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PTO/SB/05 (04-04)

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	DJL-2
First Inventor	DANIEL J LIN
Title	PEER-TO-PEER MOBILE IM
Express Mail Label No.	ER 036214025

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Commissioner for Patents
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- Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
- Applicant claims small entity status.
See 37 CFR 1.27.
- Specification [Total Pages 11]
(preferred arrangement set forth below)
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
- Drawing(s) (35 U.S.C. 113) [Total Sheets 3]
- Oath or Declaration [Total Sheets 2]
 - Newly executed (original or copy)
 - Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 18 completed)
 - DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
- Application Data Sheet. See 37 CFR 1.76

- CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
- Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
 - Computer Readable Form (CRF)
 - Specification Sequence Listing on:
 - CD-ROM or CD-R (2 copies); or
 - Paper
 - Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

- Assignment Papers (cover sheet & document(s))
- 37 CFR 3.73(b) Statement Power of Attorney *(when there is an assignee)*
- English Translation Document *(if applicable)*
- Information Disclosure Statement (IDS)/PTO-1449 Copies of IDS Citations
- Preliminary Amendment
- Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
- Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
- Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
- Other:

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

Continuation Divisional Continuation-in-part (CIP) of prior application No.: 10/817,994

Prior application information: Examiner _____ Art Unit: 2681
For CONTINUATION OR DIVISIONAL APPS only; The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

Customer Number: _____ OR Correspondence address below

Name	DANIEL J LIN					
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Name (Print/Type)	DANIEL J LIN	Registration No. (Attorney/Agent)	47,750	Date	8-22-04	
Signature					Date	8-22-04

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 565.00

Complete if Known

Application Number	
Filing Date	
First Named Inventor	DANIEL J LIN
Examiner Name	
Art Unit	2681
Attorney Docket No.	DJL-2

METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	385
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$) 385

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
20	-20** = 0	X 9	= 0
3	-3** = 0	X 43	= 0
Multiple Dependent		0	= 0

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 290	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)			(\$) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code (\$)	Fee Code (\$)	Fee Code (\$)	Fee Code (\$)		
1051 130	2051 65	1053 130	2053 65	Surcharge - late filing fee or oath	
1052 50	2052 25	1812 2,520	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	2053 65	1812 2,520	2053 65	Non-English specification	
1812 2,520	2052 25	1804 920*	2052 25	For filing a request for <i>ex parte</i> reexamination	
1804 920*	2052 25	1805 1,840*	2052 25	Requesting publication of SIR prior to Examiner action	
1805 1,840*	2052 25	1805 1,840*	2052 25	Requesting publication of SIR after Examiner action	
1251 110	2251 55	1252 420	2251 55	Extension for reply within first month	
1252 420	2252 210	1253 950	2252 210	Extension for reply within second month	
1253 950	2253 475	1254 1,480	2253 475	Extension for reply within third month	
1254 1,480	2254 740	1255 2,010	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	1401 330	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	1402 330	2401 165	Notice of Appeal	
1402 330	2402 165	1403 290	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	1451 1,510	2403 145	Request for oral hearing	
1451 1,510	2451 755	1452 110	2451 755	Petition to institute a public use proceeding	
1452 110	2452 55	1453 1,330	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	1501 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	1502 480	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	1503 640	2502 240	Design issue fee	
1503 640	2503 320	1460 130	2503 320	Plant issue fee	
1460 130	2460 65	1807 50	2460 65	Petitions to the Commissioner	
1807 50	2460 65	1806 180	2460 65	Processing fee under 37 CFR 1.17(q)	
1806 180	2460 65	8021 40	2460 65	Submission of Information Disclosure Stmt	180
8021 40	2460 65	1809 770	2460 65	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	1810 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	1801 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	1802 900	2801 385	Request for Continued Examination (RCE)	
1802 900	2802 450		2802 450	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 180

SUBMITTED BY

Name (Print/Type)	DANIEL J LIN	Registration No. (Attorney/Agent)	47,750	Telephone	415-956-3005
Signature	<i>[Signature]</i>	Date	8-22-04		

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Peer-to-Peer Mobile Instant Messaging Method and Device

5 **Cross Reference to Related Applications**

This application is a continuation-in-part of U.S. patent application No. 10/817,994, filed April 4, 2004.

10 **Field of the Invention**

The present invention relates generally to messaging techniques for mobile devices, and more specifically, a technique to establish peer-to-peer session-based instant messaging ("IM") communications among mobile devices without the need for IM registration.

15 **Background of the Invention**

Current instant messaging ("IM") technologies depend upon a registration system to enable end users to communicate with one another. For example, to establish an IM session on AOL's Instant Messenger ("AIM"), each participating end user must have registered with AOL and must log into an AIM server in order to use the service. This registration system creates a virtual network of registered users and the value to a new user in joining an IM service is directly related to the number of existing users already registered on the service. As more users register to use an IM service, the value of the IM service to registered users increases since registered users will be able establish IM sessions with an increasing number of users. Known as a "network effect," this phenomenon causes a further tipping effect, which is the natural tendency for few (or even a single) IM services to pull away from their competitors once they have gained an initial edge by registering a critical mass of users. This tipping effect tends to occur rapidly and stems, in part, from users' inclination to gravitate towards the IM services that they expect will become dominant. This tipping effect gives proprietary IM services such as AIM, Microsoft's .NET Messenger Service, and Yahoo! Messenger, that have achieved a large network of registered users, a strong barrier to entry into the IM market. As such, proprietary IM services may be reluctant to provide interoperability to other less established IM services since providing such access could cannibalize their competitive network advantage.

From a technical perspective, the registration system used in IM services is necessary to provide *presence* capabilities. In order to establish an IM session, an end user must be registered with the IM service so that the end user can log into the service's IM server, which broadcasts the end user's availability to engage in IM sessions to an authorized group of the end user's peers that have also registered and logged into the IM server. The IM server also similarly provides the end user with a list of registered peers that are available to engage in an IM session. When end users engage in IM sessions over a traditional connected network environment, presence capabilities are a critical characteristic of an IM service because such capabilities are

needed to provide an end user's peers with sufficient presence information (i.e., IP address and port number) in order to locate the end user within the network and establish a connection between the end user and a peer for an IM session. Furthermore, logging into an IM server also enables an end user to indicate whether or not he or she is physically present (e.g., sitting in front of a networked workstation or in front of a laptop that is connected the network) and willing to engage in an IM session.

However, IM services for mobile devices, such as smartphones, appear to have less a need for presence capabilities. Unlike establishing an IM session on a laptop, desktop or workstation, where the end user must broadcast his or her availability and presence information on the network when he or she is physically sitting in front of the laptop, desktop or workstation, establishing an IM session on a mobile device does not suffer from the same presence issues because the end user is presumed to be carrying the mobile device at all times. So long as the mobile device has enough contact information (e.g., cellular telephone number, PIN number, etc.) to directly communicate with other mobile devices through the underlying wireless network technology (e.g., cellular technology, etc.), an IM session could be initiated and established in a manner similar to making and answering mobile phone calls without the need for registering with or logging into an IM server in order to broadcast presence information to other end users for IM purposes.

Furthermore, unlike IM services in a traditional connected network environment, successful end user adoption of an IM service between mobile devices would not suffer from reliance upon establishing a critical mass of end users through a registration system. In contrast, such an IM service would be instantly usable to any and all end users of mobile devices so long as such mobile devices are already capable of directly communicating with other mobile devices through the underlying wireless mobile technology without needing further presence information (e.g., cellular phones directly communicating with other cellular phones through cellular telephone numbers). As such, what is needed is a method to establish IM sessions directly between mobile devices, where such mobile devices are capable of directly communicating with other mobile devices through the underlying wireless technology, such that no IM registration or log-in server is needed to provide presence information to other mobile devices for IM purposes.

Summary of the Invention

The present invention provides a method for establishing a peer-to-peer session-based IM communications between mobile devices over a digital mobile network system that supports data packet-based communications. Under the present invention, no IM registration or IM log-in server need be used to provide presence information. Instead, a mobile device initiating an IM session opens a listening port defined by an underlying data packet based network protocol. The initiating mobile device sends an invitation message containing the network address, including

the listening port, of the initiating device to a target mobile device through a page-mode messaging service supported by the digital mobile network system. The initiating mobile device further utilizes and incorporates a unique identification number (e.g., telephone number, PIN number, etc.) associated with the target mobile device into the invitation message to locate and
5 contact the target mobile device within the wireless mobile network. Alternatively, the invitation message may be embedded in the telephony ringing signal sent to the target mobile device. Once the initiating mobile device receives a response from the target mobile device at the listening port, the two mobile devices are able to establish a reliable virtual connection through the underlying data packet-based network protocol in order to exchange text messages directly
10 between the two mobile devices through a session-based communication.

Brief Description of the Drawings

FIGURE 1 depicts a diagram of an environment for establishing an IM session in accordance with the present invention between a first mobile device and a second mobile device
15 in a GSM mobile network system supporting GPRS as a data packet-based communications service, SMS as a text messaging service, and TCP/IP as an underlying data packet based network protocol.

FIGURE 2 depicts a flow chart for a first embodiment for establishing a peer-to-peer session-based IM system in accordance with the present invention.
20

FIGURE 3 depicts a flow chart for a second embodiment for establishing a peer-to-peer session-based IM system in accordance with the present invention.
25

Detailed Description of the Invention

Figure 1 depicts one environment to deploy an embodiment of the present invention. As depicted, the underlying digital mobile network system in this environment is the Global System for Mobile communications (GSM) **100** standard. Under the GSM standard, each of the mobile devices **105** and **110** includes a Subscriber Information Module (SIM) card that contains unique identification information that enables the GSM system to locate the mobile devices within the network and route data to them. A current commercial example of a mobile device (e.g., smartphone, PDA, handheld, etc.) that might be used in **Figure 1** could be Research In Motion's (RIM) BlackBerry handheld devices, which includes a QWERTY keyboard to facilitate the typing of text. As depicted, a GSM architecture includes the following components: base transceiver stations (BTS) **115** and base station controllers (BSC) (**120A** or **120B**) for managing the transmission of radio signals between the MSC (defined below) and the mobile devices, mobile service-switching centers (MSC) (**125A** and **125B**) for performing the all switching functions and
35 controlling calls to and from other telephone and data systems, a home location register (HLR)
40

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