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(54) **ESTIMATING THE LOCATION OF A WIRELESS TERMINAL BASED ON ASSISTED GPS AND PATTERN MATCHING**

(52) **U.S. Cl.** **455/456.1**; 455/12.1

(75) Inventor: **Tarun Kumar Bhattacharya**, San Jose, CA (US)

Correspondence Address:
DEMONT & BREYER, LLC
SUITE 250
100 COMMONS WAY
HOLMDEL, NJ 07733 (US)

(73) Assignee: **POLARIS WIRELESS, INC.**, Santa Clara, CA (US)

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H04Q 7/20 (2006.01)

(57) **ABSTRACT**

A method of using a non-GPS-derived technique to estimate the location of an Assisted-GPS-enabled wireless terminal for the purposes of generating location-specific assistance data for the wireless terminal is disclosed. The wireless terminal then uses the assistance data to acquire and process one or more GPS signals and to derive information that is probative of the wireless terminal's location. The GPS-derived location information is then combined with non-GPS-derived location to form an estimate of the location of the wireless terminal that is better than can be derived from either alone. This combination of GPS-derived and non-GPS techniques is particularly useful when the wireless terminal can only acquire one or two GPS signals because it is not possible to determine the location of the wireless terminal with only two GPS signals alone.
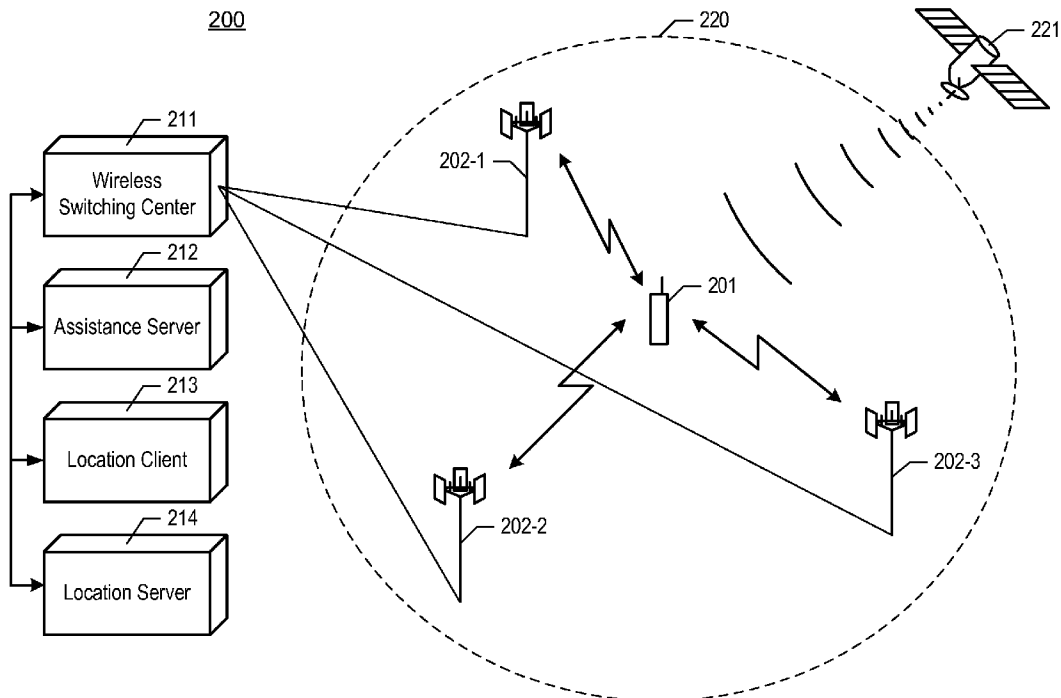
Figure 1 (Prior Art)

Figure 2

Figure 3

To/From Wireless Switching Center 211,
Assistance Server 212, and Location Client 213

Location Server 214

Transceiver — 303

Processor — 301

Memory

Operating System — 311

Application Software — 312

Location-Trait Database — 313

Trait-Correction Database — 314

— 214

— 302

Figure 4

```
                          ┌─────────────┐
                          │    Start     │
                          └──────┬──────┘
                                 │
                                 ▼
             ┌──────────────────────────────────┐
             │   Build Location-Trait Database 313 │──── 401
             └──────────────────┬───────────────┘
                                 │
                                 ▼
             ┌──────────────────────────────────┐
             │  Build Trait-Correction Database 314 │──── 402
             └──────────────────┬───────────────┘
                                 │
         ┌───────────────────────┴──────────────────────┐
         │                                                │
         ▼                                                ▼
  ┌─────────────────────────┐ ── 403      ┌──────────────────────────────────┐
  │  Estimate Location of Wireless │        │  Maintain Location-Trait Database 313 │── 405
  │        Terminal 201      │        │   and Trait-Correction Database 314  │
  └────────────┬────────────┘        └──────────────────────────────────┘
               │
               ▼
  ┌─────────────────────────┐ ── 404
  │ Use Estimate of Wireless Terminal │
  │  In Location-Based Application   │
  └─────────────────────────┘
```

DOCKET ALARM
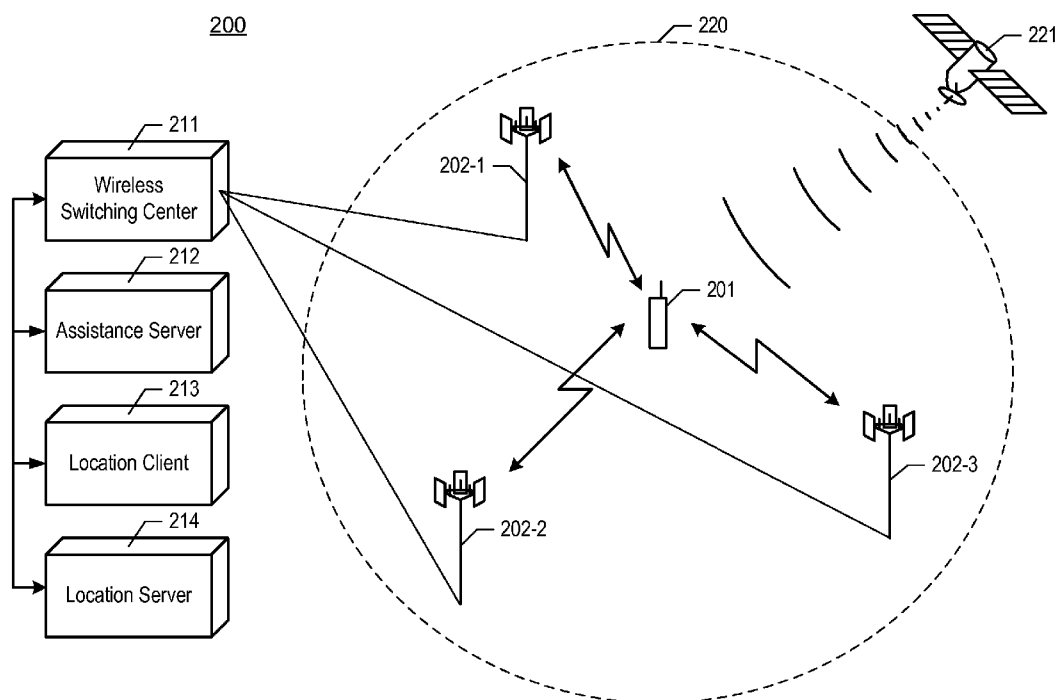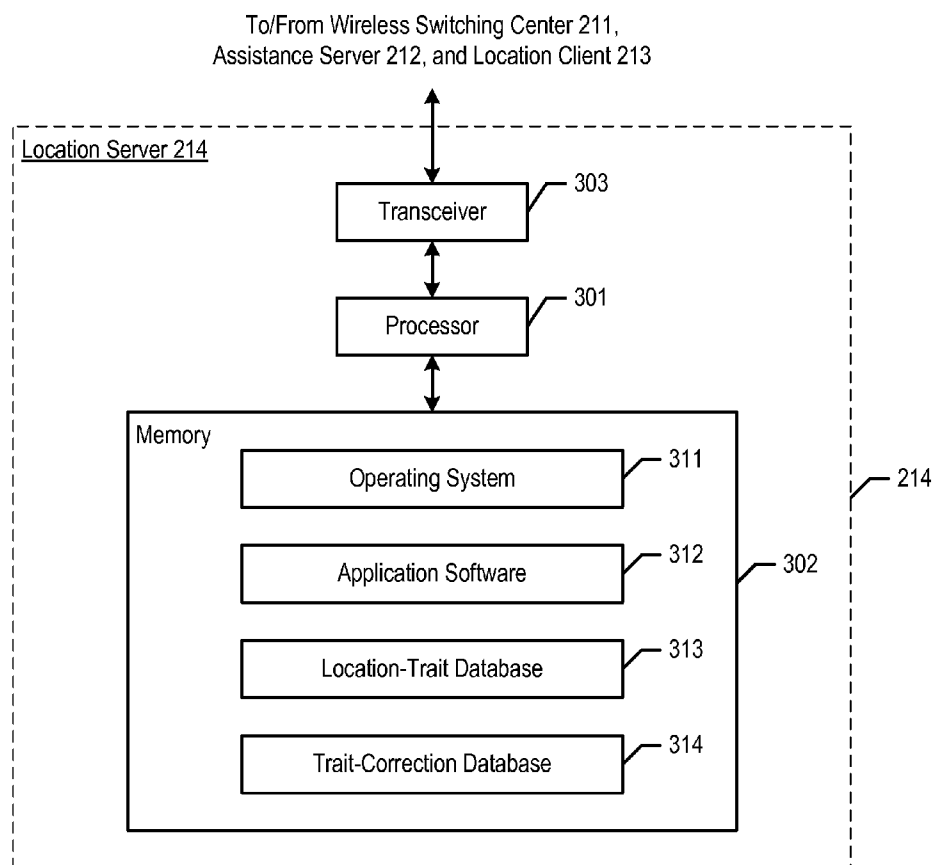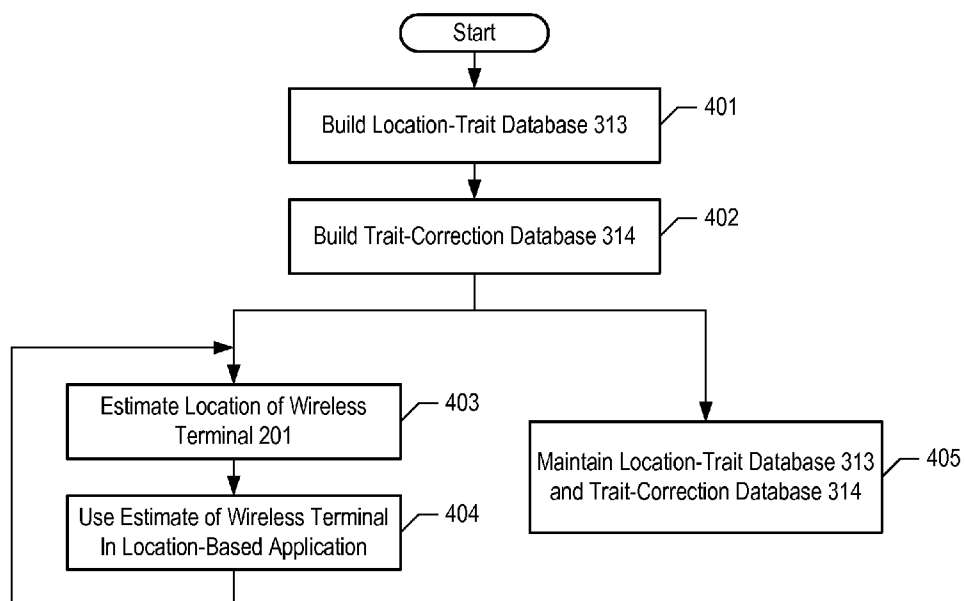
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