know the system failure the second it occurs.
- Restricted to the onboard computer itself (Place and location to use it.)

- RFID System in Communication with Vehicle Onboard Computer**[5]**
  - Publication Number: EP0941532A1
  - Filing Date: Dec 5, 1997

- Abstract: "A system comprising a vehicle on-board computer; and a wireless transponder device coupled to the vehicle on-board computer. The system performs a variety of functions because of its ability to transmit and receive data from other transponders which may be remote from the vehicle or located in the vehicle at a location spaced apart from the system. Remote transponders are spaced apart from the vehicle. The remote transponders can be positioned, for example, at a gas station, toll booth, service center, dealership, parking lot, or along a roadside."
- Pros:
  - Allows driver to be warned when a system failure occurs which prevents further damage
  - Wireless and is programmed into every manufactured car
- Cons:
  - Check engine light is a burden because the light is too vague without any information given.
  - Information only useful to those who know car mechanics because only the code is given.



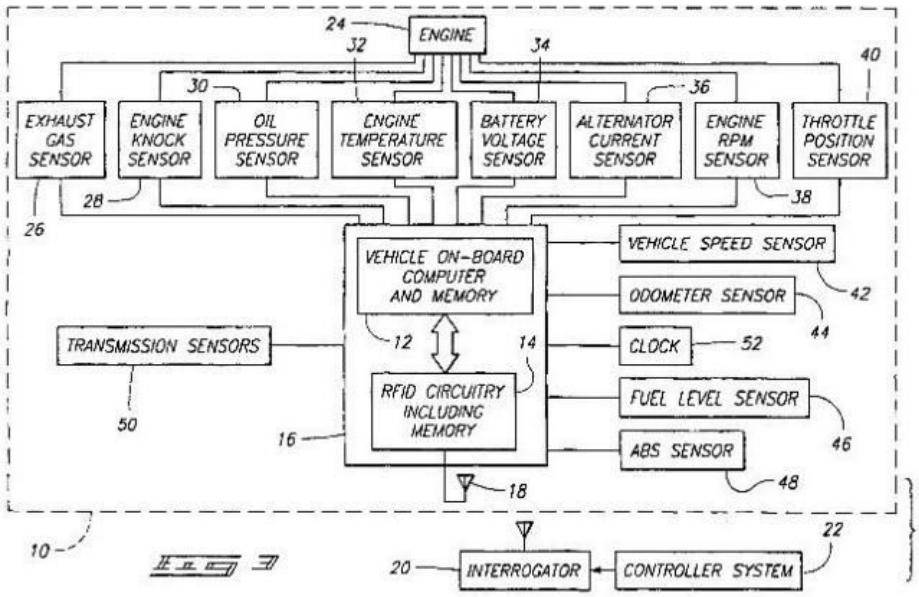


Fig. 3

---

[1] "OBD2 Scanner OBD 2 Scan Tool CAN Compliant Code Scanner MS409." OBD2 Scanner OBD 2 Scan Tool CAN Compliant Code Scanner MS409. N.p., 2012. Web. 14 Dec. 2012. <http://www.autoditto.com/maxiscan-ms409-obd-ii-scanner.html> (http://www.autoditto.com/maxiscan-ms409-obd-ii-scanner.html>).

[2] "Equus 3030 Innova Diagnostic Code Reader for OBDII Vehicles." Walmart.com. N.p., 2012. Web. 14 Dec. 2012.

[3] "Torque Pro (OBD 2 & Car)." - Android Apps on Google Play. N.p., n.d. Web. 24 Apr. 2013.

[4] Chambers, Curtis, Jeffrey Farr, and Steven Nielsen. • Method, Apparatus, and Systems for Acquiring and Analyzing Vehicle Data and Generating an Electronic Representation of Vehicle Operations. Certusview Technologies, Llc, assignee. Patent 12/753699. 4 Sept. 2012. Print.

[5] Tuttle, John R. Rfid System in Communication with Vehicle On-board Computer. Micron Communications, Inc., assignee. Patent EP0941532 A1. 15 Sept. 1999. Print.