We claim:

1. A method of operating a communications device, comprising:
generating device location information based on at least one of a received signal or inertial guidance information; and
controlling at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information, said step of controlling including controlling: (i) a safety message monitoring periodicity that determines a rate at which monitoring for safety messages is performed and a safety message monitoring duty cycle based on the generated device location information or (ii) a safety message transmission periodicity that determines a rate at which safety message transmissions are made by said communications device; and
wherein the safety message monitoring periodicity or the safety message transmission periodicity is increased when it is determined that the communications device is at a location with higher vehicular traffic than at another location with lower vehicular traffic.

2. The method as claimed in claim 1, wherein the safety message monitoring periodicity or the safety message transmission periodicity is controlled as a function of proximity to vehicular traffic.

3. The method as claimed in claim 1, wherein controlling at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information includes:
controlling a transmission power level of safety messages transmitted by said communications device.

4. The method as claimed in claim 1, wherein controlling at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information includes:

disabling at least one of safety message transmission or safety message monitoring operations when said generated device location information indicates that said communications device is inside a moving vehicle.

5. The method as claimed in claim 4, wherein generating device location information based on at least one of a received signal or inertial guidance information includes:
determining if said communications device is located in a vehicle.

6. The method as claimed in claim 5, wherein determining if said communications device is located in a vehicle is based on at least one of:
user input;
strength and/or rate of safety messages received from vehicles;
a signal received from a safety message system of a vehicle;
a determined rate of motion relative to a rate of motion indicative of vehicular motion; or
a received acoustic signal indicative of said communications device being within a vehicle.

7. The method as claimed in claim 4, wherein controlling at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information includes:
enabling at least one of safety message transmission or safety message monitoring operations when said generated device location information indicates that said communications device is outside of a vehicle.

8. A communications device, comprising:
means for generating device location information based on at least one of a received signal or inertial guidance information; and
means for controlling at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information, said means for controlling at least one of a safety message monitoring operation or transmission operation including: means for controlling a safety message monitoring duty cycle based on the generated device location information and means for controlling a safety message monitoring periodicity

that determines a rate at which monitoring for safety messages is performed or a safety message transmission periodicity that determines a rate at which safety message transmissions are made by said communications device; and

wherein said means for controlling a safety message monitoring periodicity that determines a rate at which monitoring for safety messages is performed or a safety message transmission periodicity that determines a rate at which safety message transmissions are made by said communications device controls the safety message monitoring periodicity or the safety message transmission periodicity to increase when it is determined that the communications device has moved to a location with higher vehicular traffic from another location with lower vehicular traffic.

9. The communications device as claimed in claim 8, wherein said means for controlling a safety message monitoring periodicity or a safety message transmission periodicity controls the safety message monitoring periodicity or the safety message transmission periodicity as a function of proximity to vehicular traffic.

10. The communications device as claimed in claim 8, wherein said means for controlling at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information includes:

means for controlling the transmission power level of safety messages transmitted by said communications device.

11. A communications device comprising:

at least one processor configured to:

generate device location information based on at least one of a received signal or inertial guidance information;

control at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information, said processor being configured to control a safety message monitoring periodicity that determines a rate at which monitoring for safety messages is performed or a safety message transmission periodicity that determines a rate at which safety message transmissions are made by said communications device, and control a

safety message monitoring duty cycle based on the generated device location information, as part of being configured to control at least one of a safety message monitoring operation or transmission operation; and

increase the safety message monitoring periodicity or the safety message transmission when it is determined that the communications device is at a location with higher vehicular traffic than at another location with lower vehicular traffic; and

memory coupled to said at least one processor.

12. The communications device as claimed in claim 11, wherein said at least one processor is configured to control the safety message monitoring periodicity or the safety message transmission periodicity as a function of proximity to vehicular traffic.

13. The communications device as claimed in claim 11, said at least one processor is configured to control the transmission power level of safety messages transmitted by said communications device, as part of being configured to control at least one of a safety message monitoring operation or a safety message transmission operation based on the generated device location information.

Dated this 17/6/2014

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OF REMFRY & SAGAR
ATTORNEY FOR THE APPLICANTS

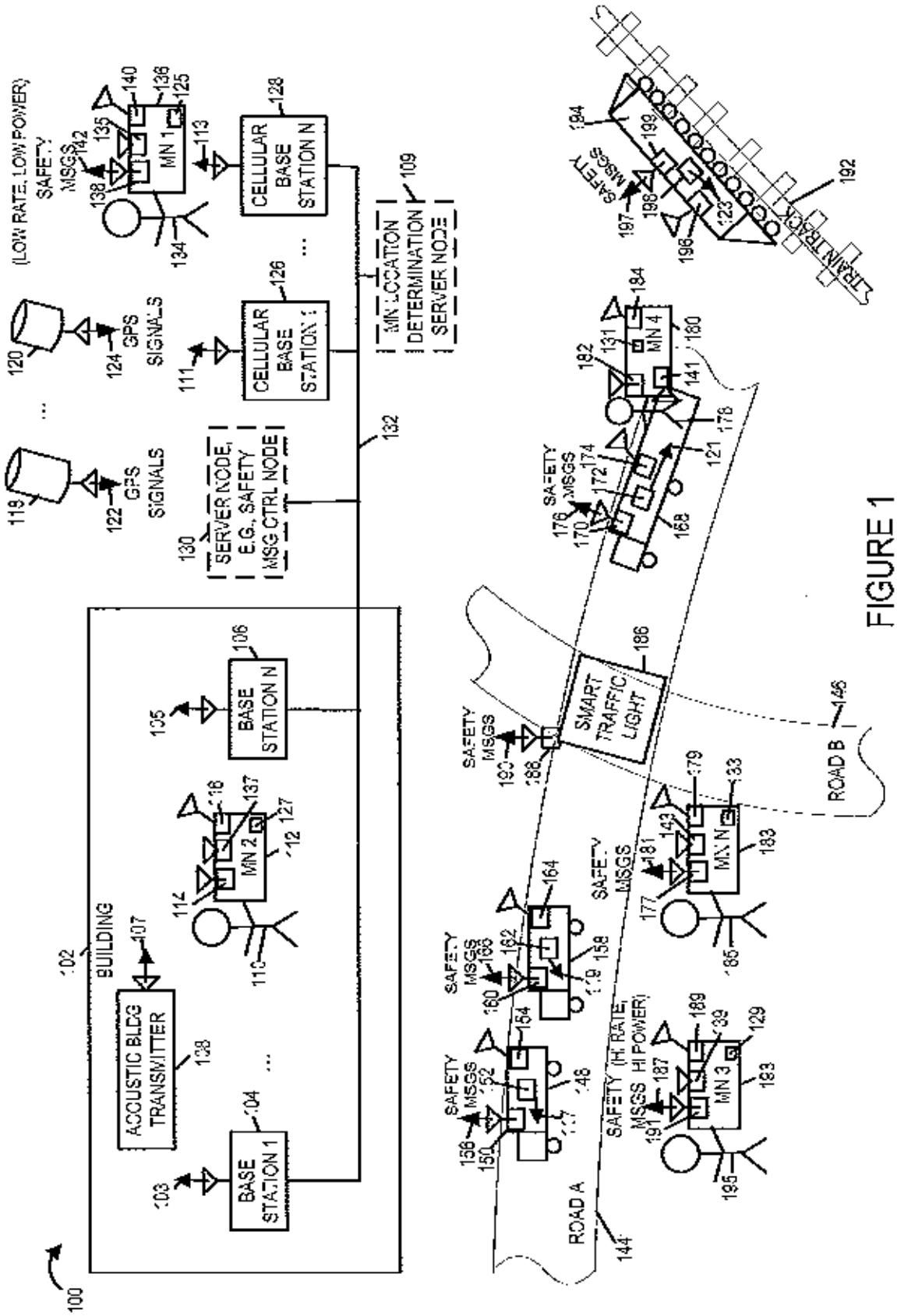
100
BUILDING
102
BASE STATION 1
104
BASE STATION N
106
ACCUSTIC BLDG TRANSMITTER
107
MN 1
MN 2
MN 3
MN 4
MN N
SERVER NODE, E.G., SAFETY MSG CTRL NODE
130
MN LOCATION DETERMINATION SERVER NODE
109
CELLULAR BASE STATION 1
126
CELLULAR BASE STATION N
128
132
GPS SIGNALS
SAFETY MSGS
(LOW RATE, LOW POWER)
SAFETY (HI RATE, HI POWER) MSGS
SMART TRAFFIC LIGHT
186
ROAD A
144
ROAD B
146
TRAIN TRACK
192

FIGURE 1

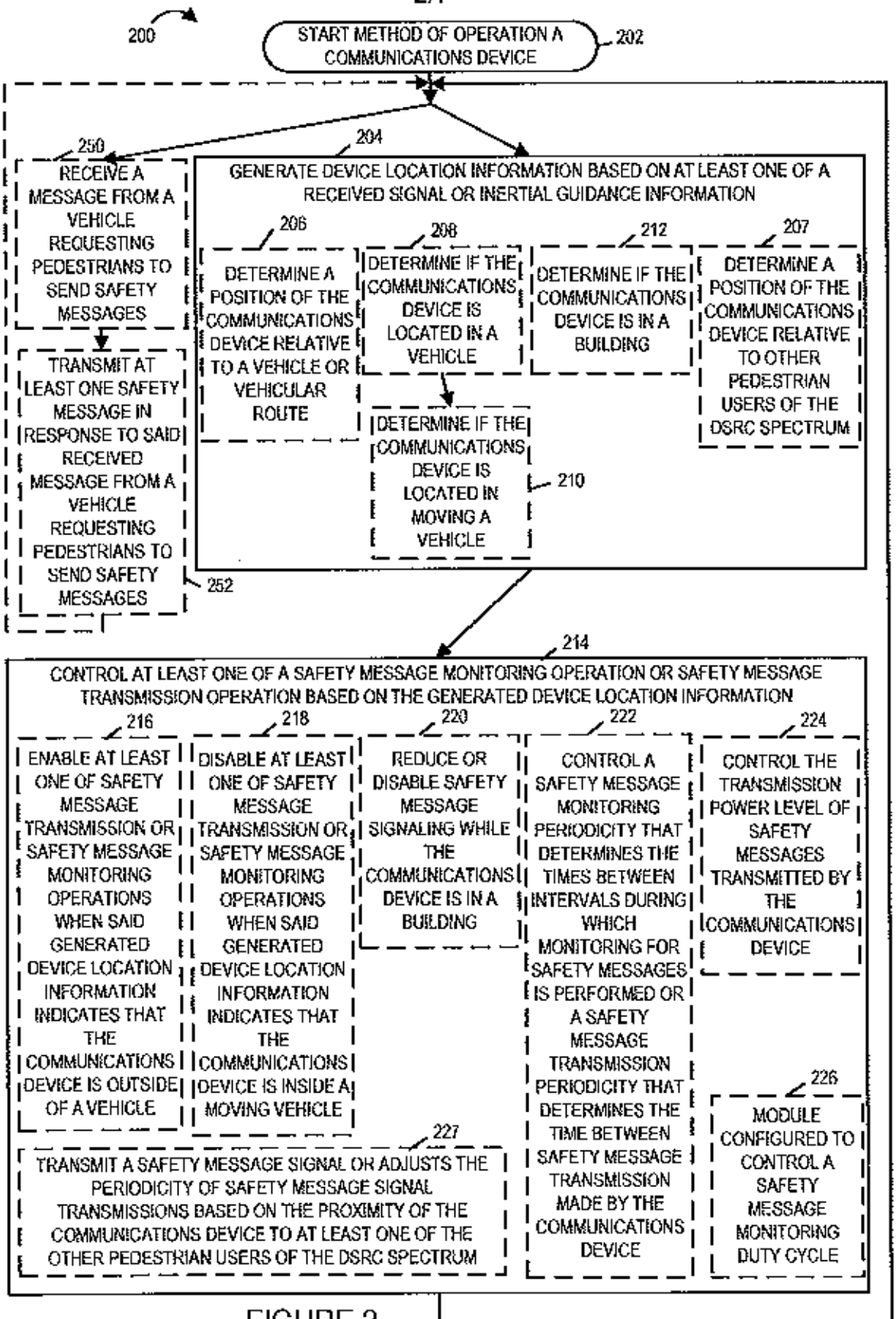
200
START METHOD OF OPERATION A COMMUNICATIONS DEVICE
202
250
RECEIVE A MESSAGE FROM A VEHICLE REQUESTING PEDESTRIANS TO SEND SAFETY MESSAGES
TRANSMIT AT LEAST ONE SAFETY MESSAGE IN RESPONSE TO SAID RECEIVED MESSAGE FROM A VEHICLE REQUESTING PEDESTRIANS TO SEND SAFETY MESSAGES
252
204
GENERATE DEVICE LOCATION INFORMATION BASED ON AT LEAST ONE OF A RECEIVED SIGNAL OR INERTIAL GUIDANCE INFORMATION
206
DETERMINE A POSITION OF THE COMMUNICATIONS DEVICE RELATIVE TO A VEHICLE OR VEHICULAR ROUTE
208
DETERMINE IF THE COMMUNICATIONS DEVICE IS LOCATED IN A VEHICLE
212
DETERMINE IF THE COMMUNICATIONS DEVICE IS IN A BUILDING
207
DETERMINE A POSITION OF THE COMMUNICATIONS DEVICE RELATIVE TO OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM
DETERMINE IF THE COMMUNICATIONS DEVICE IS LOCATED IN MOVING A VEHICLE
210
214
CONTROL AT LEAST ONE OF A SAFETY MESSAGE MONITORING OPERATION OR SAFETY MESSAGE TRANSMISSION OPERATION BASED ON THE GENERATED DEVICE LOCATION INFORMATION
216
ENABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE COMMUNICATIONS DEVICE IS OUTSIDE OF A VEHICLE
218
DISABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE COMMUNICATIONS DEVICE IS INSIDE A MOVING VEHICLE
220
REDUCE OR DISABLE SAFETY MESSAGE SIGNALING WHILE THE COMMUNICATIONS DEVICE IS IN A BUILDING
222
CONTROL A SAFETY MESSAGE MONITORING PERIODICITY THAT DETERMINES THE TIMES BETWEEN INTERVALS DURING WHICH MONITORING FOR SAFETY MESSAGES IS PERFORMED OR A SAFETY MESSAGE TRANSMISSION PERIODICITY THAT DETERMINES THE TIME BETWEEN SAFETY MESSAGE TRANSMISSION MADE BY THE COMMUNICATIONS DEVICE
224
CONTROL THE TRANSMISSION POWER LEVEL OF SAFETY MESSAGES TRANSMITTED BY THE COMMUNICATIONS DEVICE
226
MODULE CONFIGURED TO CONTROL A SAFETY MESSAGE MONITORING DUTY CYCLE
227
TRANSMIT A SAFETY MESSAGE SIGNAL OR ADJUSTS THE PERIODICITY OF SAFETY MESSAGE SIGNAL TRANSMISSIONS BASED ON THE PROXIMITY OF THE COMMUNICATIONS DEVICE TO AT LEAST ONE OF THE OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM

FIGURE 2

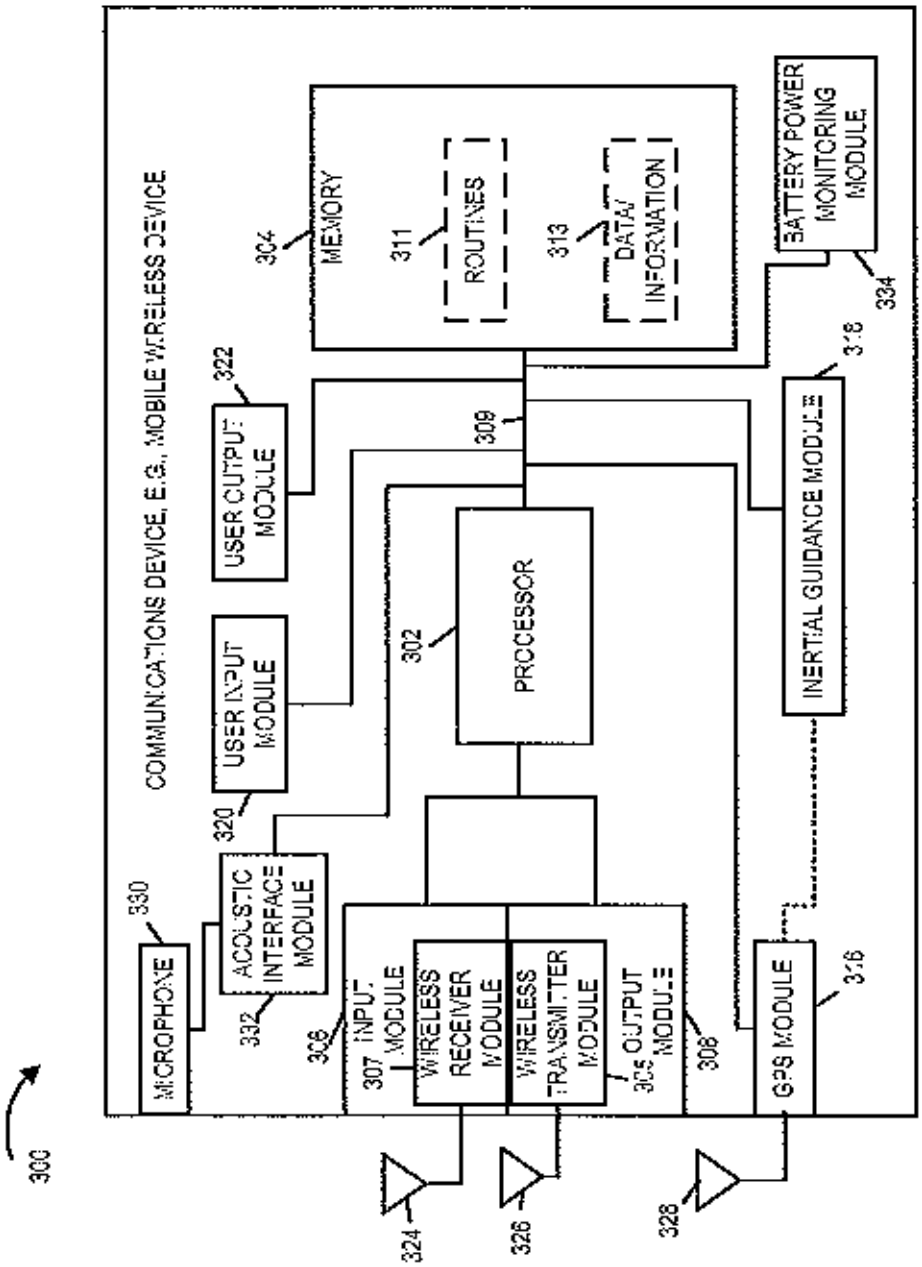
300
COMMUNICATIONS DEVICE, E.G., MOBILE WIRELESS DEVICE
MICROPHONE
330
ACOUSTIC INTERFACE MODULE
332
USER INPUT MODULE
320
USER OUTPUT MODULE
322
306
307 INPUT MODULE
WIRELESS RECEIVER MODULE
WIRELESS TRANSMITTER MODULE
305 OUTPUT MODULE
308
PROCESSOR
302
MEMORY
304
311
ROUTINES
313
DATA/ INFORMATION
309
INERTIAL GUIDANCE MODULE
318
BATTERY POWER MONITORING MODULE
334
GPS MODULE
316
324
326
328

FIGURE 3

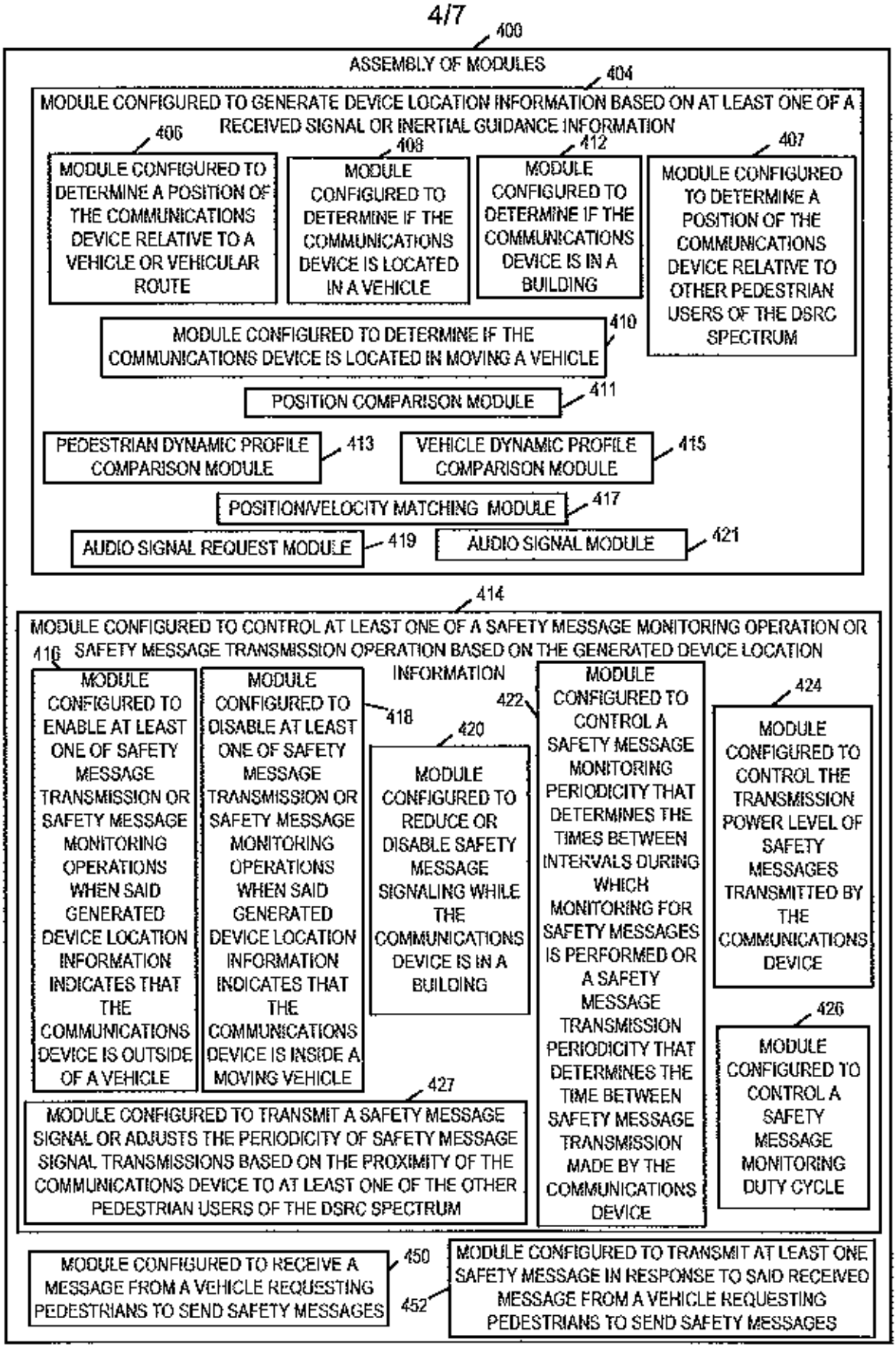
400
ASSEMBLY OF MODULES
404
MODULE CONFIGURED TO GENERATE DEVICE LOCATION INFORMATION BASED ON AT LEAST ONE OF A RECEIVED SIGNAL OR INERTIAL GUIDANCE INFORMATION
406
MODULE CONFIGURED TO DETERMINE A POSITION OF THE COMMUNICATIONS DEVICE RELATIVE TO A VEHICLE OR VEHICULAR ROUTE
408
MODULE CONFIGURED TO DETERMINE IF THE COMMUNICATIONS DEVICE IS LOCATED IN A VEHICLE
412
MODULE CONFIGURED TO DETERMINE IF THE COMMUNICATIONS DEVICE IS IN A BUILDING
407
MODULE CONFIGURED TO DETERMINE A POSITION OF THE COMMUNICATIONS DEVICE RELATIVE TO OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM
410
MODULE CONFIGURED TO DETERMINE IF THE COMMUNICATIONS DEVICE IS LOCATED IN MOVING A VEHICLE
411
POSITION COMPARISON MODULE
413
PEDESTRIAN DYNAMIC PROFILE COMPARISON MODULE
415
VEHICLE DYNAMIC PROFILE COMPARISON MODULE
417
POSITION/VELOCITY MATCHING MODULE
419
AUDIO SIGNAL REQUEST MODULE
421
AUDIO SIGNAL MODULE
414
MODULE CONFIGURED TO CONTROL AT LEAST ONE OF A SAFETY MESSAGE MONITORING OPERATION OR SAFETY MESSAGE TRANSMISSION OPERATION BASED ON THE GENERATED DEVICE LOCATION INFORMATION
416
MODULE CONFIGURED TO ENABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE COMMUNICATIONS DEVICE IS OUTSIDE OF A VEHICLE
418
MODULE CONFIGURED TO DISABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE COMMUNICATIONS DEVICE IS INSIDE A MOVING VEHICLE
420
MODULE CONFIGURED TO REDUCE OR DISABLE SAFETY MESSAGE SIGNALING WHILE THE COMMUNICATIONS DEVICE IS IN A BUILDING
422
MODULE CONFIGURED TO CONTROL A SAFETY MESSAGE MONITORING PERIODICITY THAT DETERMINES THE TIMES BETWEEN INTERVALS DURING WHICH MONITORING FOR SAFETY MESSAGES IS PERFORMED OR A SAFETY MESSAGE TRANSMISSION PERIODICITY THAT DETERMINES THE TIME BETWEEN SAFETY MESSAGE TRANSMISSION MADE BY THE COMMUNICATIONS DEVICE
424
MODULE CONFIGURED TO CONTROL THE TRANSMISSION POWER LEVEL OF SAFETY MESSAGES TRANSMITTED BY THE COMMUNICATIONS DEVICE
426
MODULE CONFIGURED TO CONTROL A SAFETY MESSAGE MONITORING DUTY CYCLE
427
MODULE CONFIGURED TO TRANSMIT A SAFETY MESSAGE SIGNAL OR ADJUSTS THE PERIODICITY OF SAFETY MESSAGE SIGNAL TRANSMISSIONS BASED ON THE PROXIMITY OF THE COMMUNICATIONS DEVICE TO AT LEAST ONE OF THE OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM
450
MODULE CONFIGURED TO RECEIVE A MESSAGE FROM A VEHICLE REQUESTING PEDESTRIANS TO SEND SAFETY MESSAGES
452
MODULE CONFIGURED TO TRANSMIT AT LEAST ONE SAFETY MESSAGE IN RESPONSE TO SAID RECEIVED MESSAGE FROM A VEHICLE REQUESTING PEDESTRIANS TO SEND SAFETY MESSAGES

FIGURE 4

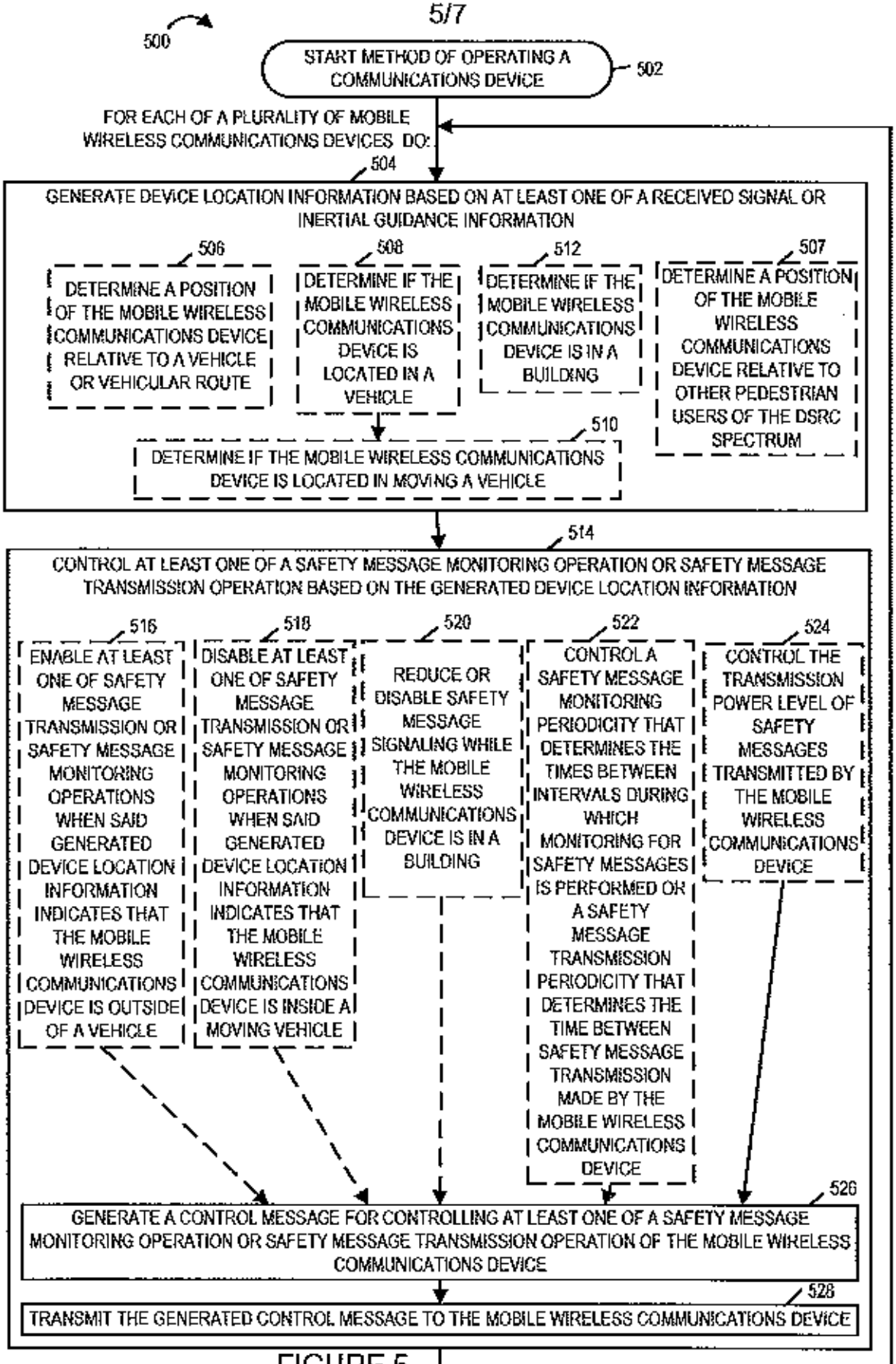
500
START METHOD OF OPERATING A COMMUNICATIONS DEVICE
502
FOR EACH OF A PLURALITY OF MOBILE WIRELESS COMMUNICATIONS DEVICES DO:
504
GENERATE DEVICE LOCATION INFORMATION BASED ON AT LEAST ONE OF A RECEIVED SIGNAL OR INERTIAL GUIDANCE INFORMATION
506
DETERMINE A POSITION OF THE MOBILE WIRELESS COMMUNICATIONS DEVICE RELATIVE TO A VEHICLE OR VEHICULAR ROUTE
508
DETERMINE IF THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS LOCATED IN A VEHICLE
512
DETERMINE IF THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS IN A BUILDING
507
DETERMINE A POSITION OF THE MOBILE WIRELESS COMMUNICATIONS DEVICE RELATIVE TO OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM
510
DETERMINE IF THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS LOCATED IN MOVING A VEHICLE
514
CONTROL AT LEAST ONE OF A SAFETY MESSAGE MONITORING OPERATION OR SAFETY MESSAGE TRANSMISSION OPERATION BASED ON THE GENERATED DEVICE LOCATION INFORMATION
516
ENABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS OUTSIDE OF A VEHICLE
518
DISABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS INSIDE A MOVING VEHICLE
520
REDUCE OR DISABLE SAFETY MESSAGE SIGNALING WHILE THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS IN A BUILDING
522
CONTROL A SAFETY MESSAGE MONITORING PERIODICITY THAT DETERMINES THE TIMES BETWEEN INTERVALS DURING WHICH MONITORING FOR SAFETY MESSAGES IS PERFORMED OR A SAFETY MESSAGE TRANSMISSION PERIODICITY THAT DETERMINES THE TIME BETWEEN SAFETY MESSAGE TRANSMISSION MADE BY THE MOBILE WIRELESS COMMUNICATIONS DEVICE
524
CONTROL THE TRANSMISSION POWER LEVEL OF SAFETY MESSAGES TRANSMITTED BY THE MOBILE WIRELESS COMMUNICATIONS DEVICE
526
GENERATE A CONTROL MESSAGE FOR CONTROLLING AT LEAST ONE OF A SAFETY MESSAGE MONITORING OPERATION OR SAFETY MESSAGE TRANSMISSION OPERATION OF THE MOBILE WIRELESS COMMUNICATIONS DEVICE
528
TRANSMIT THE GENERATED CONTROL MESSAGE TO THE MOBILE WIRELESS COMMUNICATIONS DEVICE

FIGURE 5

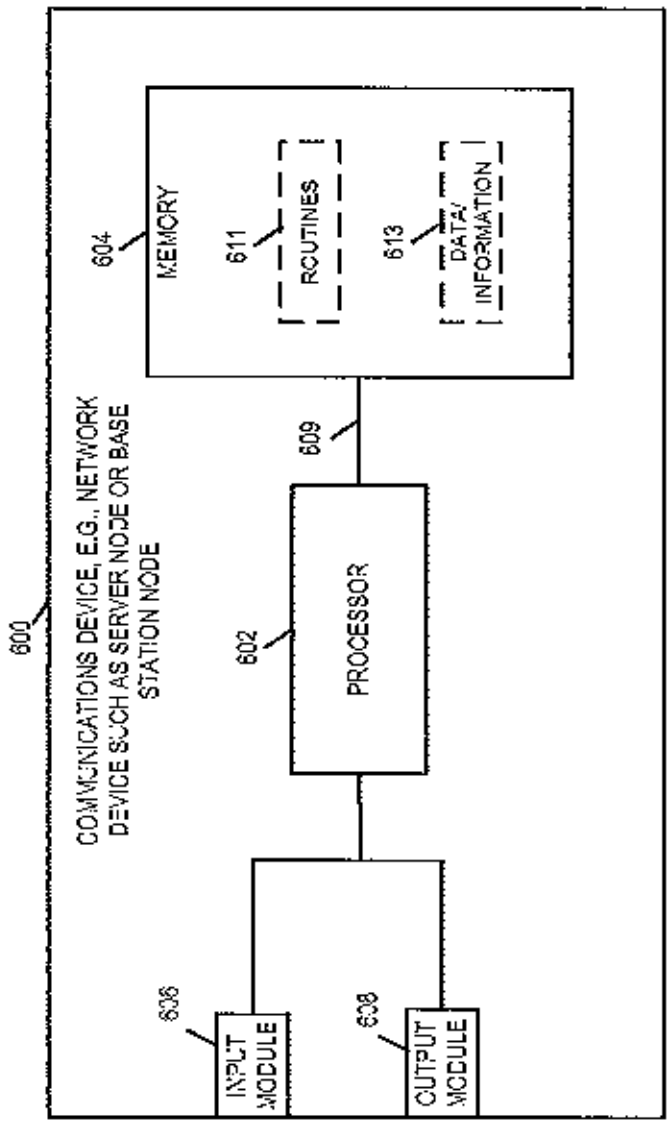
600
COMMUNICATIONS DEVICE, E.G., NETWORK DEVICE SUCH AS SERVER NODE OR BASE STATION NODE
602
PROCESSOR
609
604
MEMORY
611
ROUTINES
613
DATA/ INFORMATION
636
INPUT MODULE
638
OUTPUT MODULE

FIGURE 6

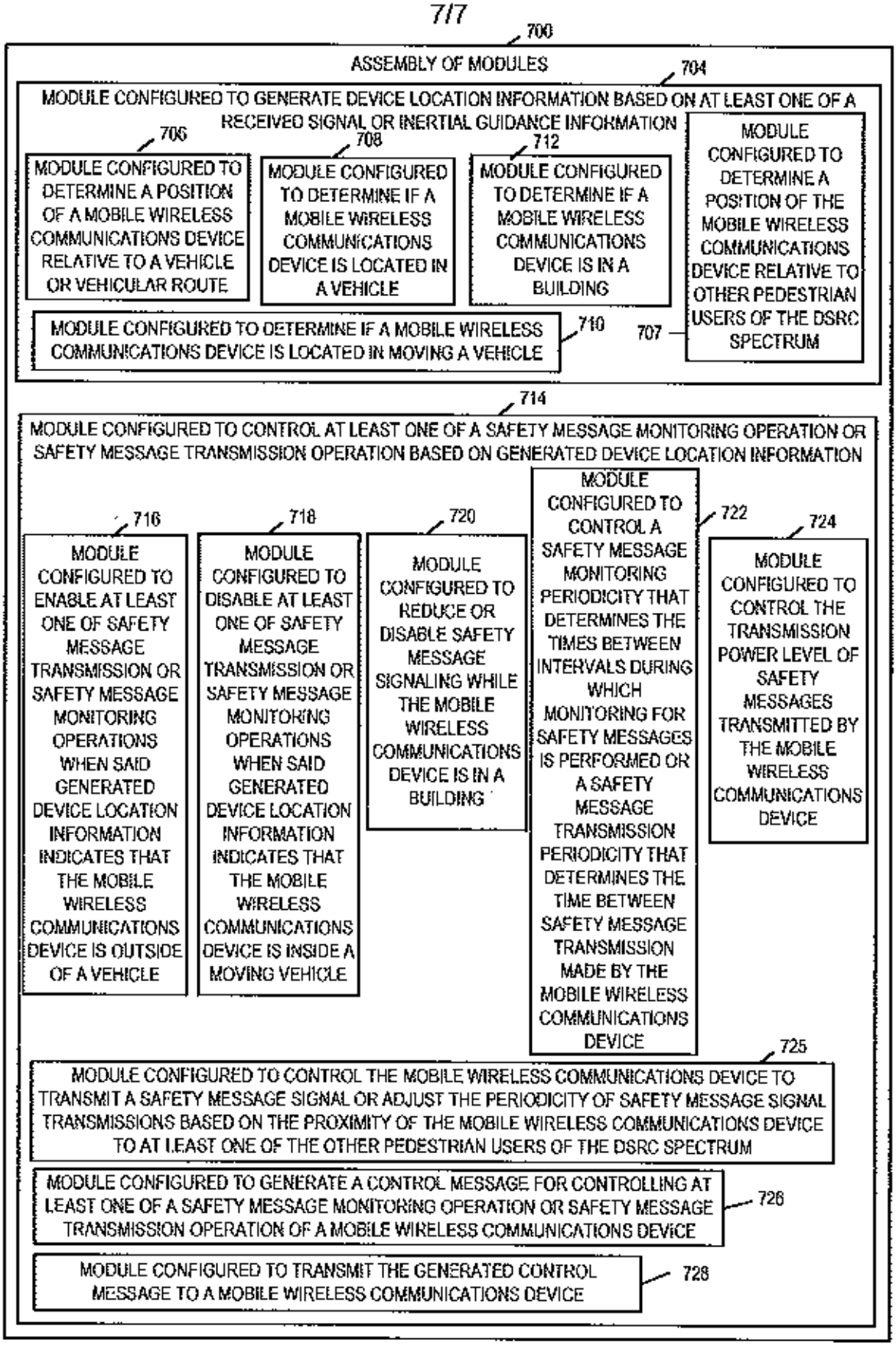
700
ASSEMBLY OF MODULES
704
MODULE CONFIGURED TO GENERATE DEVICE LOCATION INFORMATION BASED ON AT LEAST ONE OF A RECEIVED SIGNAL OR INERTIAL GUIDANCE INFORMATION
706
MODULE CONFIGURED TO DETERMINE A POSITION OF A MOBILE WIRELESS COMMUNICATIONS DEVICE RELATIVE TO A VEHICLE OR VEHICULAR ROUTE
708
MODULE CONFIGURED TO DETERMINE IF A MOBILE WIRELESS COMMUNICATIONS DEVICE IS LOCATED IN A VEHICLE
712
MODULE CONFIGURED TO DETERMINE IF A MOBILE WIRELESS COMMUNICATIONS DEVICE IS IN A BUILDING
MODULE CONFIGURED TO DETERMINE A POSITION OF THE MOBILE WIRELESS COMMUNICATIONS DEVICE RELATIVE TO OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM
707
MODULE CONFIGURED TO DETERMINE IF A MOBILE WIRELESS COMMUNICATIONS DEVICE IS LOCATED IN MOVING A VEHICLE
710
714
MODULE CONFIGURED TO CONTROL AT LEAST ONE OF A SAFETY MESSAGE MONITORING OPERATION OR SAFETY MESSAGE TRANSMISSION OPERATION BASED ON GENERATED DEVICE LOCATION INFORMATION
716
MODULE CONFIGURED TO ENABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS OUTSIDE OF A VEHICLE
718
MODULE CONFIGURED TO DISABLE AT LEAST ONE OF SAFETY MESSAGE TRANSMISSION OR SAFETY MESSAGE MONITORING OPERATIONS WHEN SAID GENERATED DEVICE LOCATION INFORMATION INDICATES THAT THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS INSIDE A MOVING VEHICLE
720
MODULE CONFIGURED TO REDUCE OR DISABLE SAFETY MESSAGE SIGNALING WHILE THE MOBILE WIRELESS COMMUNICATIONS DEVICE IS IN A BUILDING
722
MODULE CONFIGURED TO CONTROL A SAFETY MESSAGE MONITORING PERIODICITY THAT DETERMINES THE TIMES BETWEEN INTERVALS DURING WHICH MONITORING FOR SAFETY MESSAGES IS PERFORMED OR A SAFETY MESSAGE TRANSMISSION PERIODICITY THAT DETERMINES THE TIME BETWEEN SAFETY MESSAGE TRANSMISSION MADE BY THE MOBILE WIRELESS COMMUNICATIONS DEVICE
724
MODULE CONFIGURED TO CONTROL THE TRANSMISSION POWER LEVEL OF SAFETY MESSAGES TRANSMITTED BY THE MOBILE WIRELESS COMMUNICATIONS DEVICE
725
MODULE CONFIGURED TO CONTROL THE MOBILE WIRELESS COMMUNICATIONS DEVICE TO TRANSMIT A SAFETY MESSAGE SIGNAL OR ADJUST THE PERIODICITY OF SAFETY MESSAGE SIGNAL TRANSMISSIONS BASED ON THE PROXIMITY OF THE MOBILE WIRELESS COMMUNICATIONS DEVICE TO AT LEAST ONE OF THE OTHER PEDESTRIAN USERS OF THE DSRC SPECTRUM
MODULE CONFIGURED TO GENERATE A CONTROL MESSAGE FOR CONTROLLING AT LEAST ONE OF A SAFETY MESSAGE MONITORING OPERATION OR SAFETY MESSAGE TRANSMISSION OPERATION OF A MOBILE WIRELESS COMMUNICATIONS DEVICE
726
MODULE CONFIGURED TO TRANSMIT THE GENERATED CONTROL MESSAGE TO A MOBILE WIRELESS COMMUNICATIONS DEVICE
728

FIGURE 7