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(54) **VEHICLE-BASED MULTIMODE DISCOVERY**

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CPC ***G07C 9/00158*** (2013.01); ***G07C 9/00126*** (2013.01); ***G08B 21/0205*** (2013.01); ***B60Q 1/00*** (2013.01); ***G08B 25/016*** (2013.01); ***G08G 1/0965*** (2013.01); ***H04W 76/021*** (2013.01); ***H04W 48/02*** (2013.01); ***H04W 4/12*** (2013.01); *H04W 4/206* (2013.01); *H04W 84/005* (2013.01); ***G05D 23/1917*** (2013.01); ***B60R 16/037*** (2013.01); ***G07C 5/00*** (2013.01); ***G07C 5/008*** (2013.01); ***G05D 1/0027*** (2013.01); ***G01C 21/00*** (2013.01); ***G06F 17/30864*** (2013.01); ***G01C 21/34*** (2013.01); ***G05D 1/0212*** (2013.01); ***B60W 40/09*** (2013.01); ***G07C 5/085*** (2013.01); ***G07C 5/0808*** (2013.01); ***G06F 17/30247*** (2013.01); ***G06K 9/00268*** (2013.01); ***B60W 50/08*** (2013.01); ***G06F 21/00*** (2013.01); ***G06F 3/017*** (2013.01); ***B60R 16/0373*** (2013.01); ***H04W 4/046*** (2013.01); ***G06K 9/00255*** (2013.01); ***H04W 36/32*** (2013.01); ***G08G 1/166*** (2013.01);
(Continued)

(58) **Field of Classification Search**
USPC 701/36
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,754,255 A 6/1988 Sanders et al.
5,204,817 A 4/1993 Yoshida
(Continued)

FOREIGN PATENT DOCUMENTS

EP 1909069 12/2010
KR 2006-0128484 12/2006
WO WO 2012/102879 8/2012

OTHER PUBLICATIONS

U.S. Appl. No. 14/543,535, filed Nov. 17, 2014, Ricci.
(Continued)

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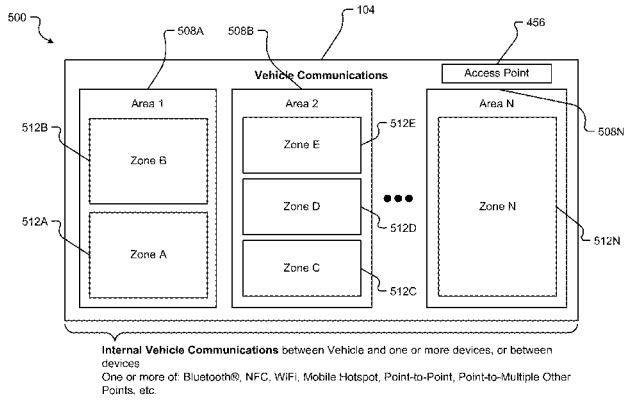
(57) **ABSTRACT**

Methods and systems for a device discovery daemon that bases access of a communication device to an on board vehicle network on device location are provided.

21 Claims, 51 Drawing Sheets