

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENERAL MOTORS LLC,
Petitioner,

v.

EDWARD H. NORTRUP,
Patent Owner.

Case IPR2023-00994
Patent No. 10,444,028 B2

SECOND DECLARATION OF DR. MICHAEL S. BRAASCH

I, Dr. Michael S. Braasch, of Guysville, OH, declare that:

1. On June 1, 2023, I provided an initial Declaration for the IPR2023-00994 proceeding regarding patent number 10,444,028. *See* EX1003. I provide this Second Declaration in response to statements made in the March 15, 2024 Patent Owner's Response ("POR") filed in this proceeding.

2. The Patent Owner's Response includes a number of arguments that focus on the Patent Owner's descriptions of functionality of Feldman's cellphones in isolation from the predictable combination of Knockeart with Feldman that I described in my initial declaration. *See, e.g.*, POR, 2-9. This includes numerous arguments about the alleged difficulties or impracticalities of "modifying the cellphones of *Feldman*" such as "modifying *Feldman* to use cellphones to collect location data." POR, 2. Such assertions in the POR miss the mark for several reasons. First off, such assertions do not address the combination of Knockeart with Feldman articulated in my first declaration, in which I described modifying Knockeart's system based on the teachings of Feldman, not the other way around. Secondly, such assertions ignore descriptions in Feldman of using cellphones to collect and self-report location data. As such, there is no need to modify the cellphones described by Feldman "to collect location data" as asserted in the POR because Feldman's cellphones already included such functionality in at least some

of the embodiments described in Feldman. As such, the arguments in the POR regarding “[m]odifying *Feldman* to use specialized cellphones” such that Feldman’s cellphones “collect and share location data” are irrelevant because (a) the primary configuration for the combination of Knockeart and Feldman relies on the teachings of Knockeart for such functionality, and (b) Feldman expressly discloses cellphones with such location information collection and sharing functionality. *See* POR, 3, 10-17.

3. Below, prior to addressing the specific issues raised in the POR, I present a brief review of proposed combination of Knockeart with Feldman that I described in my initial declaration with respect to Ground 1. Specifically, I describe the primary configuration for the combination of Knockeart and Feldman that I previously articulated followed by a description of an alternative or additional configuration for the combination of Knockeart and Feldman that I described in my first declaration. I follow this review with a discussion of arguments raised in the POR and how the Knockeart-Feldman combination provides all elements of claim 1 (including element [1.5]) despite the arguments made in the POR.

I. **OVERVIEW OF THE PROPOSED MODIFICATION TO
KNOCKEART’S SYSTEM BASED ON FELDMAN AS DESCRIBED
IN MY FIRST DECLARATION (RESPONSIVE TO POR, pp. 4-17)**

4. As I mentioned above, in my initial declaration I proposed a primary configuration for the combination of Knockeart with Feldman followed by a proposed alternative or additional modification for the resulting system of Knockeart and Feldman. I provide a review of those proposed configurations here.

A. Primary Proposed Modification to Knockeart Based on Feldman

5. The primary proposed configuration for modifying the system of Knockeart based on the teachings of Feldman that I described in my initial declaration is straightforward: I proposed retaining all functionality for the navigation and traffic reporting system described in Knockeart and adding the feature that “the in-vehicle systems described by Knockeart would have been implemented as vehicle mounted or user carried cellular phones” based on the teachings of Feldman. GM-1003, ¶66 (“a POSITA would have predictably applied the teachings of Feldman to Knockeart to implement all or a portion of Knockeart’s in-vehicle systems as cellular phones for the purpose of collecting probe vehicle traffic data.”), ¶76, ¶85 (“Knockeart describes that the user can interact with the in-vehicle user device (implemented as a cellular phone in the predictable combination).”), ¶89 (“in the predictable combination of Knockeart with Feldman, at least some of the in-vehicle probes used to collect traffic information would have been implemented as cellular phones.”), ¶91, ¶95, ¶99 (“in

the predictable combination of Knockeart with Feldman, at least some of the in-vehicle systems are implemented as cellular phones”), ¶107, ¶124, ¶175.

6. As I previously explained, such a modification to implement the in-vehicle navigation systems described by Knockeart to include adding full cellular phone functionality based on the suggestion of Feldman would have been straight forward and a POSITA would have had a reasonable expectation of success in implementing such a combined system, especially given that using cellphones as navigation devices and traffic probes was well-known in the art prior to 2004. GM-1003, ¶67.

7. As I previously explained, Knockeart’s in-vehicle navigation and traffic reporting systems already included the functionality for use as cellphones, including communicating “over a standard analog cellular telephone system” or “digital cellular telephone links.” GM-1004, [0074], [0078], [0086]; GM-1003, ¶65. Knockeart’s in-vehicle systems already included other functionality making them suitable for use as cellphones including voice input and output functionality, a cellular transceiver, and a handset. GM-1004, [0120]-[0121].

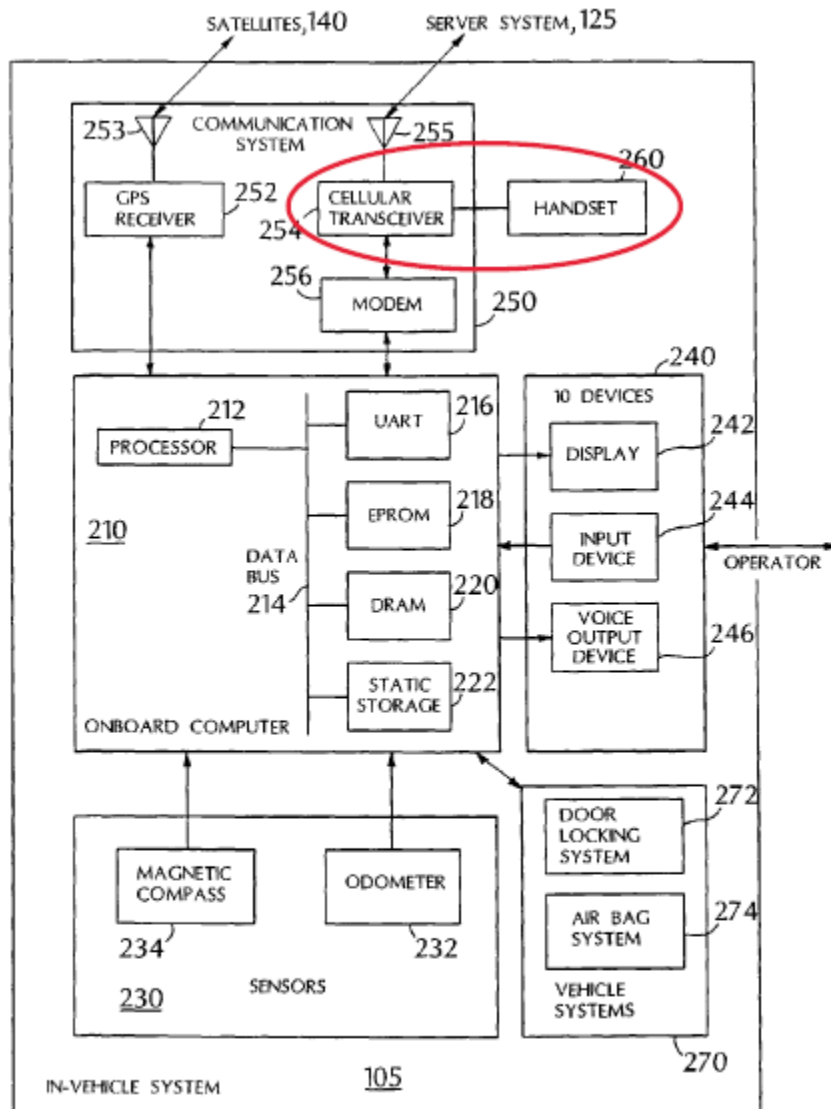


FIG. 2

GM-1004, FIG. 2. The fact that Knockart's in-vehicle systems already included the main components needed for full cellphone functionality, including cellular telephone system communication functionality, would have made implementation of these systems to include full cellphone functionality (as suggested by Feldman) a straight forward modification that would have provided the numerous benefits I

described in my first declaration. GM-1003, ¶¶58-67.

8. To be clear, the primary configuration for the combination of Knockeart and Feldman that I described in my initial petition is not a wholesale replacement of Knockeart's in-vehicle navigation systems with the cellphones of Feldman. Rather, I described that a POSITA would have found it obvious to implement each of Knockeart's in-vehicle navigation systems as a cellphone (either installed in the vehicle or in a handheld form) based on Feldman's suggestion. GM-1003, ¶¶58-67.

B. Alternative or Additional Proposed Modification to Knockeart Based on Feldman

9. In addition to the primary configuration for the combination of Knockeart and Feldman that I described in my initial declaration, I also described an alternative or additional modification to Knockeart's system that included using "Feldman's vehicular traffic data collected by tracking 'vehicle-carried' cellular telephones as one of the external traffic information sources expressly described in Knockeart." GM-1003, ¶66. In other words, in this alternative or additional configuration, Feldman's cellphone probes are used to provide an additional traffic information source to Knockeart's system used to populate at least some of the traffic information in the combined system. *Id.* I was clear in my first declaration that this proposed modification to Knockeart based on the suggestions of Feldman

was proposed “[i]n the alternative or in addition to” the primary proposed configuration that I had described. *Id.*, ¶76.

II. THE SYSTEM RESULTING FROM THE PRIMARY PROPOSED MODIFICATION TO KNOCKEART BASED ON FELDMAN WOULD HAVE PREDICTABLY PROVIDED SELECTIVE ENABLING OR DISABLING OF ACCESS TO USER CELLPHONE LOCATION DATA (RESPONSIVE TO POR, pp. 10-17)

10. As I discussed in above, in the primary configuration for the combination of Knockeart and Feldman described in my initial declaration, the teachings of Feldman are applied to Knockeart’s system to provide full cellphone functionality to Knockeart’s in-vehicle systems (either as vehicle-mounted devices or handheld cellphones) while retaining all functionality of the in-vehicle systems described by Knockeart. Claim 1 does not require that the claimed cellphone be a handheld device. A POSITA would have recognized that an in-vehicle system, such as Knockeart’s, configured to include full cellular phone communication functionality (based on Feldman’s suggestions) is an example of a cellphone.

11. As such, the various arguments made in the POR regarding various modifications to Feldman’s cellphones (POR, 10-17) are moot as the primary configuration for the Knockeart-Feldman system does not rely on the cellphones of Feldman but rather simply modifies Knockeart’s in-vehicle systems to be implemented as cellphones. Specifically, the arguments raised in the POR are

directed toward only the second “alternative” or “additional” configuration for the proposed combination of Knockeart and Feldman in which Feldman’s cellphones are used to populate some or all of the traffic data. As such, the POR does not appear to provide any arguments finding fault with the primary proposed configuration for the combination of Knockeart and Feldman. There is simply no discussion in the POR addressing the discussion in my first declaration that it would have been obvious to modify Knockeart based on Feldman’s suggestions to implement Knockeart’s in-vehicle systems as cellphones.

III. THE SYSTEM RESULTING FROM THE ALTERNATIVE OR ADDITIONAL PROPOSED MODIFICATION TO KNOCKEART BASED ON FELDMAN WOULD HAVE PREDICTABLY PROVIDED SELECTIVE ENABLING OR DISABLING OF ACCESS TO USER CELLPHONE LOCATION DATA (RESPONSIVE TO POR, pp. 10-17)

12. In addition to ignoring the primary configuration for the Knockeart-Feldman combination that I proposed in my initial petition, the POR’s arguments regarding the alternative configuration for the Knockeart-Feldman combination are faulty for at least two reasons: (1) Feldman expressly describes collection and reporting of traffic information by GPS enabled cellphones, and (2) it would have been obvious and beneficial to include functionality for selectively enabling or disabling access to user cellphone location data (as taught by Knockeart) in

Feldman's embodiment that describes tracking of cellphone locations via cell tower handovers. I discuss both of these issues below.

A. Feldman Expressly Describes Collection and Reporting of Traffic Information by GPS Enabled Cellphones

13. The arguments in the POR regarding various alleged modifications to Feldman's cellphones are all based on Feldman's descriptions of tracking cellphone locations "by determining the base stations to which the cellphone is attached and monitoring handovers of the cellphone from one base station to another. POR, 2-3 (discussing "tracking the location of cellphones using the handovers themselves"). However, this technique for tracking cellphone locations is merely one of multiple sources of traffic data described in Feldman. Feldman describes "acquiring a variety of the vehicular traffic data and information associated with the oriented rad section network, *from a variety of sources.*" GM-1005, Abstract (emphasis added). While the tracking of cellphone handovers (as discussed in the POR) is one of these sources, Feldman also expressly describes receiving location information from GPS enabled cellphones. As such, the "alternative" or "additional" configuration for the Knockeart-Feldman combination that I described in my first declaration also provides all elements of claim 1.

14. Feldman describes using cellular phones as probes to gather information for "calculating velocities of vehicles, for example, by acquiring series

of exact locations of the vehicles located along roads in known time intervals[.]” GM-1005, [0005]; GM-1003, ¶56. Contrary to the assertion in the POR that “Feldman’s phones do not themselves collect, report, or control any location information” (POR, 10), Feldman makes clear that one of its sources of traffic information is GPS enabled cellphones “transmitting vehicular locations to” a central traffic server. GM-1005, [0053]; GM-1003, ¶89. Specifically, as I addressed in my initial declaration, Feldman states that “mobile wireless communication devices are increasingly being installed or carried in vehicles, and are capable of *transmitting vehicular locations to a computerized central data and information receiving and processing system.*” GM-1005, [0053] (emphasis added). Feldman goes on to describe that “[s]uch mobile wireless communication devices” that include this ability for transmitting vehicular locations can be configured to include “GPS capabilities” and include devices such as “computer laptops and *cellular phones.*” *Id.* (emphasis added).

15. In another example, Feldman discloses that “mobile sensors or electronic devices provid[e] dynamic vehicle location and velocity data and information to the computerized central traffic data and information handling system.” GM-1005, [0035].

16. Feldman describes use of a variety of “mobile sensors or electronic devices physically located in or attached to vehicles,” which serve as sources of traffic information by “automatically transmit[ing] vehicle locations to the computerized central traffic data and handling system.” GM-1005, [0007].

Feldman describes that “such prior art techniques make use of well known global positioning system (GPS).” *Id.*, [0008]. Feldman is also express that these mobile sensors include cellphones, stating that the GPS enabled devices include “mobile wireless devices such as cellular telephones, laptop computers, personal digital assistants (PDAs), transceivers and other types of telemetric devices.” *Id.*, [0008].

These disclosures of Feldman are in the background section, indicating that use of GPS enabled cellphones for collecting and reporting traffic data was known in prior art systems. In addition to this disclosure of the state of the prior art in Feldman, I identified examples in my initial declaration of use of GPS enabled cellphones for collecting traffic probe information in prior art systems. GM-1003, ¶67. For example, Simske describes determining traffic conditions “[b]ased on GPS tracking information *obtained from* other GPS-enabled devices” such as “*a portable telephone*, laptop computer, pager, personal digital assistant, or any other type of portable or mobile unit or device having a GPS receiver.” GM-1006, [0012]-[0013]. Whitsell provides another such example, describing the well-

known prior art technique in which “the mobile terminal[s] 50 may include a GPS system” and that “the mobile terminal 50 will likely be a cellular telephone.” GM-1007, 7:54-67, 5:44-45.

17. Returning to Feldman, Feldman describes the well-known prior art technique of collecting “vehicular traffic data and information *acquired from mobile sensors* of a *cellular phone mobile communication network*.” GM-1005, [0024]. This disclosure reveals that Feldman expressly describes acquiring vehicle traffic data from the mobile phones themselves, and not exclusively from monitoring cell tower handovers. GM-1003, ¶¶56, 80, 89, 93. I identified several examples in Feldman of GPS enabled cellphones collecting and reporting traffic information in my first declaration. GM-1003, ¶56 (citing GM-1005, [0024]), ¶80, (citing GM-1005, [0035]-[0036], [0053]), ¶89 (citing GM-1005, [0053]), ¶93 (citing GM-1005, [0035], [0008]-[0009])

18. In one of these examples, Feldman describes that “[a] growing number of mobile wireless communication devices are increasingly being installed or carried in vehicles, and are capable of transmitting vehicular locations to a computerized central data and information receiving and processing system.” GM-1005, [0053]. These “mobile wireless communication devices are telemetric devices with GPS capabilities” and include “driver-carried devices such as

computer laptops and cellular phones.” *Id.* Feldman goes on to describe that these mobile devices (such as cellphones) are used as “‘moving’ sensors” and that the central server “obtains the vehicular traffic data and information by ‘push’ or ‘pull’ procedures” such as by “receiving the vehicular traffic data and information that is initiated by the source 62 of the mobile sensors.” GM-1005, [0063].

19. In addition to this self-reporting of location information from cellphones to the server described in Feldman, the cellphone tracking of non-GPS enabled cellphones through tracking of cell tower handovers is described as another example of “the variety of sources” of vehicular traffic data. GM-1005, [0057]-[0062]. Feldman is also clear that the system “combines or fuses the acquired vehicular traffic data and information” collected “from several such sources” into “one coherent and complete vehicular traffic situation picture.” *Id.*, [0054].

20. Because Feldman expressly describes GPS enabled cellphones that collect and report their locations to a traffic data collection system, a POSITA would have recognized that Knockeart’s technique for “enabling or disabling” vehicle location tracking therefore would have been directly applicable to the vehicle tracking methods of Feldman, which expressly discusses requiring “the knowledge and consent of the[] drivers” before “[t]racking vehicles.” GM-1004,

[0324]; GM-1005, [0064]; GM-1003, ¶¶82-85. Therefore, the arguments made in the POR regarding the ability of the combined system to selectively enable or disable tracking of cellphone tower handovers are irrelevant because use of Feldman's GPS enabled cellphones as a source of traffic information do not require such functionality. Additionally, contrary to the assertions in the POR, it would not have been necessary to modify the "cellphones in Feldman to collect and transmit location data" in the resulting system (POR, 12) because Feldman already expressly describes such functionality.

B. Knockeart's Techniques for Selectively Enabling and Disabling Access to user Cellphone Location Data are Fully Applicable to the Cell Network Location Tracking Functionality Described in Feldman

21. As I discussed above, it would have not been necessary to implement the cellphones described by Feldman to selectively enable or disable tracking of cellphone tower handovers for the "alternate" or "additional" configuration for the Knockeart-Feldman combination to provide all elements of claim 1 because Feldman expressly describes GPS enabled cellphones that self-report their locations to the server system. However, a POSITA would have also recognized that it would have been obvious and beneficial to apply the teachings of Knockeart to the cellphone tower handover tracking implementation of Feldman to selectively enable or disable tracking of cellphone tower handovers.

22. As an initial matter, there is no requirement in the claims that the cellphones themselves self-report their locations; they need only provide a list of authorizations to allow the user to enable or disable access to user cellphone location data. In the Knockeart-Feldman combination, a POSITA would have found it beneficial to require user permission to track cellphone tower handovers to identify cellphone locations and speeds, as suggested by both Knockeart and Feldman. Specifically, Feldman states that in some implementations of its traffic data collection system, “[t]racking vehicles” requires “the knowledge and *consent* of their drivers.” GM-1005, [0064]. Knockeart provides additional details for providing a user interface to user’s of the combined system to obtain such consent from drivers.

23. As I discussed in my initial declaration, Knockeart describes two modes of data collection for collecting location information from the in-vehicle systems. GM-1004, [0319], [0324]; GM-1003, ¶83. Knockeart goes on to describe that “[t]he operator of the vehicle has the option of enabling or disabling either mode of data collection through the user interface of the in-vehicle system.” GM-1004, [0324]. As such, a POSITA still would have found it obvious and beneficial to include functionality for enabling or disabling access to cellphone tower handover information by the traffic identification and navigation system in the

resulting combination (based on the functionality described in Knockeart). GM-1003, ¶¶84-85. A POSITA would have recognized that restricting access by the navigation system to such cellphone location data satisfies “selectively enable[ing] or disable[ing] access to user cellphone location data.”

24. A POSITA would have recognized that the administrative and control messages described by Feldman would have been available to the cellular network in the resulting system. However, a POSITA would have further recognized that it would have been obvious and beneficial to implement the functionality for enabling or disabling location tracking (as described in Knockeart) to prevent the resulting system from tracking the user’s location and to prevent the cellular network from providing such location tracking information to the traffic determination and navigation system of the resulting system. As I discussed in my first declaration, “protection of a user’s private information, including location information, was a known concern well before 2004 and a POSITA would have been aware of many prior art references disclosing user interfaces that allowed users of mobile devices” to protect their location information. GM-1003, ¶82. I provided numerous examples of such prior art systems that required permission from users prior to allowing access to location data from cellphones. GM-1003, ¶¶39-45. Neither Feldman nor Knockeart includes any disclosures that would have

prevented restriction of access to location information that is determined based on cell tower handovers. The “alternative” or “additional” configuration for the Knockeart-Feldman combination therefore also provides all elements of claim 1.

ADDITIONAL REMARKS

25. I currently hold the opinions expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

26. I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this proceeding.

Dated:

June 5, 2024

By:



Dr. Michael S. Braasch, of Guysville, OH