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(12) **United States Patent**
**Johnson**

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(54) **SYSTEM AND METHOD FOR LOCATION BASED EXCHANGE NETWORK**

(71) Applicant: **William J. Johnson**, Flower Mound, TX (US)

(72) Inventor: **William J. Johnson**, Flower Mound, TX (US)

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| ***H04M 3/42*** | (2006.01) |
| ***H04W 4/02*** | (2018.01) |
| ***H04H 20/16*** | (2008.01) |
| ***H04L 12/24*** | (2006.01) |
| ***H04L 12/26*** | (2006.01) |
| ***H04L 29/08*** | (2006.01) |
| ***H04W 40/20*** | (2009.01) |
| ***H04W 40/24*** | (2009.01) |
| ***H04W 64/00*** | (2009.01) |
| ***H04W 12/06*** | (2009.01) |
| *G06Q 10/08* | (2012.01) |
| *G06Q 30/06* | (2012.01) |

(52) **U.S. Cl.**

CPC ..... ***H04W 4/023*** (2013.01); ***H04H 20/16*** (2013.01); ***H04L 41/0816*** (2013.01); ***H04L 43/16*** (2013.01); ***H04L 67/104*** (2013.01); ***H04W 4/02*** (2013.01); ***H04W 12/06*** (2013.01); ***H04W 40/20*** (2013.01); ***H04W 40/244*** (2013.01); ***H04W 64/00*** (2013.01); *G06Q 10/087* (2013.01); *G06Q 10/0833* (2013.01); *G06Q 30/0633* (2013.01)

(58) **Field of Classification Search**

CPC ..... H04W 4/02; H04W 64/00; H04W 4/023; H04W 12/06; H04W 40/20; H04W 40/244; H04W 92/18; H04W 4/21; H04W 4/50; H04W 4/80; H04W 68/005; H04W 88/02

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | | |
|---|---|---|---|---|
| 6,427,115 | B1 * | 7/2002 | Sekiyama | G01C 21/3688 340/990 |
| 2001/0022558 | A1 * | 9/2001 | Karr, Jr. | G01S 1/026 342/450 |

(Continued)

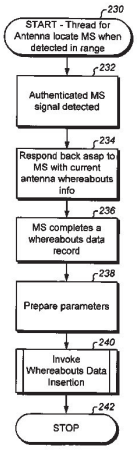
*Primary Examiner* — Liton Miah

(74) *Attorney, Agent, or Firm* — Yudell Isidore PLLC

(57) **ABSTRACT**

Mobile data processing Systems (MSs) interact with systems in their vicinity, and with each other, in communications and interoperability. Information transmitted inbound to, transmitted outbound from, is in process at, or is application modified at a mobile data processing system triggers processing of actions in accordance with user configurations, for example to present content to a user. The locatable network of MSs is referred to as a Location-Network Expanse.

**20 Claims, 322 Drawing Sheets**



disclosure. For example, a proven popular MS charter configuration may be replaced by providing a privilege which can be used between MSs, thereby eliminating the need to go through the time to configure the charter. The privilege itself replaces what the charter provided. In another example, a new atomic command may be used to replace complex charter configurations, or replaces a set of specific use of a plurality of other atomic commands, in order to prevent burdening MS users with configuring desirable MS behavior.

There are many embodiments for synchronizing key regions of executable code of this disclosure, and locking into a single detailed design is not intended. A synchronization design can vary based on software programming decisions. In some embodiments, a MS is equipped with different synchronization models which are configurable at manufacturing time, or by an administrator or user. In some embodiments, a prescribed synchronization model is deployed based on the type of MS and anticipated use of the MS. For example, WITS processing, or subsets therein, may be semaphore protected so that only a single WDR is processed at critical regions in charter processing. Identifying critical regions can be dependent on different uses of the LBX architecture. In one example, this can be advantageous for WITS processing involving many MSs with privileged configurations in the vicinity of a receiving MS. Consider an electronic tag example. In this example, one MS is "it" and a plurality of other MSs are avoiding becoming "it". When the "it" MS becomes close enough to an other MS, the other MS becomes "it". But what happens when the MS becomes close enough to a plurality of other MSs? Which MS becomes "it"? It is important to prevent making more than one MS "it", thus synchronization provides a more convenient method for preventing this from happening. To provide clear explanation, assume that only a single iWITS WDR processing thread can execute FIG. **57** at a time. While it is certainly better performance to identify the processing block(s) (i.e. subset(s)) of FIG. **57** processing that should be synchronized rather than the entire FIG. **57** processing, doing so here for exemplification simplifies the electronic tag discussion. Thus, if there is a group of MSs in a group called PlayTag known to each participating MS, every privileged MS can have the following charter configuration in light of the synchronization to FIG. **57** processing:

(_I_msid"PlayTag" & \loc_my $(1M)_I_location & T_it):

Invoke Data (T_it, True, _I_msid),

Invoke Data (T_it, False, \thisMS);

Notice that the charter configuration assumes a single unit of work including the time of checking the T_it variable (True=your "it"), marking the MS which is within 1 meter to this MS location as being "it", and the time of clearing the local application variable which marks this MS as being "it". Synchronization becomes quite important for this charter to operator correctly, otherwise another MS can cause processing the same charter at substantially the same time for unpredictable results. Thus, thread processing synchronization is to be analyzed and incorporated as is appropriate in context of the various embodiments for deployment. In the example, the electronic tag application (e.g. with prefix "T_") may additionally monitor the T_it AppTerm variable to cause a beaconing sound, and/or beaconing visual indication (flashing bright red screen) so that nearby MS users know who is "it".

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While various embodiments of the present disclosure have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present disclosure should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.

What is claimed is:

**1**. A system including one or more sending data processing systems wherein each sending data processing system of the one or more sending data processing systems comprise:

one or more processors; and

memory coupled to the one or more processors and storing instructions, wherein the one or more processors, based on the instructions, perform operations comprising:

periodically beaconing outbound a broadcast unidirectional wireless data record for physically locating in a region of the sending data processing system one or more receiving user carried mobile data processing systems, the broadcast unidirectional wireless data record received directly from the sending data processing system in each receiving user carried mobile data processing system of the one or more receiving user carried mobile data processing systems, and including:

no physical location coordinates of the sending data processing system,

a data field containing a signal strength of the sending data processing system, and

application context identifier data identifying location based content for presenting by a location based application of the receiving user carried mobile data processing system to a user interface of the receiving user carried mobile data processing system upon the receiving user carried mobile data processing system determining with a local memory maintained location based configuration monitored with background processing of the receiving user carried mobile data processing system during mobility of the receiving user carried mobile data processing system anticipating receipt of the broadcast unidirectional wireless data record having the application context identifier data in response to a user activating the location based application with the user interface of the receiving user carried mobile data processing system wherein the location based application:

invokes a location based API of the receiving user carried mobile data processing system for the location based configuration anticipating the receipt of the broadcast unidirectional wireless data record having the application context identifier data,

is notified upon the receipt of the broadcast unidirectional wireless data record having the application context identifier data configured in the location based configuration, and

presents the location based content to the user interface of the receiving user carried mobile data processing system, the location based content originating from another data processing system that is remote to both the sending data processing system and the receiving user carried mobile data processing system.