VEHICLE CONTROL, GUIDANCE, OPERATION, OR INDICATION

1. Remote control system
2. Aeronautical vehicle
3. Altitude or attitude control or indication
4. Rate of change (e.g., ascent, decent)
5. Angle of attack
6. Air speed or velocity measurement
7. Threshold or reference value
8. Warning signal or alarm
9. Compensation for environmental conditions
10. Auto pilot
11. Inner/outer loop
12. Spacecraft or satellite
13. Flight condition indicating system
14. With indication or control of take-off
15. With indication or control of landing
16. I.L.S. or radar guidance
17. Profile of descent
18. Railway vehicle
19. Railway vehicle speed control
20. Marine vehicle
21. Electric vehicle
22. Automatic route guidance vehicle
23. On-board computer interact with a host computer
24. Storage or planning of route information
25. Modification or correction of route information
26. Artificial intelligence (e.g., fuzzy logic)
27. Having image processing
28. Vehicle subsystem or accessory control
29. Suspension control
30. Attitude change suppressive control (e.g., antiroll or antipitch)
31. Fail-safe system
32. Artificial intelligence (e.g., fuzzy logic)
33. Steering control
34. Feedback, transfer function or proportional and derivative (P&D) control
35. Fail-safe system
36. Artificial intelligence (e.g., fuzzy logic)
37. Control of vehicle safety devices (e.g., airbag, seatbelt, etc.)
38. By integrating the amplitude of the input signal
39. By frequency or waveform analysis
40. Cooperative or multiple control (e.g., suspension and braking)
41. Vehicle equipment position control (e.g., seat, mirror, door, window, headrest, or headlamp)
42. Construction or agricultural-type vehicle (e.g., crane, forklift)
43. Transmission control
44. Semiautomatic control (e.g., switchable between automatic and manual)
45. And other vehicle control
46. Engine output control
47. By changing shift map, schedule, or pattern
48. Having a plurality of preset maps, schedules, or patterns
49. Fuzzy logic
50. Adaptive control
51. Model or learning means (e.g., neural network)
52. Feedback control (e.g., closed loop)
53. Using a transmission ratio as feedback control
54. Fail-safe control (e.g., preventing a gear shift)
55. Responsive to faulty sensor
56. Indicating a completion of a shift or a shift to be completed
57. Responsive to road, external, or ambient condition
58. Time regulated operations
59. Clutch control
60. Adaptive control
61. Control of power distribution between vehicle axis or wheels (e.g., four wheel drive vehicle)
70. Indication or control of braking, acceleration, or deceleration
71. Antiskid, antilock, or brake slip control
72. During cornering or turning of vehicle
73. On split coefficient surface (u)
74. Having particular means to determine a reference value for wheel slippage or pseudo-vehicle speed
75. Correction or modification
76. Fail-safe system
77. Artificial intelligence (e.g., fuzzy logic)
78. Control of brake pressure
79. Having speed variation responsive means (e.g., acceleration, deceleration)
80. Having coefficient of friction or road condition determining means
81. Four wheel drive, electric, or heavy vehicles
82. Antispin, traction control, or drive slip control
83. Control of brake pressure
84. Control of engine torque
85. Having throttle valve positioning
86. Having fuel cutting or ignition timing retarding
87. Control of transmission torque
88. Restricting differential operation
89. Four wheel drive vehicle
90. Having particular slip threshold, target slip ratio, or target engine torque determining means
91. Integrated with antiskid or other vehicle control system (e.g., cruise control, suspension)
92. Fail-safe system
93. Vehicle speed control (e.g., cruise control)
94. Having gradient responsive control to suppress hunting, overshooting, or undershothing
95. By transmission shifting control
96. Having inter-vehicle distance or speed control
97. Fail-safe system
98. Artificial intelligence (e.g., fuzzy logic)
99. With indicator or control of power plant (e.g., performance)
100. Gas turbine, compressor
101. Internal-combustion engine
102. Digital or programmed data processor
103. Control of air/fuel ratio or fuel injection
104. Controlling fuel quantity
105. Controlling timing
106. Artificial intelligence (e.g., fuzzy logic)
107. Fail-safe system
108. Exhaust, gas circulation
109. Detection of O2 concentration
110. Speed, acceleration, deceleration
111. Vibration, roughness, knock
112. Engine stop, fuel shutoff
113. Starting, warmup
114. Backup, interrupt, reset, or test
115. Specific memory or interfacing device
116. With indication or control to maintain fixed position
117. Traffic analysis or control of surface vehicle
118. With determination of traffic density
119. With determination of traffic speed
120. Traffic analysis or control of aircraft
121. With speed control or order
122. With course diversion
123. With indication of fuel consumption rate or economy of usage
124. Determining balance or center of gravity (e.g., load distribution of vehicle)
29.1 Vehicle diagnosis or maintenance determination
29.2 Failure detection initiates subsequent vehicle control
29.3 For multiple vehicles (e.g., fleet, etc.)
29.4 Indication of maintenance interval
29.5 Caused by oil condition degradation
29.6 Vehicle or device identification
29.7 Detection of faulty sensor
29.8 By applying signal to test sensor
29.9 Fault prediction
30.1 Inhibiting fault indication
30.2 Using mathematical model
30.3 Plausibility, verification or confirmation of sensor output
30.4 Utilizing time related property of sensor output (e.g., period or frequency, etc.)
30.5 By specific comparison with sensor output
30.6 Mutual comparison of plural identical sensors
30.7 Comparison of sensor with output of different type sensor
30.8 Comparing current sensor output with previously stored value thereof
30.9 Sensor output compared to range of values
31.1 Sensor output compared to threshold
31.2 Variable or dynamic
31.3 Including event counter
31.4 Diagnosis or maintenance need determined externally to vehicle
31.5 Having particular communication link (e.g., Internet, satellite, etc.) with external site
31.6 Determining repair needed to correct fault
31.7 Validation or confirmation of fault
31.8 Determining likely cause of fault
31.9 Failure prediction
32.1 Trend analysis
32.2 Data recording following vehicle collision
32.3 Including vehicle location determination
32.4 By satellite positioning system (e.g., GPS, etc.)
32.5 Including vehicle distance travelled determination
32.6 Including data security (e.g., encryption, password, etc.)
32.7 Having internal vehicle network to distribute diagnosis or maintenance data therein
32.8 Active testing (i.e., providing input to system)
32.9 Using mathematical model
33.1 Calibration
33.2 Including portable or handheld element (e.g., linked to an On Board Diagnostic system, etc.)
33.3 Having removable data recording device
33.4 Storing operational history (e.g., data logging, etc.)
33.5 Pass, fail or inconclusive status
33.6 Utilizing time related property of fault signal (e.g., duration, etc.)
33.7 Including signal comparison
33.8 To range of values
33.9 To threshold
34.1 Variable or dynamic
34.2 Customized for particular vehicle type or model
34.3 Having plural diagnostic processors
34.4 Diagnosis or maintenance of specific vehicle subsystem
34.5 Employing position determining equipment
34.6 For use in a map database system
34.7 Including route searching or determining
400 NAVIGATION
408 Employing position determining equipment
409 For use in a map database system
410 Including route searching or determining
411 Route correction, modification or verification
412 Including satellite positioning system (e.g., GPS, etc.)
413 Cancellation of newly corrected or modified route
414 Based on traffic condition (e.g., congestion, etc.)
415 Based on weather condition

December 2011
Regenerating entirely new route from current position

Having particular off-route detection

User interface

Audio

Remote route searching or determining

Route information sent to user in successive portions

For plural moving bodies

Based on real time condition (e.g., traffic, weather, etc.)

Based on user driving history

Based on user input preference

Point of interest (POI) or landmark

Using speech recognition

Having audio or visual route guidance

Using color to differentiate route portion

Having particular storage or retrieval of data

Having audio or visual route guidance

Plural mode display

Pedestrian guidance

Within building

Prohibitive indication (e.g., do not enter, etc.)

Visual guidance having enhanced realism (e.g., 3 dimensional, etc.)

Detailed route intersection guidance

Including point of interest (POI) or landmark

Providing supplemental information (e.g., environmental condition, etc.)

Guidance by text

Audio guidance other than speech

Providing indication of off-route condition

Using speech recognition or synthesis

Having particular mounting of guidance device to vehicle

Having location correction

By map matching

Of multiple locations

Using terrain recognition

Correcting for terrestrial magnetic field

Updating existing user map database

Data sent to user from remote location

Data sent in increments

Per user request

Having particular presentation of location along with data from map database

Having variable map scale

Inhibiting presentation change

Conditionally changed presentation

Bird’s eye view

Field within field

Vehicle having fixed position within the presentation along with navigational map moving relative thereto

Including map data storage or retrieval

Selecting from plural storage devices to obtain map data

Using hard drive

Using cassette tape

Determination of estimated time of arrival (ETA)

Determination of along-track or cross-track deviation

Including way point navigation

Using satellite positioning system (e.g., Global Positioning System (GPS), etc.)

Having accuracy improvement of position or location

Having multiple antennas or receivers (e.g., differential GPS, etc.)

Including plural widely separated fixed GPS stations (e.g., Wide Area Augmentation System (WAAS), etc.)

Having a self-contained position computing mechanism (e.g., dead-reckoning, etc.)

Correcting multiple diverse errors

Anti-jamming

Dilution of precision compensating
476 .....Isolating data from error producing satellite
477 .....Integer ambiguity resolution
478 .....Correcting clock signal error
478.5 .....Multipath distortion reduction
479 .....Using filter
480 .....Kalman
481 .....Using artificial intelligence (e.g., neural network, etc.)
482 .....Plural object location determination (e.g., fleet, etc.)
483 .....Multi-mode (e.g., stand alone/network assisted, etc.)
484 .....Having communication link to external ground site
485 .....Location or position determined at external ground site
486 .....Having security processing (e.g., password, encryption, etc.)
487 .....User interface
488 .....Speech recognition or speech synthesized output
489 .....Using vector processing
490 .....Having power conservation
491 .....Portable
492 .....Using VHF omnidirectional radio range/distance measuring equipment (VOR/DME) (e.g., Tacan, etc.)
493 .....Using hyperbolic lines of position (e.g., Loran, Decca, etc.)
494 .....Using non-inertial dead-reckoning apparatus
495 .....Having accuracy improvement of position or location
496 .....Correction for ellipticity of earth
497 .....Wind speed correction
498 .....Wheel sensor provides distance or heading information
499 .....Including integrator
500 .....Using inertial sensing (e.g., Inertial Navigation System (INS), etc.)
501 .....Having correction by non-inertial sensor
502 .....Using four or more accelerometers
503 .....Including Doppler effect in inertial sensing signal processing
504 .....Including gravitational effect in inertial sensing signal processing
505 .....Having error correction of inputs to or outputs from an inertial sensing device
506 .....Plural diverse signals
507 .....Velocity
508 .....Azimuth
509 .....By filtering
510 .....Kalman
511 .....Including matrix processing
512 .....Including vector processing
513 .....Using star tracker
514 .....Including radar or optical ground scanner
515 .....Emergency use
516 .....Location dependent distribution of information to user
517 .....Transmission of location information to remote site
518 .....Error correction
519 .....Object tracking
520 .....Conversion of location coordinates
521 .....Including history log
522 .....Using computer network (e.g., Internet, etc.)
523 .....Using imaging device
524 .....Using neural network
525 .....Using magnetometer
526 .....Portable
527 .....Determination of travel data based on distance measured from a starting point
528 .....Aircraft preflight route search
529 .....Great circle route search
530 .....Including compensated direction finder (e.g., for compass deviation, etc.)
531 .....Space orbit or path
532 .....Employing map database system
533 .....Including route searching or determining
534 .....Having error or fault correction
535 .....Using filter
536 .....Kalman
537 .....Using computer network (e.g., Internet, etc.)
538 .....Having user interface
539 .....Speech recognition or synthesis
Having particular data storage or retrieval

Portable

Collision avoidance

Course to intercept

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

VEHICLE CONTROL, GUIDANCE, OPERATION, OR INDICATION (701/1)

FOR 100 Vehicle diagnosis or maintenance indication (701/29)
FOR 101 Indication of maintenance interval (701/30)
FOR 102 Self-test (701/31)
FOR 103 Vehicle or device ID (701/32)
FOR 104 Plural processors or external processor (701/33)
FOR 105 Detection of faulty sensor (701/34)
FOR 106 With data recording device (701/35)

FOR 107 NAVIGATION (701/200)
FOR 108 Determination of travel data based on the start point and destination point (701/201)
FOR 109 Route pre-planning (701/202)
FOR 110 Great circle route (701/203)
FOR 111 Determination of E.T.A. (701/204)
FOR 112 Determination of along-track or cross-track deviations (701/205)
FOR 113 Employing way point navigation (701/206)
FOR 114 Employing position determining equipment (701/207)

FOR 115 For use in a map data base system (701/208)
FOR 116 Including route searching or determining device (701/209)
FOR 117 Route correction, modification, or verification (701/210)
FOR 118 Having audio or visual route guidance (701/211)
FOR 119 Having variable map scale (701/212)
FOR 120 Using Global Positioning System (GPS) (701/213)
FOR 121 Means to improve accuracy of position or location (701/214)
FOR 122 Having multiple GPS antennas or receivers (e.g., differential GPS) (701/215)
FOR 123 Having an self-contained position computing means (e.g., dead reckoning) (701/216)
FOR 124 Using dead-reckoning apparatus (701/217)
FOR 125 Using R-O (D.M.E. and path) or Tacan equipment (701/218)
FOR 126 Using Loran or Shoran or Decca equipment (701/219)
FOR 127 Using inertial sensor (701/220)
FOR 128 With correction by noninertial sensor (701/221)
FOR 129 Using star tracker (701/222)
FOR 130 With radar or optical ground scanner (701/223)
FOR 131 With indicated course correction (compass deviation) (701/224)
FOR 132 Determining range without range measurement (701/225)
FOR 133 Space orbits or paths (701/226)