

EXHIBIT D



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(12) **United States Patent**
Camilleri et al.

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(45) **Date of Patent:** *Mar. 7, 2017

(54) **METHOD OF ENABLING A WIRELESS DEVICE TO MAKE A NETWORK CONNECTION WITHOUT USING A NETWORK OPERATOR'S HOME LOCATION REGISTER REGISTER**

(52) **U.S. Cl.**
CPC H04W 40/02 (2013.01); H04L 29/06027 (2013.01); H04L 65/1069 (2013.01); (Continued)

(58) **Field of Classification Search**
None
See application file for complete search history.

(71) **Applicant:** SHOO 533 LIMITED, Berkshire (GB)

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(73) **Assignee:** SHOO 533 LIMITED, Buckinghamshire (GB)

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 164 days.

(Continued)
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This patent is subject to a terminal disclaimer.

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WO 2005/020027 3/2005

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OTHER PUBLICATIONS

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(65) **Prior Publication Data**
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(Continued)

Primary Examiner — Min Jung
(74) **Attorney, Agent, or Firm** Saul Ewing LLP

Related U.S. Application Data

(63) Continuation of application No. 12/281,840, filed as application No. PCT/GB2007/000782 on Mar. 7, 2007, now Pat. No. 8,861,512.

(57) **ABSTRACT**

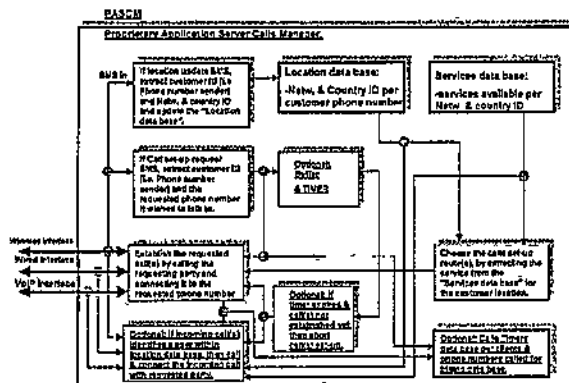
A wireless device can initiate a network connection without using a network operator's home location register. The wireless device sends data to a server that defines a call request; and the server decides on the appropriate routing over all available networks for that call request. But, unlike a conventional HLR, the server can receive communications from the device using any one of several different protocols, and is not limited to the MAP (mobile application part) protocol. For example, the wireless device can use SMS or HTTP over the internet to communicate with the server. The server then determines the appropriate least cost routing.

(30) **Foreign Application Priority Data**

Mar. 7, 2006 (GB) 0604537

(51) **Int. Cl.**
H04W 40/20 (2009.01)
H04W 40/02 (2009.01)
(Continued)

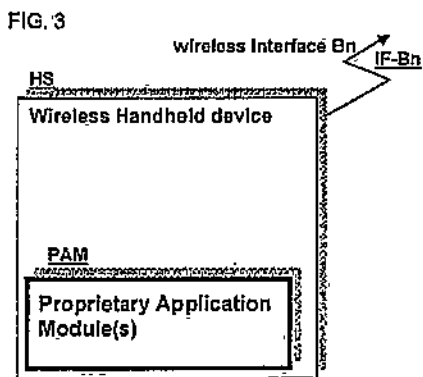
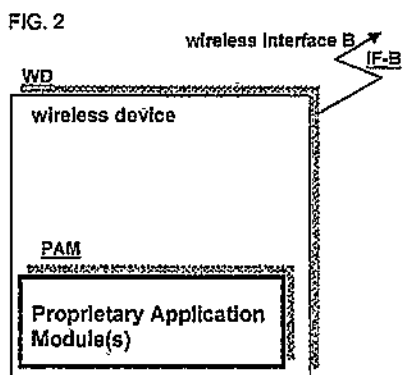
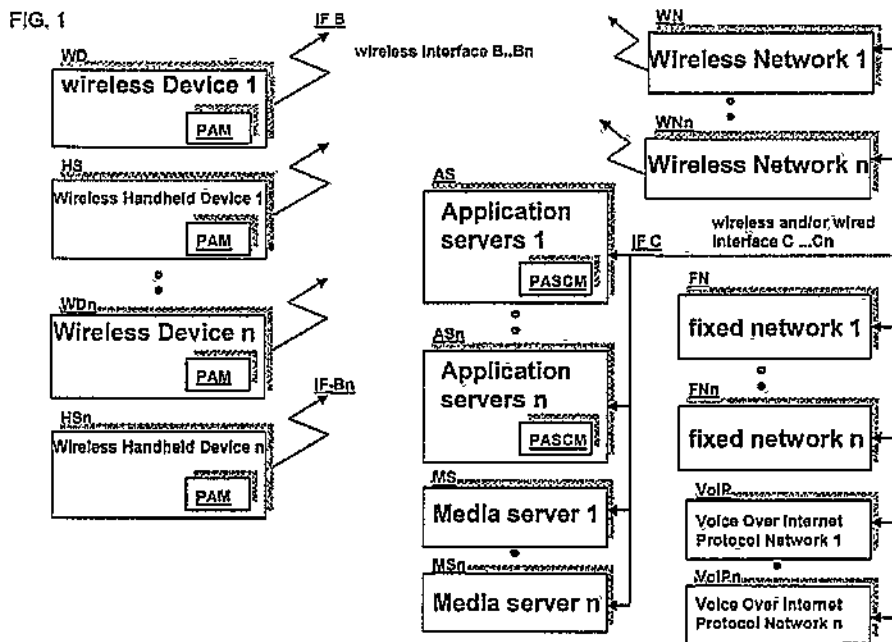
24 Claims, 6 Drawing Sheets

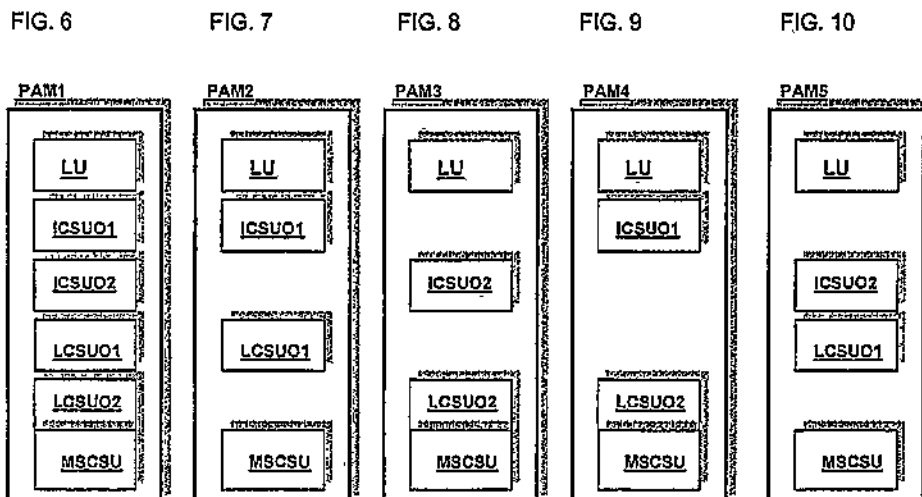
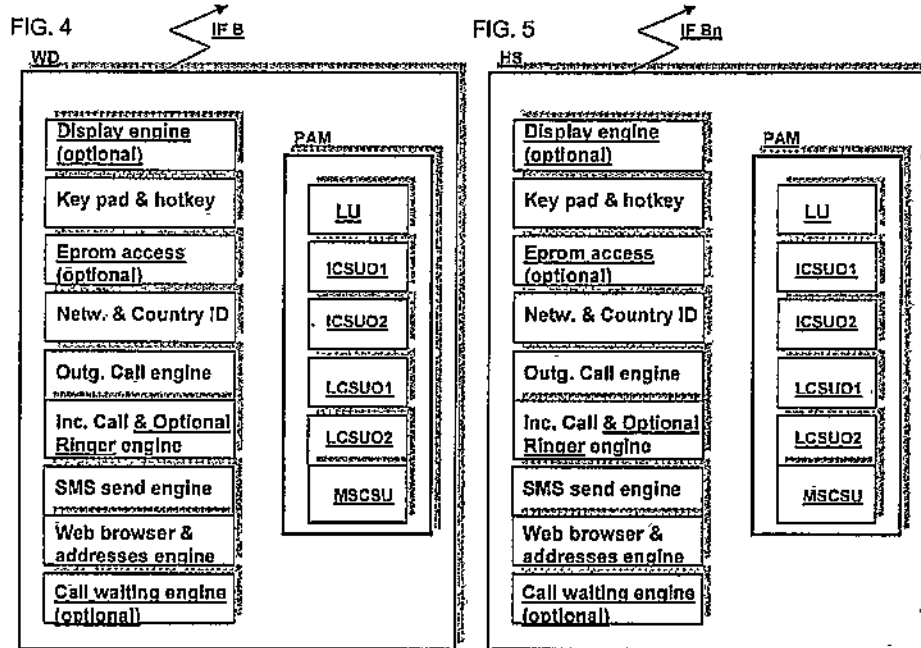


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<p>(51) Int. Cl. <i>H04L 29/06</i> (2006.01) <i>H04W 8/08</i> (2009.01) <i>H04W 76/02</i> (2009.01) <i>H04W 4/02</i> (2009.01) <i>H04W 4/14</i> (2009.01) <i>H04W 8/12</i> (2009.01) <i>H04W 80/04</i> (2009.01) <i>H04W 8/04</i> (2009.01)</p>	<p>(56) References Cited U.S. PATENT DOCUMENTS 6,614,781 B1 9/2003 Elliott et al. 6,868,272 B1 3/2005 Berkowitz et al. 7,564,839 B1 7/2009 Russell et al. 7,852,831 B2 12/2010 Akbar et al. 7,894,807 B1 2/2011 Drennan 7,920,529 B1 * 4/2011 Mahler H04W 8/04 2004/0162058 A1 8/2004 Mottes 370/338 2005/0079855 A1 4/2005 Jethi et al. 2007/0036127 A1 2/2007 Roosen et al.</p>
<p>(52) U.S. Cl. CPC <i>H04L 65/1096</i> (2013.01); <i>H04W 4/02</i> (2013.01); <i>H04W 4/14</i> (2013.01); <i>H04W</i> <i>8/082</i> (2013.01); <i>H04W 8/12</i> (2013.01); <i>H04W 40/20</i> (2013.01); <i>H04W 76/02</i> (2013.01); <i>H04W 8/04</i> (2013.01); <i>H04W 80/04</i> (2013.01)</p>	<p>OTHER PUBLICATIONS International Preliminary Report on Patentability, dated Sep. 9, 2008, and Written Opinion, issued in priority Application No. PCT/GB2007/000782. * cited by examiner</p>





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