ATTACHMENT A

Google v. Traffic Information

Presentation by Google

Introduction

Phillips v. AWH Corp. (Fed. Cir. 2005)

- "[T]he line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms."

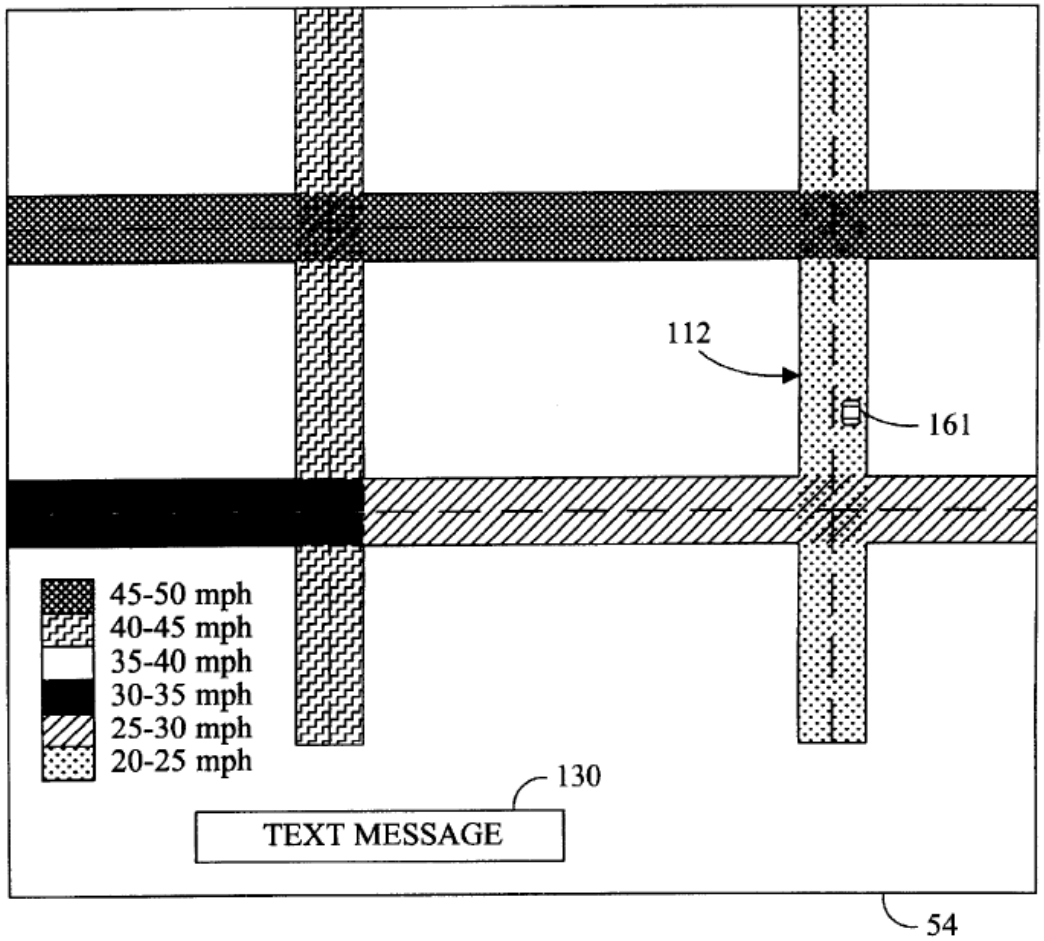

112
161
45-50 mph
40-45 mph
35-40 mph
30-35 mph
25-30 mph
20-25 mph
130
TEXT MESSAGE
54

FIG. 6

IPXL Holdings, L.L.C. v. Amazon.com, Inc. (Fed. Cir. 2005)

- "A claim is considered indefinite if it does not reasonably apprise those skilled in the art of its scope."

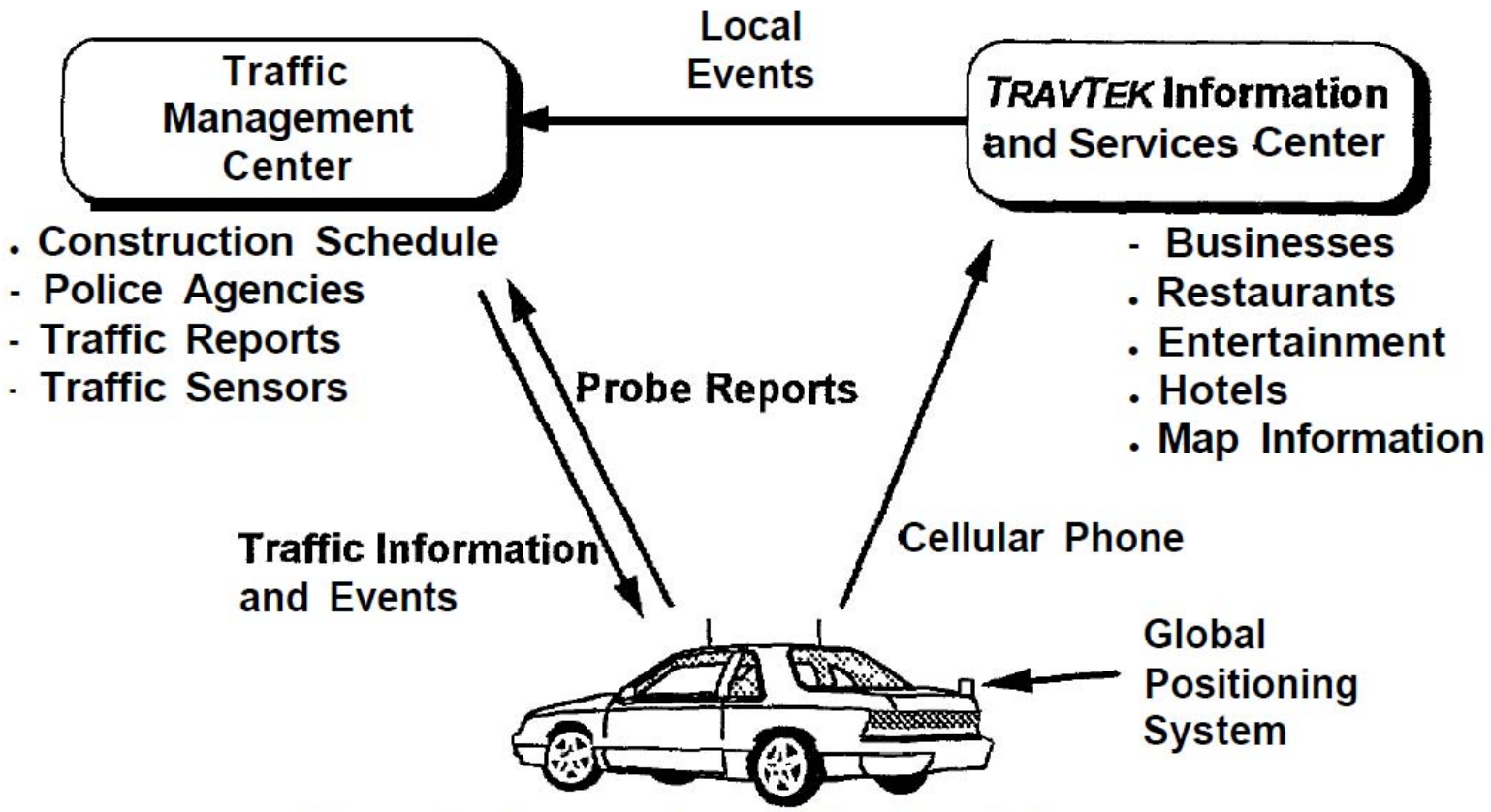
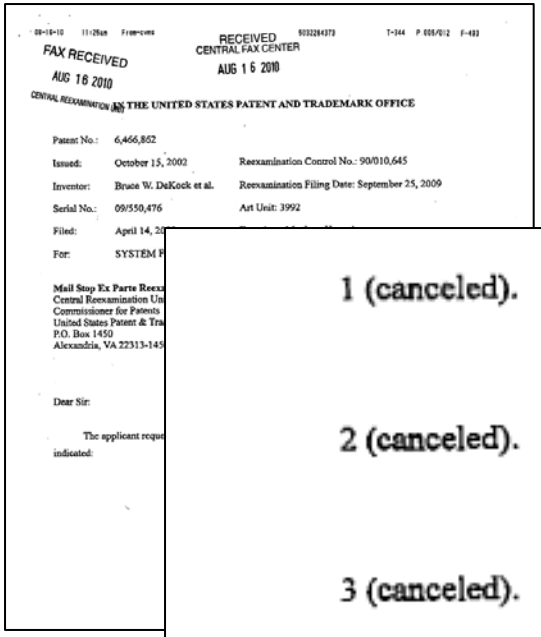


Figure 1. An overview of the TravTek system.



FAX RECEIVED
AUG 16 2010
CENTRAL REEXAMINATION UNIT

RECEIVED
CENTRAL FAX CENTER
AUG 16 2010

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: 6,466,852
Issued: October 15, 2002
Reexamination Control No.: 90/010,645
Inventor: Bruce W. DeKock et al.
Reexamination Filing Date: September 25, 2009
Serial No.: 09/550,476
Art Unit: 3992
Filed: April 14, 20
For: SYSTEM F

Mail Stop Ex Parte Reexa
Central Reexamination Un
Commissioner for Patents
United States Patent & Tra
P.O. Box 1450
Alexandria, VA 22313-145

Dear Sir:

The applicant reque
indicated:

1 (canceled).

2 (canceled).

3 (canceled).

4 (canceled).

5 (canceled).

Date: 8/16/2010 By:

Kevin L. Russell
Registration No. 38,292
Chernoff, Vilhauer et al.
Attorney for Patent Owner

Indefiniteness

Indefiniteness

Case law

IPXL Holdings, L.L.C. v. Amazon.com, Inc. (Fed. Cir. 2005)

- "A claim is considered indefinite if it does not reasonably apprise those skilled in the art of its scope."

Halliburton v. M-I (CAFC 2008)

- "Even if a claim term's definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope" (at 1251)

United Carbon v. Binney & Smith (CAFC 2005)

- "The statutory requirement of particularity and distinctness in claims is met only when *[the claims]* clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise." [at 236]

Markman v. Westview (CAFC 1996)

- "The limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public. . . .*(cont.)*

Markman v. Westview (CAFC 1996)

- “Otherwise, a zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field.” [at 390]

Found indefinite:

- "at least about 160,000" – *Amgen*
- "aesthetically pleasing" - *Datamize*
- claimed compound could not be identified by testing - *Morton*
- "means for dispensing" (no corresponding structure found) – *Default Proof*

ICU Medical v. Alaris, 558 F.3d 1368 (CAFC 2009)

- "It is entirely proper to consider the function of an invention in seeking to determine the meaning of particular claim language."
- Indefinite because species did not support generic claim.

Oakley v. Sunglass Hut (CAFC 2003)

- "vivid colored appearance"
- decided on preliminary injunction
- "one skilled in the art would interpret the phrase…in light of the specification to require that the maximum differential effect equal or exceed about 5.45%"

Modine v. ITC (CAFC 1996)

- “relatively small”
- no construction was approved by the CAFC because not required
- definite because of precise dimensions set out in specification

Haemonentics v. Baxter (CAFC 2010)

- “radius” “height” (could be measured in several places)
- Specification led court to identify inconsistent measurement methods with separate claims

Haemonentics v. Baxter (CAFC 2010)

- "Where, as here, claims are susceptible to only one reasonable interpretation and that interpretation results in a nonsensical construction of the claim as a whole, the claim must be invalidated." (at 781)

Haemonentics v. Baxter (CAFC 2010)

- "Haemonentics argues...*[that the construction]* would yield an absurdity. Maybe so, but we do not redraft claims to contradict their plain language in order to avoid a nonsensical result." (at 782)

Indefiniteness

“said user” – no longer at issue

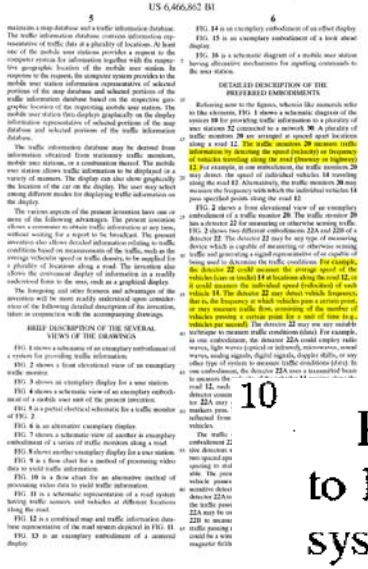
Indefiniteness

“traffic information”

What is claimed is:

1. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of traffic monitors, each said traffic monitor comprising at least a detector and a transmitter, said detector providing a signal including data representative of vehicular movement and said transmitter transmitting said signals;



US 6,466,862 B1

5

6

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

10

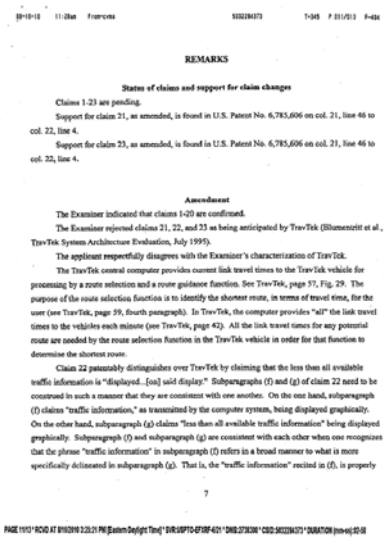
Referring now to the figures, wherein like numerals refer to like elements, FIG. **1** shows a schematic diagram of the system **10** for providing traffic information to a plurality of user stations **52** connected to a network **50**. A plurality of traffic monitors **20** are arranged at spaced apart locations along a road **12**. The traffic monitors **20** measure traffic information by detecting the speed (velocity) or frequency of vehicles traveling along the road (freeway or highway) **12**. For example, in one embodiment, the traffic monitors **20** may detect. the speed of individual vehicles **14** traveling along the road **12**. Alternatively, the traffic monitors **20** may measure the frequency with which the individual vehicles **14** pass specified points along the road **12**.

Indefiniteness

"less than all available traffic information"

22. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(g) wherein less than all available traffic information is displayed by said display.



REMARKS

Status of claims and support for claim changes

Claims 1-23 are pending.

Support for claim 21, as amended, is found in U.S. Patent No. 6,785,606 on col. 21, line 46 to col. 22, line 4.

Support for claim 23, as amended, is found in U.S. Patent No. 6,785,606 on col. 21, line 46 to col. 22, line 4.

Amendment

The Examiner indicated that claims 1-20 are confirmed.

The Examiner rejected claims 21, 22, and 23 as being anticipated by TravTek (Blumenstitt et al., TravTek System Architecture Evaluation, July 1995).

The applicant respectfully disagrees with the Examiner's characterization of TravTek.

The TravTek central computer provides current link travel times to the TravTek vehicle for processing by a route selection and a route guidance function. See TravTek, page 57, Fig. 29. The purpose of the route selection function is to identify the shortest route, in terms of travel time, for the user (see TravTek, page 59, fourth paragraph). In TravTek, the computer provides "all" the link travel times to the vehicles each minute (see TravTek, page 42). All the link travel times for any potential route are needed by the route selection function in the TravTek vehicle in order for that function to determine the shortest route.

Claim 22 patentably distinguishes over TravTek by claiming that the less than all available traffic information is "displayed...[on] said display." Subparagraphs (f) and (g) of claim 22 need to be construed in such a manner that they are consistent with one another. On the one hand, subparagraph (f) claims "traffic information," as transmitted by the computer system, being displayed graphically. On the other hand, subparagraph (g) claims "less than all available traffic information" being displayed graphically. Subparagraph (f) and subparagraph (g) are consistent with each other when one recognizes that the phrase "traffic information" in subparagraph (f) refers in a broad manner to what is more specifically delineated in subparagraph (g). That is, the "traffic information" recited in (f), is properly

7

route are needed by the route selection function in the TravTek vehicle in order for that function to determine the shortest route.

Claim 22 patentably distinguishes over TravTek by claiming that the less than all available traffic information is "displayed...[on] said display." Subparagraphs (f) and (g) of claim 22 need to be construed in such a manner that they are consistent with one another. On the one hand, subparagraph (f) claims "traffic information," as transmitted by the computer system, being displayed graphically.

Indefiniteness

“representative of”

CollegeNet v. XAP (D.Or. 2004)

- "It is also improper to eliminate, ignore, or 'read out' a claim limitation from a claim in order to extend a patent to subject matter disclosed, but not claimed."

While all of the above systems provide some degree of traffic information for a commuter, nevertheless the above systems do not provide an efficient method of collecting and presenting objective traffic information to a commuter. What is desired, therefore, is a system for providing traffic information which allows a commuter to obtain information at any time desired by the commuter, that provides information relating to a plurality of points along a road, that provides information relating to different traffic levels, that provides information that is particularly relevant to the commuter, and that provides the information in an easily understood format that may be easily utilized by a commuter while driving.

When a user requests traffic information from the computer system **40**, the computer system **40** transmits the requested data based on either the geographic location of the user, or for the geographic location requested by the user. The computer system **40** either sends the raw traffic data requested by the user, or sends a signal representative of the map and/or traffic database which may be used by the user station **52** to represent the map and traffic information on the display **54**.

Specific Term Construction

Specific Term Construction

"traffic information"

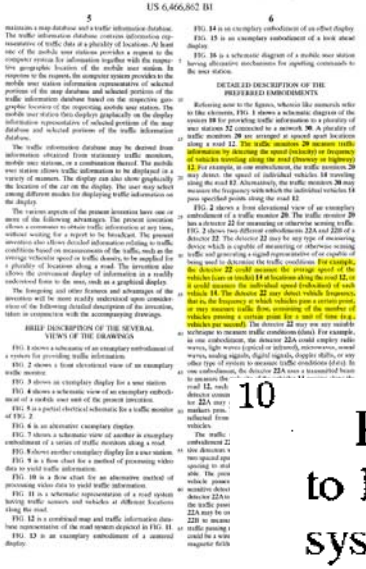
“traffic information”

- “the current speed, frequency, or flow of multiple vehicles traveling along a road as detected by one or more traffic monitors”
- “data regarding traffic conditions, which data can include, but is not limited to, the speed, velocity, motion, density, flow, or frequency of vehicles on a road, and/or other data representative of the movement of vehicles on a road”

What is claimed is:

1. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of traffic monitors, each said traffic monitor comprising at least a detector and a transmitter, said detector providing a signal including data representative of vehicular movement and said transmitter transmitting said signals;

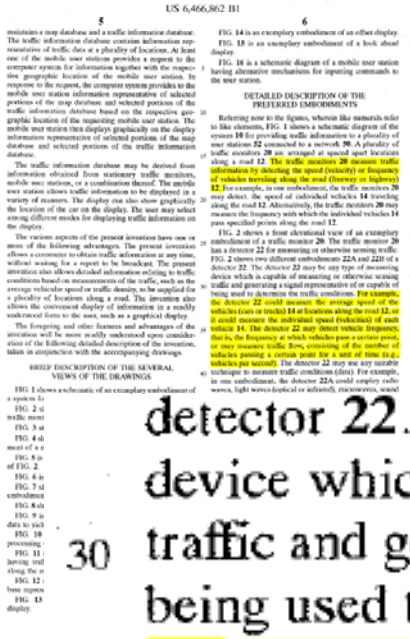

US 6,466,862 B1

5

6

10

Referring now to the figures, wherein like numerals refer to like elements, FIG. **1** shows a schematic diagram of the system **10** for providing traffic information to a plurality of user stations **52** connected to a network **50**. A plurality of traffic monitors **20** are arranged at spaced apart locations along a road **12**. The traffic monitors **20** measure traffic information by detecting the speed (velocity) or frequency of vehicles traveling along the road (freeway or highway) **12**. For example, in one embodiment, the traffic monitors **20** may detect. the speed of individual vehicles **14** traveling along the road **12**. Alternatively, the traffic monitors **20** may measure the frequency with which the individual vehicles **14** pass specified points along the road **12**.



detector **22**. The detector **22** may be any type of measuring device which is capable of measuring or otherwise sensing traffic and generating a signal representative of or capable of being used to determine the traffic conditions. For example, the detector **22** could measure the average speed of the vehicles (cars or trucks) **14** at locations along the road **12**, or it could measure the individual speed (velocities) of each vehicle **14**. The detector **22** may detect vehicle frequency, that is, the frequency at which vehicles pass a certain point, or may measure traffic flow, consisting of the number of vehicles passing a certain point for a unit of time (e.g., vehicles per second). The detector **22** may use any suitable

Specific Term Construction

Device Terms

Device Terms

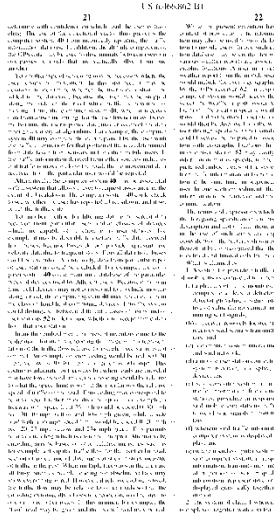
- Traffic monitor
- Mobile user station

Specific Term Construction

"traffic monitor"

“traffic monitor”

- A stationary device capable of determining the current speed, frequency, or flow of multiple vehicles traveling along a road
- Any device used to sense, measure, detect, and/or determine vehicular movement and transmit and/or provide a signal representative of vehicular movement



What is claimed is:

1. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of traffic monitors, each said traffic monitor comprising at least a detector and a transmitter, said detector providing a signal including data representative of vehicular movement and said transmitter transmitting said signals;

(b) a receiver, remotely located from said transmitter, that receives said signals transmitted by said traffic monitors; and

(c) a computer system interconnected with said receiver and said network;

(d) a mobile user station connected to a global positioning system receiver, a display, and a communicating device; and

(e) said computer system, in response to a request for traffic information from one of said mobile user stations, providing in response thereto to said one of said mobile user stations traffic information representative of said signals transmitted by said traffic monitors;

(f) wherein said traffic information transmitted by said computer system is displayed graphically on said display; and

(g) wherein said computer system has a map database, and said computer system, in response to said request for information, transmits map information representative of a portion of said map database, and said map information representative of said map database is displayed graphically together with said traffic information.

- Traffic monitors and mobile user stations are distinct devices

US 6,466,862 B1

3 4

computers, set-top boxes, or intelligent televisions. The user interface includes a road map showing a plurality of road segments that a user can interactively select. Vehicular speed information is provided to the system from traffic sensors monitoring the traffic. In addition, the user interface has a road image area that changes as the user selects different road segments to show recent images of a currently selected road segment. Unfortunately, the system taught by Lappenbusch et al. is complicated to operate and requires significant user interaction to provide relevant data, which is suitable for such "stationary" traditional computing devices.

Smith, Jr. et al., U.S. Pat. No. 5,774,827, disclose a system to alleviate the need for sophisticated route guidance systems, where the commuter has a positioning system as well as a map database in a car. A central facility receives and stores current traffic information for preselected commuter routes from various current traffic information sources, such as local police authorities, toll-way authorities, spotters, or sensors deployed on the road ways to detect traffic flow. To achieve the elimination of sophisticated route guidance systems a portable device receives a travel time only for preselected commuter routes from the central facility. In this manner, Smith, Jr. et al. teach that each user receives only the traffic information that is relevant to the user's preselected commuter routes. If desired, the preselected commuter routes may be presented as a set of route segments, where each of the segments is coded to indicate commute time. In response, the user may choose an alternative route known by him that is different from any preselected commuter routes. Smith, Jr. et al further suggest that a GPS enabled portable unit for transmitting a present position of the portable device to the central facility such that the central facility uses each present position to calculate at least a portion of the current travel information. By matching multiple positions of the portable device with known positions on the preselected route and measuring the time between two consecutive matched positions the central facility can obtain up-to-the minute traffic information to be used in broadcasting future travel times to other users of preselected commuter routes. Unfortunately, the system taught by Smith, Jr. et al. requires the user to define a set of preselected commuter routes for each route to be traveled, which may be difficult if the user is unfamiliar with the area. In addition, Smith, Jr. et al. teach that the user should select alternative routes that are known to the user, presumably if the commute time of the preselected commuter routes are too long, which is difficult if the user is not already familiar with the area.

Piccinelli et al., U.S. Pat. No. 5,573,059, disclose a system for dynamic monitoring of the total traffic in a stretch of road equipped with monitoring and information-provision systems, as well as warnings to drivers, and hence the possibility of regulating the traffic. The system does not require that the vehicles be equipped with appropriate sensors and transmitting equipment.

Akiona et al., U.S. Pat. No. 5,987,374, disclose a vehicle traveling guidance system that includes data providing devices laid on a road and a vehicle. The vehicle includes a data transmitter for sending a data providing device traveling data of the vehicle when the vehicle passes over the vicinity of the data providing device and a data receiver for receiving data sent from the data providing device. The traveling data may include vehicle pass time or vehicle pass time and speed. The data providing devices laid on the road include a receiver for receiving the traveling data from the vehicle and a transmitter for sending other passing vehicles the traveling data. A control center communicating through the data providing devices laid on the road can use the received traffic data from the vehicles to predict the occurrence of traffic congestion based on the pass time and speed of a vehicle. It is assumed that at a certain point, vehicles were traveling smoothly at a certain time and the speed of each vehicle has decreased drastically at the next time. In this case it is expected that traffic congestion will occur in the vicinity of that point. Therefore, smooth travel can be achieved by, for example, communicating to each vehicle data etc. indicating bypasses in order not to worsen traffic congestion. Therefore, a vehicle operator can gain knowledge of the traveling state of a vehicle which has already passed over that point and adjust travel considering traffic flow.

While all of the above systems provide some degree of traffic information for a commuter, nevertheless the above systems do not provide an efficient method of collecting and presenting objective traffic information to a commuter. What is desired, therefore, is a system for providing traffic information which allows a commuter to obtain information at any time desired by the commuter, that provides information relating to a plurality of points along a road, that provides information relating to different traffic levels, that provides information that is particularly relevant to the commuter, and that provides the information in an easily understood format that may be easily utilized by a commuter while driving.

BRIEF SUMMARY OF THE INVENTION

The present invention overcomes the limitations of the prior art by providing a system for providing traffic information to a plurality of users connected to a network. In a first aspect the present invention provides a system comprised of a plurality of traffic monitors, each comprising at least a traffic detector and a transmitter, the traffic detector generating a signal in response to vehicular traffic and the transmitter transmitting the signal. The system also includes a receiver that receives the signals from the traffic monitors. A computer system is connected to the receiver and is also connected to the network. The computer system, in response to a request signal received from one of the users, transmits in response thereto information representative of the signals transmitted by the traffic monitors.

In a second separate aspect of the invention, a system provides traffic information to a plurality of users connected to a network. Traffic is detected at each of a plurality of locations along a road and a signal is generated at each of the locations representative of the traffic at each of the locations. Each of the signals is transmitted from each of the plurality of locations to a receiver. These signals are sent from the

The traffic information database may be derived from information obtained from stationary traffic monitors, mobile user stations, or a combination thereof. The mobile user station allows traffic information to be displayed in a variety of manners. The display can also show graphically the location of the car on the display. The user may select among different modes for displaying traffic information on the display.

requesting information or operating. The system may thus use the information received from the user stations **52** either to calibrate the traffic information provided by monitors **20**, or to supplement the traffic information provided by the traffic monitors **20**. Alternatively, where the number of users is sufficiently large, the traffic monitors **20** may no longer be necessary, because the users themselves through mobile user stations **52** and GPS receivers **62** provide enough traffic information to generate useful displays of traffic information. Thus, the system may provide traffic information without the use of monitors **20** at all, relying solely on information derived from the mobile user stations **52**. With

Phillips v. AWH Corp. (Fed. Cir. 2005)

- "[t]he main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent." *Phillips*, 415 F.3d at 1321.

SciMed Life Sys. v. Advanced Cardiovascular Sys., (CAFC 2001)

- Watts v. XL Sys. (CAFC 2000)
  - Specification described only one method to achieve pipe joint sealing connection
- Wang Labs v. America Online (CAFC 1999)
  - Only character-based protocol described and enabled in patent, bit-mapped display systems excluded from scope of claims
- Cultor v. A.E. Staley Manufacturing (CAFC 2000)
  - Limited to polydextrose purification process using citric acide catalyst
- O.I. Corp. v. Tekmar (CAFC 1997)
  - Patent described only non-smooth or conical passage structures
- Toro v. White Consolidated Indus. (CAFC 1999)
  - Restriction ring interpreted as permanently attached where specification and drawings did not describe or illustrate any other structure

Therefore catheter included only coaxial lumens, not dual or side-by-side lumens

Inpro II v. T-Mobile (CAFC 2006)

- "Although claims need not be limited to the preferred embodiment, when the invention is more broadly described, neither do the claims enlarge what is patented beyond what the inventor described as the invention." *Inpro II,* 450 F.3d at 1354-55.

- Traffic monitors are stationary devices

US 6,466,862 B1

3 4

computers, set-top boxes, or intelligent televisions. The user interface includes a road map showing a plurality of road segments that a user can interactively select. Vehicular speed information is provided to the system from traffic sensors monitoring the traffic. In addition, the user interface has a road image area that changes as the user selects different road segments to show recent images of a currently selected road segment. Unfortunately, the system taught by Lappenbusch et al. is complicated to operate and requires significant user interaction to provide relevant data, which is suitable for such "stationary" traditional computing devices.

Smith, Jr. et al., U.S. Pat. No. 5,774,827, disclose a system to alleviate the need for sophisticated route guidance systems, where the commuter has a positioning system as well as a map database in a car. A central facility receives and stores current traffic information for preselected commuter routes from various current traffic information sources, such as local police authorities, toll-way authorities, spotters, or sensors deployed on the road ways to detect traffic flow. To achieve the elimination of sophisticated route guidance systems a portable device receives a travel time only for preselected commuter routes from the central facility. In this manner, Smith, Jr. et al. teach that each user receives only the traffic information that is relevant to the user's preselected commuter routes. If desired, the preselected commuter routes may be presented as a set of route segments, where each of the segments is coded to indicate commute time. In response, the user may choose an alternative route known by him that is different from any preselected commuter routes. Smith, Jr. et al further suggest that a GPS enabled portable unit for transmitting a present position of the portable device to the central facility such that the central facility uses each present position to calculate at least a portion of the current travel information. By matching multiple positions of the portable device with known positions on the preselected route and measuring the time between two consecutive matched positions the central facility can obtain up-to-the minute traffic information to be used in broadcasting future travel times to other users of preselected commuter routes. Unfortunately, the system taught by Smith, Jr. et al. requires the user to define a set of preselected commuter routes for each route to be traveled, which may be difficult if the user is unfamiliar with the area. In addition, Smith, Jr. et al. teach that the user should select alternative routes that are known to the user, presumably if the commute time of the preselected commuter routes are too long, which is difficult if the user is not already familiar with the area.

Piccinelli et al., U.S. Pat. No. 5,573,059, disclose a system for dynamic monitoring of the total traffic in a stretch of road equipped with monitoring and information-provision systems, as well as warnings to drivers, and hence the possibility of regulating the traffic. The system does not require that the vehicles be equipped with appropriate sensors and transmitting equipment.

Akiona et al., U.S. Pat. No. 5,987,374, disclose a vehicle traveling guidance system that includes data providing devices laid on a road and a vehicle. The vehicle includes a data transmitter for sending a data providing device traveling data of the vehicle when the vehicle passes over the vicinity of the data providing device and a data receiver for receiving data sent from the data providing device. The traveling data may include vehicle pass time or vehicle pass time and speed. The data providing devices laid on the road include a receiver for receiving the traveling data from the vehicle and a transmitter for sending other passing vehicles the traveling data. A control center communicating through the data providing devices laid on the road can use the received traffic data from the vehicles to predict the occurrence of traffic congestion based on the pass time and speed of a vehicle. It is assumed that at a certain point, vehicles were traveling smoothly at a certain time and the speed of each vehicle has decreased drastically at the next time. In this case it is expected that traffic congestion will occur in the vicinity of that point. Therefore, smooth travel can be achieved by, for example, communicating to each vehicle data etc. indicating bypasses in order not to worsen traffic congestion. Therefore, a vehicle operator can gain knowledge of the traveling state of a vehicle which has already passed over that point and adjust travel considering traffic flow.

While all of the above systems provide some degree of traffic information for a commuter, nevertheless the above systems do not provide an efficient method of collecting and presenting objective traffic information to a commuter. What is desired, therefore, is a system for providing traffic information which allows a commuter to obtain information at any time desired by the commuter, that provides information relating to a plurality of points along a road, that provides information relating to different traffic levels, that provides information that is particularly relevant to the commuter, and that provides the information in an easily understood format that may be easily utilized by a commuter while driving.

BRIEF SUMMARY OF THE INVENTION

The present invention overcomes the limitations of the prior art by providing a system for providing traffic information to a plurality of users connected to a network. In a first aspect the present invention provides a system comprised of a plurality of traffic monitors, each comprising at least a traffic detector and a transmitter, the traffic detector generating a signal in response to vehicular traffic and the transmitter transmitting the signal. The system also includes a receiver that receives the signals from the traffic monitors. A computer system is connected to the receiver and is also connected to the network. The computer system, in response to a request signal received from one of the users, transmits in response thereto information representative of the signals transmitted by the traffic monitors.

In a second separate aspect of the invention, a system provides traffic information to a plurality of users connected to a network. Traffic is detected at each of a plurality of locations along a road and a signal is generated at each of the locations representative of the traffic at each of the locations. Each of the signals is transmitted from each of the plurality of

The traffic information database may be derived from information obtained from stationary traffic monitors, mobile user stations, or a combination thereof. The mobile user station allows traffic information to be displayed in a variety of manners. The display can also show graphically the location of the car on the display. The user may select among different modes for displaying traffic information on the display.

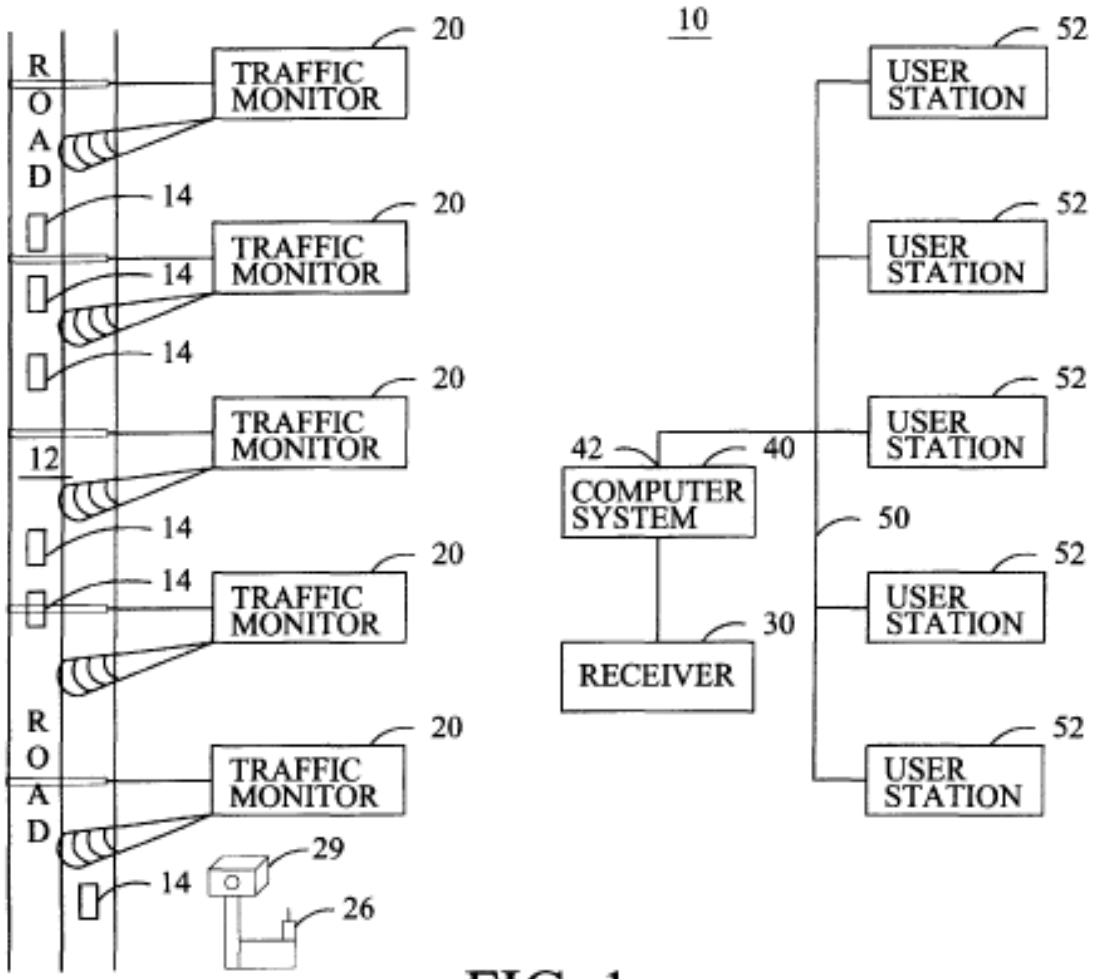

10
R
O
A
D
12
R
O
A
D
TRAFFIC MONITOR
TRAFFIC MONITOR
TRAFFIC MONITOR
TRAFFIC MONITOR
TRAFFIC MONITOR
20
20
20
20
20
14
14
14
14
14
29
26
42
40
COMPUTER SYSTEM
RECEIVER
30
50
USER STATION
USER STATION
USER STATION
USER STATION
USER STATION
52
52
52
52
52

FIG. 1

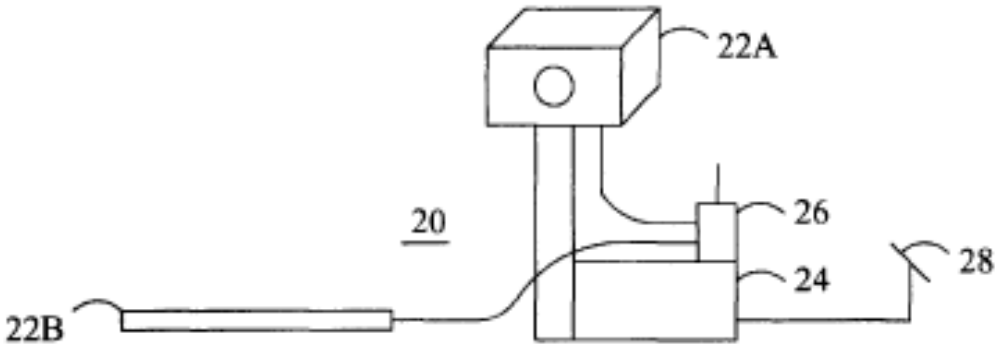


FIG. 2

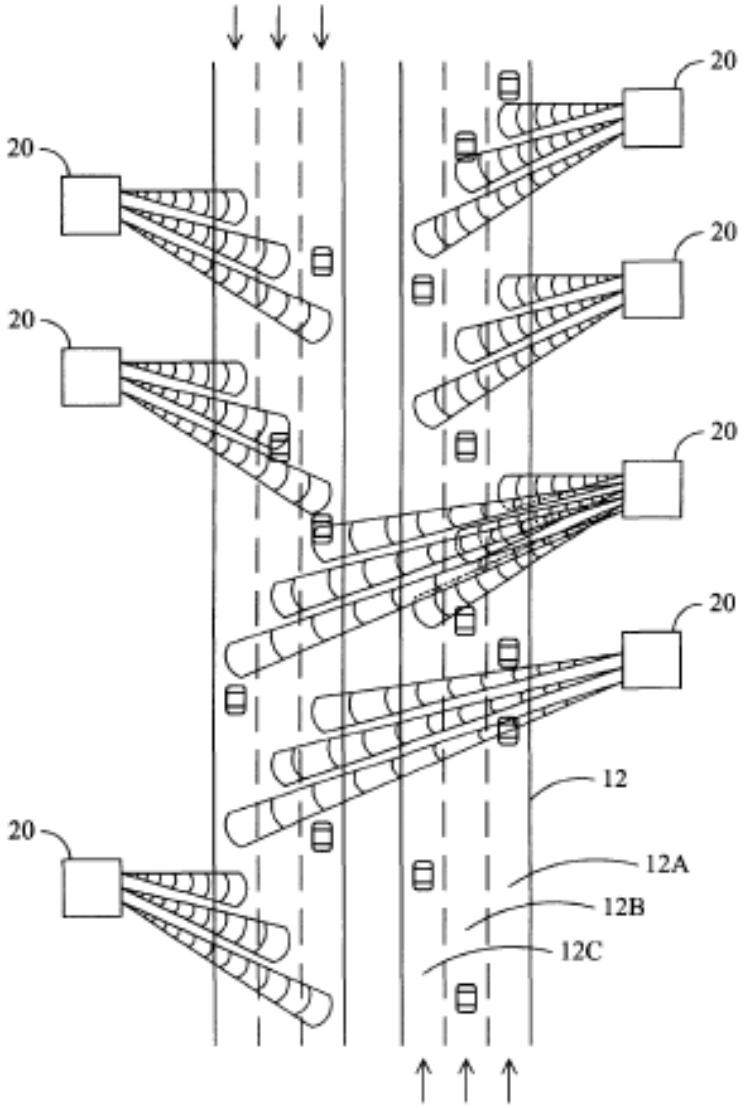


FIG. 7

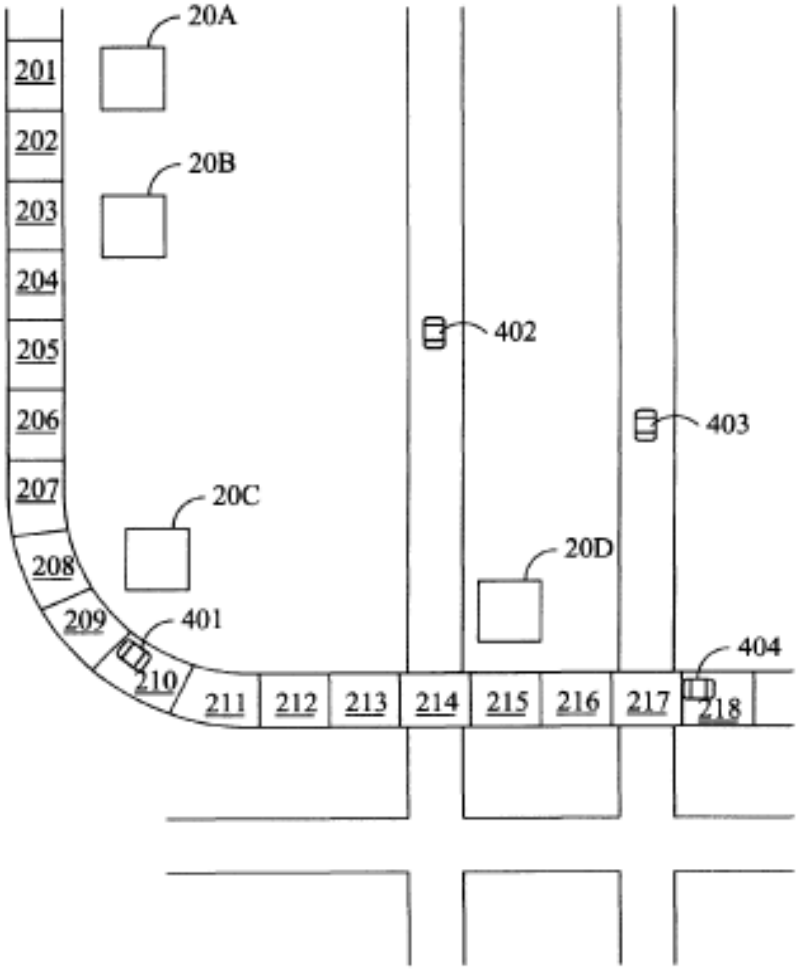

20A
201
202
20B
203
204
205
402
206
403
207
20C
208
20D
209
401
404
210
211
212
213
214
215
216
217
218

FIG. 11

Thus, the combination of the mobile user station **52**, GPS receiver and transmitting and receiving units **64** provides an especially advantageous method for collecting traffic information. Surprisingly, this system is capable of providing traffic information that is superior to that collected by stationary sensors. This is because traffic information may be potentially collected at more locations based on the number of mobile user stations **52**, and because individual vehicle speed can be monitored rather than average vehicle speed. In addition, the system has a significant cost advantage in that it is not necessary to install traffic monitors **20**, or at least the number of traffic monitors **20** that are necessary can be substantially reduced. The system also provides automatic traffic reporting, and thus does not rely on the manual input of data. Furthermore, the system is low maintenance, since there are no traffic monitors **20** to maintain. The system is also particularly robust, in that if a particular mobile user station **52** malfunctions, traffic information can still be collected for all locations based on data reported by other mobile users. In contrast, if a stationary sensor **20** fails, no data can be collected from that location. Thus, the collection of traffic data from a plurality of mobile user stations **52** to create a traffic information database provides surprising advantages and a superior system for providing traffic information.

- Traffic monitors must detect current information

Similarly, the amount of time over which data is collected and averaged may be varied. Ideally, the traffic information presented represents traffic conditions at that moment in time. However, it may be necessary to collect data for a length of time in order to gather enough data to either report any traffic information at all, or to insure that the traffic information is truly representative of conditions at that location. Where traffic density is high, the length of time over which data is collected and used to determine traffic conditions may be short, for example three minutes. In contrast, where traffic levels are light, data may be collected for a long period of time, such as fifteen minutes. When used to determine traffic information, the data may be averaged over the period for which data has been collected. Alternatively, the traffic information could be weighted, so that older traffic information, though used, is given less weight when determining traffic information for a particular location.

The system **10** has many advantages. It allows a user to receive contemporaneous traffic information from a plurality of locations. It allows the user to obtain immediate information rather than waiting for the broadcast of information at specified times. Further, the amount of information provided by the system is far superior to that provided by any other traffic reporting system. A user can obtain immediate and contemporaneous traffic conditions, such as average vehicular speed, traffic flow, or vehicle frequency, for a plurality of locations along a road. Where traffic monitors

Specific Term Construction

"mobile user station"

“mobile user station”

- A mobile device, distinct from a traffic monitor, capable of determining and displaying traffic information
- An easily moving or movable device that can transmit data to and/or receive data from the network. The mobile user station may be a cellular phone or other handheld unit, or may be installed within a car

1. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of traffic monitors, each said traffic monitor comprising at least a detector and a transmitter, said detector providing a signal including data representative of vehicular movement and said transmitter transmitting said signals;

(b) a receiver, remotely located from said transmitter, that receives said signals transmitted by said traffic monitors; and

(c) a computer system interconnected with said receiver and said network;

(d) a mobile user station connected to a global positioning system receiver, a display, and a communicating device; and

(e) said computer system, in response to a request for traffic information from one of said mobile user stations, providing in response thereto to said one of said mobile user stations traffic information representative of said signals transmitted by said traffic monitors;

(f) wherein said traffic information transmitted by said computer system is displayed graphically on said display; and

(g) wherein said computer system has a map database, and said computer system, in response to said request for information, transmits map information representative of a portion of said map database, and said map information representative of said map database is displayed graphically together with said traffic information.

Specific Term Construction

Data terms

Data Terms

- Data representative of traffic/traffic information database
- Vehicular movement
- Less than all available traffic information/selected portions of said traffic information database
- Providing…in response

Specific Term Construction

"data representative of traffic/traffic information database"

“data representative of traffic/traffic information database”

- The current speed, frequency, or flow of multiple vehicles traveling along a road
- No construction needed, or “a collection of traffic information”

21. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of mobile user stations, each mobile user station being associated with a display, a global positioning system receiver and a communicating device to allow each of said mobile user stations to send and receive signals;

(b) a computer system interconnected with another communicating device and a network, said computer system being capable of sending and receiving signals to and from said mobile user stations;

(c) said computer system including a map database and a traffic information database, said traffic information database containing data representative of traffic at a plurality of locations;

(d) at least one of said mobile user stations providing a

Specific Term Construction

"vehicular movement"

“vehicular movement”

- The current speed, frequency, or flow of multiple vehicles travling along a road as detected by one or more traffic monitors.
- The velocity, speed, position, and/or change in position of a vehicle.

1. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of traffic monitors, each said traffic monitor comprising at least a detector and a transmitter, said detector providing a signal including data representative of vehicular movement and said transmitter transmitting said signals;

(b) a receiver, remotely located from said transmitter, that receives said signals transmitted by said traffic monitors; and

(c) a computer system interconnected with said receiver and said network;

(d) a mobile user station connected to a global positioning system receiver, a display, and a communicating device; and

Specific Term Construction

"less than all available traffic information"/"selected portions of said traffic information database"

“less than all available traffic information”

- Cannot be defined from the specification
- The computer system may send traffic information corresponding to only some of the traffic monitors

22. A system for providing traffic information to a plurality of mobile users
connected to a network, comprising:

(a) a plurality of traffic monitors, each said traffic monitor comprising at least a detector and a transmitter, said detector providing a signal including data representative of vehicular movement and said transmitter transmitting said signals;

(f) said traffic information transmitted by said computer system is displayed graphically on said display; and

(g) wherein less than all available traffic information is displayed by said display.

traffic monitors **20** to the requesting user station **52**. The computer system **40** may transmit average speeds detected by each of the traffic monitors **20** at each of their respective locations. The traffic information may be presented to the user as a web page. The computer system may send traffic information corresponding to only some of the traffic monitors. The user may select which portions of the road **12** are of interest, and the computer system **40** may transmit traffic information corresponding to that portion of the road **12**.

“selected portions of said traffic information database”

- . . .a subset of which is selected by the commuter
- Certain data from the map database and certain data from the traffic information database are transmitted to the mobile user station

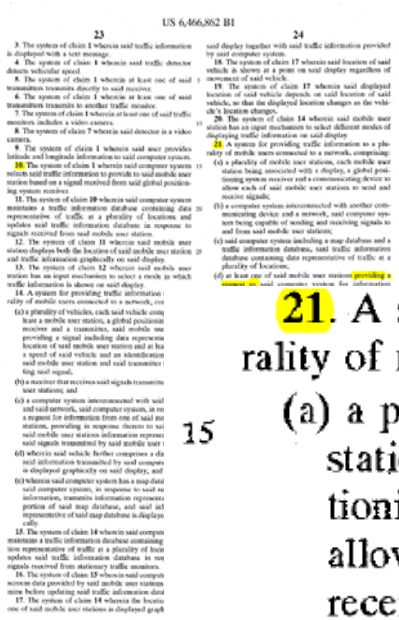
traffic monitors **20** to the requesting user station **52**. The computer system **40** may transmit average speeds detected by each of the traffic monitors **20** at each of their respective locations. The traffic information may be presented to the user as a web page. The computer system may send traffic information corresponding to only some of the traffic monitors. The user may select which portions of the road **12** are of interest, and the computer system **40** may transmit traffic information corresponding to that portion of the road **12**.

Specific Term Construction

"providing…in response"

“providing…in response to”

- In response to a commuter’s request, providing relevant traffic information for display by the mobile user station to minimize manipulation by the commuter while driving, the request and the response must occur simultaneously
- The computer system supplies traffic information in response to a request from a mobile user station
- The computer system, rather than only arbitrarily sending traffic information representative of said signals transmitted by said traffic monitors, is capable of sending traffic information representative of said signals transmitted by said traffic monitors to a mobile user station as a result of the mobile user station sending a request for traffic information to the computer system.


US 6,466,862 B1

23 24

21. A system for providing traffic information to a plurality of mobile users connected to a network, comprising:

(a) a plurality of mobile user stations, each mobile user station being associated with a display, a global positioning system receiver and a communicating device to allow each of said mobile user stations to send and receive signals;

(d) at least one of said mobile user stations providing a request to said computer system for information together with a respective geographic location of said one of said mobile user stations, and in response thereto, said computer system providing to said one of said mobile user stations information representative of selected portions of said map database and selected portions of said traffic information database based on said respective geographic location of said one of said mobile user stations; and

Default Proof Credit v. Home Depot

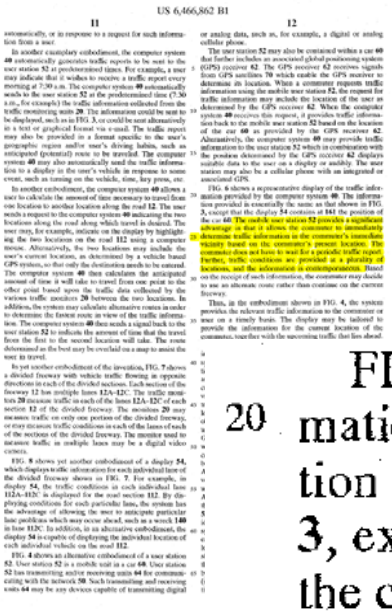
- District Court found indefinite
- "If one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language." [at 1298]

Haemonentics v. Baxter (CAFC 2010)

- "Where, as here, claims are susceptible to only one reasonable interpretation and that interpretation results in a nonsensical construction of the claim as a whole, the claim must be invalidated." (at 781)

Haemonentics v. Baxter (CAFC 2010)

- "Haemonentics argues...*[that the construction]* would yield an absurdity. Maybe so, but we do not redraft claims to contradict their plain language in order to avoid a nonsensical result." (at 782)



US 6,466,862 B1

11 12

automatically, or in response to a request for such information from a user.

In another exemplary embodiment, the computer system **40** automatically generates traffic reports to be sent to the user station **52** at predetermined times. For example, a user may indicate that it wishes to receive a traffic report every morning at 7:30 a.m. The computer system **40** automatically sends to the user station **52** at the predetermined time (7:30 a.m., for example) the traffic information collected from the traffic monitoring units **20**. The information could be sent to be displayed, such as in FIG. 3, or could be sent alternatively in a text or graphical format via e-mail. The traffic report may also be provided in a format specific to the user's geographic region and/or user's driving habits, such as anticipated (potential) route to be traveled. The computer system **40** may also automatically send the traffic information to a display in the user's vehicle in response to some event, such as turning on the vehicle, time, key press, etc.

In another embodiment, the computer system **40** allows a user to calculate the amount of time necessary to travel from one location to another location along the road **12**. The user sends a request to the computer system **40** indicating the two locations along the road along which travel is desired. The user may, for example, indicate on the display by highlighting the two locations on the road **112** using a computer mouse. Alternatively, the two locations may include the user's current location, as determined by a vehicle based GPS system, so that only the destination needs to be entered. The computer system **40** then calculates the anticipated amount of time it will take to travel from one point to the other point based upon the traffic data collected by the various traffic monitors **20** between the two locations. In addition, the system may calculate alternative routes in order to determine the fastest route in view of the traffic information. The computer system **40** then sends a signal back to the user station **52** to indicate the amount of time that the travel from the first to the second location will take. The route determined as the best may be overlaid on a map to assist the user in travel.

In yet another embodiment of the invention, FIG. **7** shows a divided freeway with vehicle traffic flowing in opposite directions in each of the divided sections. Each section of the freeway **12** has multiple lanes **12A-12C**. The traffic monitors **20** measure traffic in each of the lanes **12A-12C** of each section **12** of the divided freeway. The monitors **20** may measure traffic on only one portion of the divided freeway, or may measure traffic conditions in each of the lanes of each of the sections of the divided freeway. The monitor used to measure traffic in multiple lanes may be a digital video camera.

FIG. **8** shows yet another embodiment of a display **54**, which displays traffic information for each individual lane of the divided freeway shown in FIG. **7**. For example, in display **54**, the traffic condition in each individual lane **112A-112C** is displayed for the road section **112**. By displaying conditions for each particular lane, the system has the advantage of allowing the user to anticipate particular lane problems which may occur ahead, such as a wreck **140** in lane **112C**. In addition, in an alternative embodiment, the display **54** is capable of displaying the individual location of each individual vehicle on the road **112**.

FIG. **4** shows an alternative embodiment of a user station **52**. User station **52** is a mobile unit in a car **60**. User station **52** has transmitting and/or receiving units **64** for communicating with the network **50**. Such transmitting and receiving units **64** may be any devices capable of transmitting digital or analog data, such as, for example, a digital or analog cellular phone.

The user station **52** may also be contained within a car **60** that further includes an associated global positioning system (GPS) receiver **62**. The GPS receiver **62** receives signals from GPS satellites **70** which enable the GPS receiver to determine its location. When a commuter requests traffic information using the mobile user station **52**, the request for traffic information may include the location of the user as determined by the GPS receiver **62**. When the computer system **40** receives this request, it provides traffic information back to the mobile user station **52** based on the location of the car **60** as provided by the GPS receiver **62**. Alternatively, the computer system **40** may provide traffic information to the user station **52** which in combination with the position determined by the GPS receiver **62** displays suitable data to the user on a display or audibly. The user station may also be a cellular phone with an integrated or associated GPS.

FIG. **6** shows a representative display of the traffic information provided by the computer system **40**. The information provided is essentially the same as that shown in FIG. **3**, except that the display **54** contains at **161** the position of the car **60**. The mobile user station **52** provides a significant advantage in that it allows the commuter to immediately determine traffic information in the commuter's immediate vicinity based on the commuter's present location. The commuter does not have to wait for a periodic traffic report. Further, traffic conditions are provided at a plurality of locations, and the information is contemporaneous. Based on the receipt of such information, the commuter may decide to use an alternate route rather than continue on the current freeway.

Thus, in the embodiment shown in FIG. **4**, the system provides the relevant traffic information to the commuter or user on a timely basis. The display may be tailored to provide the information for the current location of the commuter, together with the upcoming traffic that lies ahead

FIG. **6** shows a representative display of the traffic information provided by the computer system **40**. The information provided is essentially the same as that shown in FIG. **3**, except that the display **54** contains at **161** the position of the car **60**. The mobile user station **52** provides a significant advantage in that it allows the commuter to immediately determine traffic information in the commuter's immediate vicinity based on the commuter's present location. The commuter does not have to wait for a periodic traffic report. Further, traffic conditions are provided at a plurality of locations, and the information is contemporaneous. Based on the receipt of such information, the commuter may decide to use an alternate route rather than continue on the current freeway.

While all of the above systems provide some degree of traffic information for a commuter, nevertheless the above systems do not provide an efficient method of collecting and presenting objective traffic information to a commuter. What is desired, therefore, is a system for providing traffic information which allows a commuter to obtain information at any time desired by the commuter, that provides information relating to a plurality of points along a road, that provides information relating to different traffic levels, that provides information that is particularly relevant to the commuter, and that provides the information in an easily understood format that may be easily utilized by a commuter while driving.