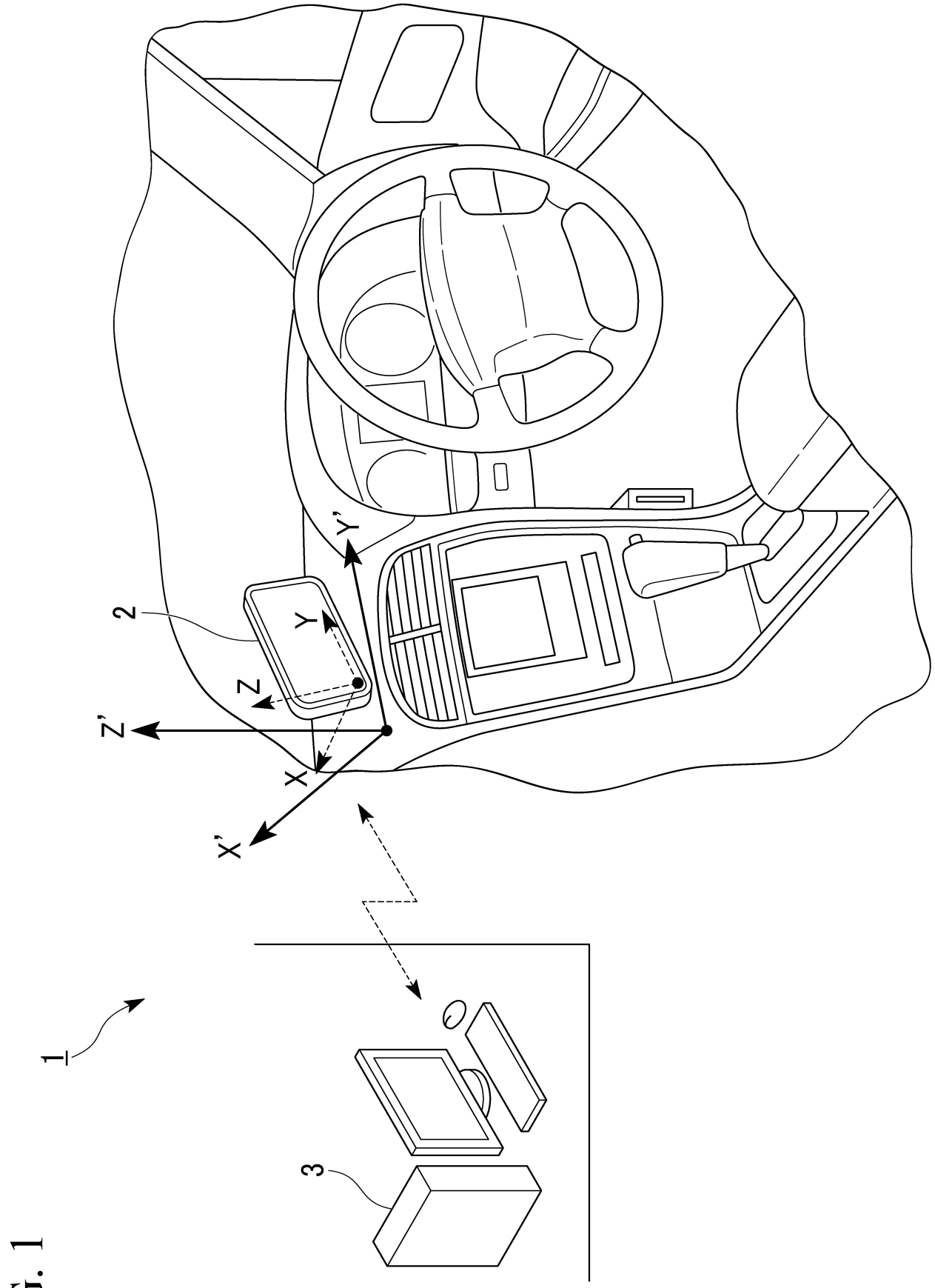


FIG. 1

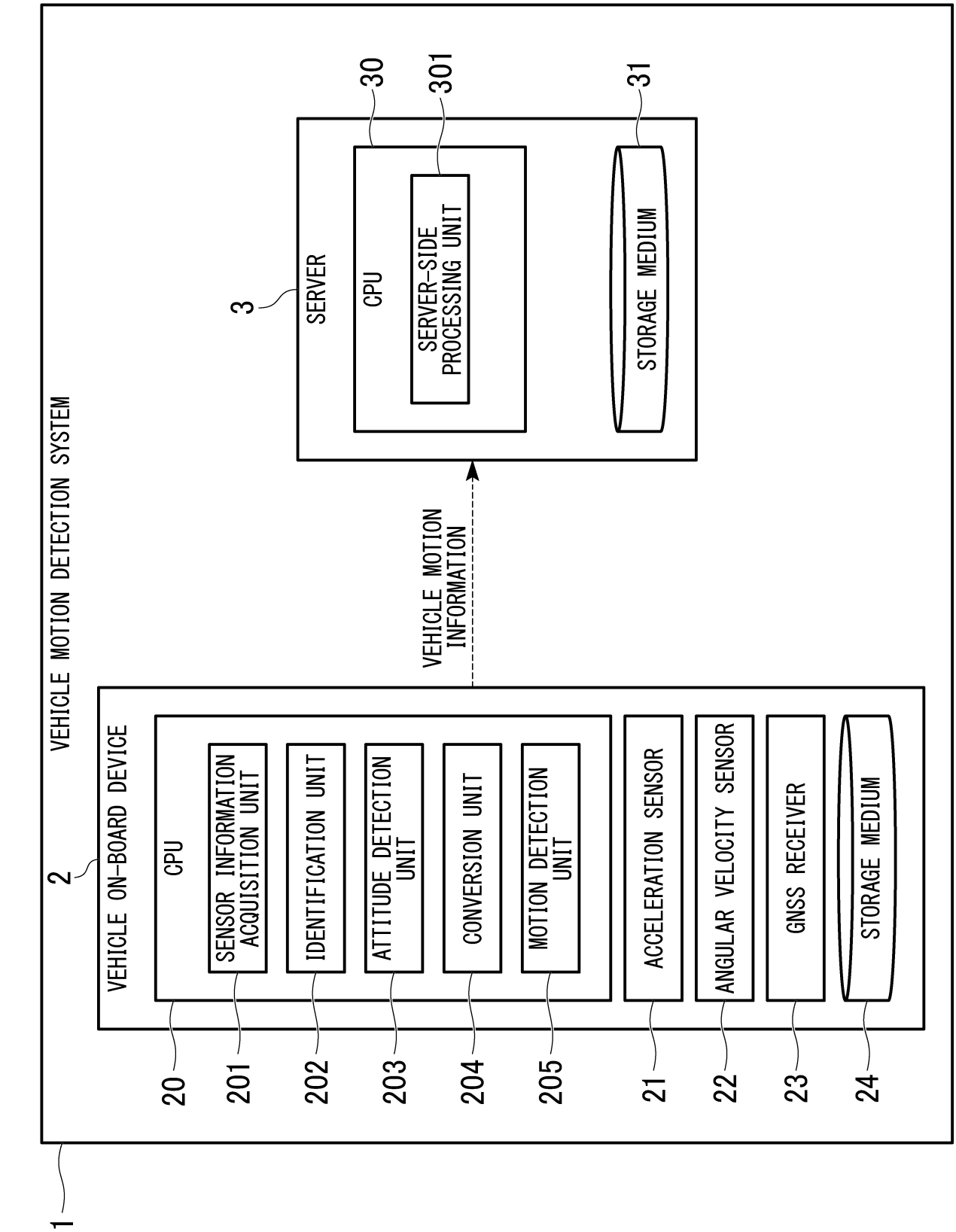

1
VEHICLE MOTION DETECTION SYSTEM
2
VEHICLE ON-BOARD DEVICE
CPU
20
SENSOR INFORMATION ACQUISITION UNIT
201
IDENTIFICATION UNIT
202
ATTITUDE DETECTION UNIT
203
CONVERSION UNIT
204
MOTION DETECTION UNIT
205
ACCELERATION SENSOR
21
ANGULAR VELOCITY SENSOR
22
GNSS RECEIVER
23
STORAGE MEDIUM
24
VEHICLE MOTION INFORMATION
3
SERVER
CPU
30
SERVER-SIDE PROCESSING UNIT
301
STORAGE MEDIUM
31

FIG. 2

FIG. 3

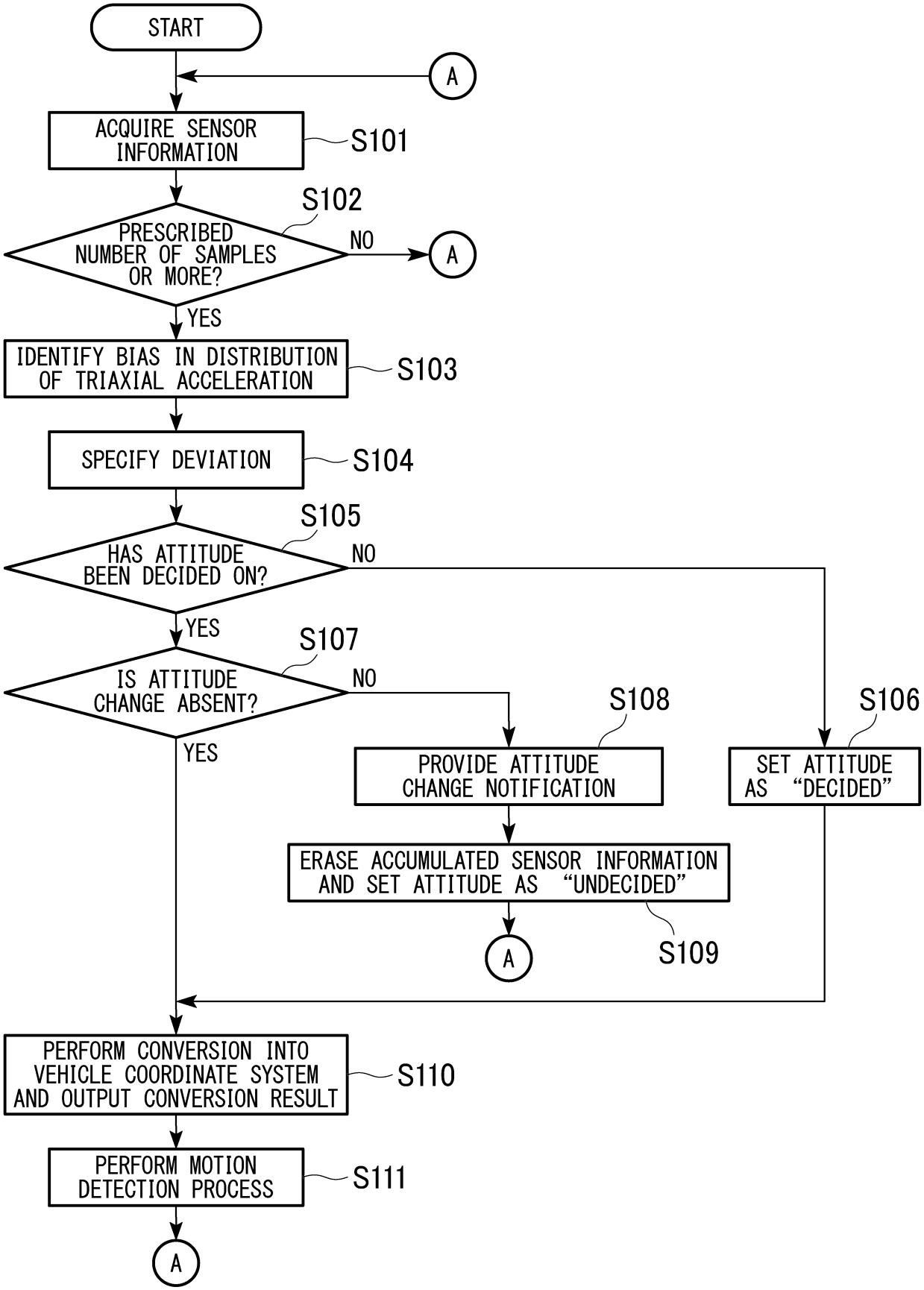

START
A
ACQUIRE SENSOR INFORMATION
S101
S102
PRESCRIBED NUMBER OF SAMPLES OR MORE?
NO
A
YES
IDENTIFY BIAS IN DISTRIBUTION OF TRIAXIAL ACCELERATION
S103
SPECIFY DEVIATION
S104
S105
HAS ATTITUDE BEEN DECIDED ON?
NO
YES
S107
IS ATTITUDE CHANGE ABSENT?
NO
YES
S108
PROVIDE ATTITUDE CHANGE NOTIFICATION
S106
SET ATTITUDE AS "DECIDED"
ERASE ACCUMULATED SENSOR INFORMATION AND SET ATTITUDE AS "UNDECIDED"
A
S109
PERFORM CONVERSION INTO VEHICLE COORDINATE SYSTEM AND OUTPUT CONVERSION RESULT
S110
PERFORM MOTION DETECTION PROCESS
S111
A

FIG. 4

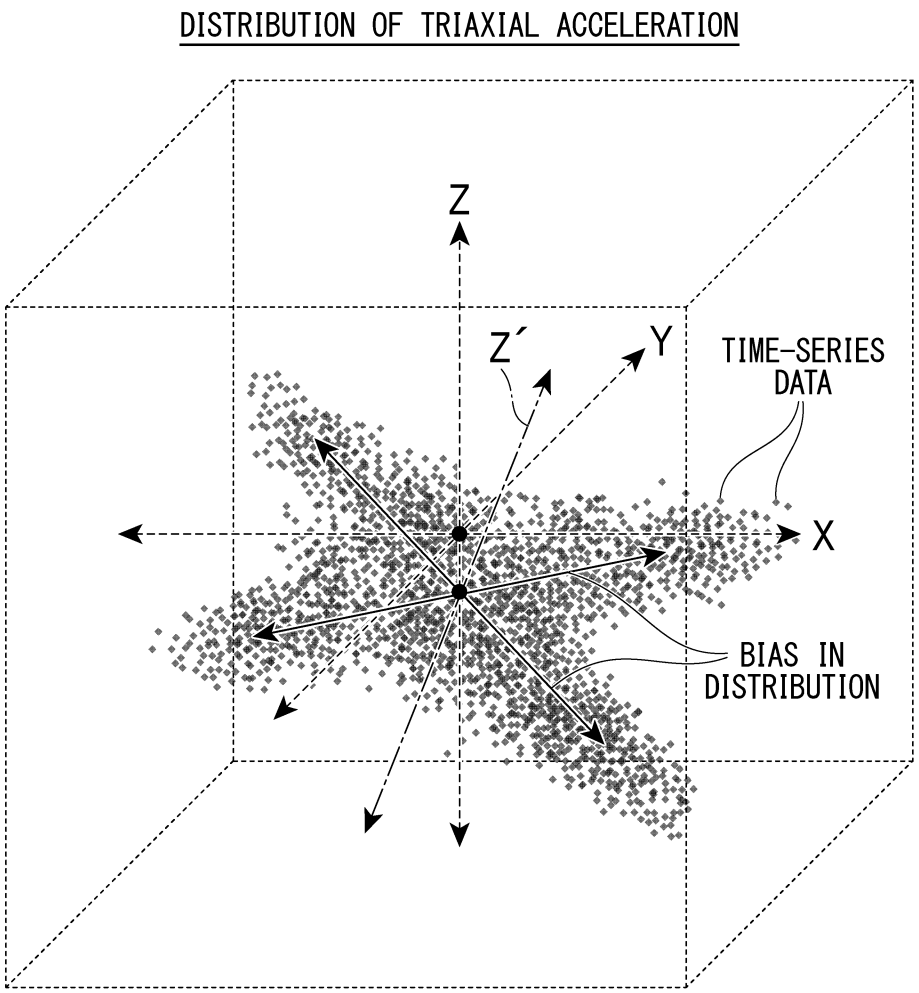

DISTRIBUTION OF TRIAXIAL ACCELERATION
Z
Z´
Y
X
TIME-SERIES DATA
BIAS IN DISTRIBUTION

FIG. 5

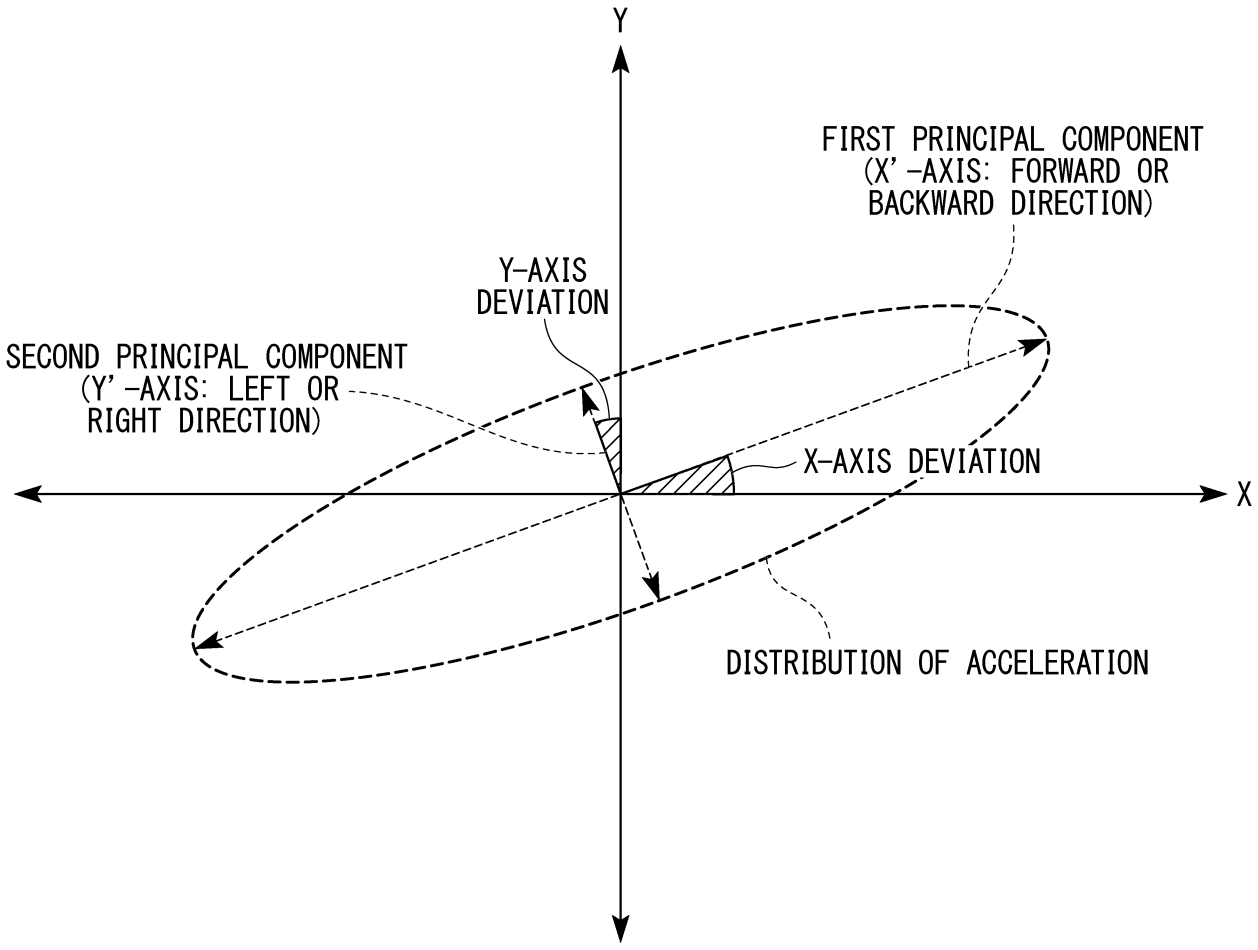
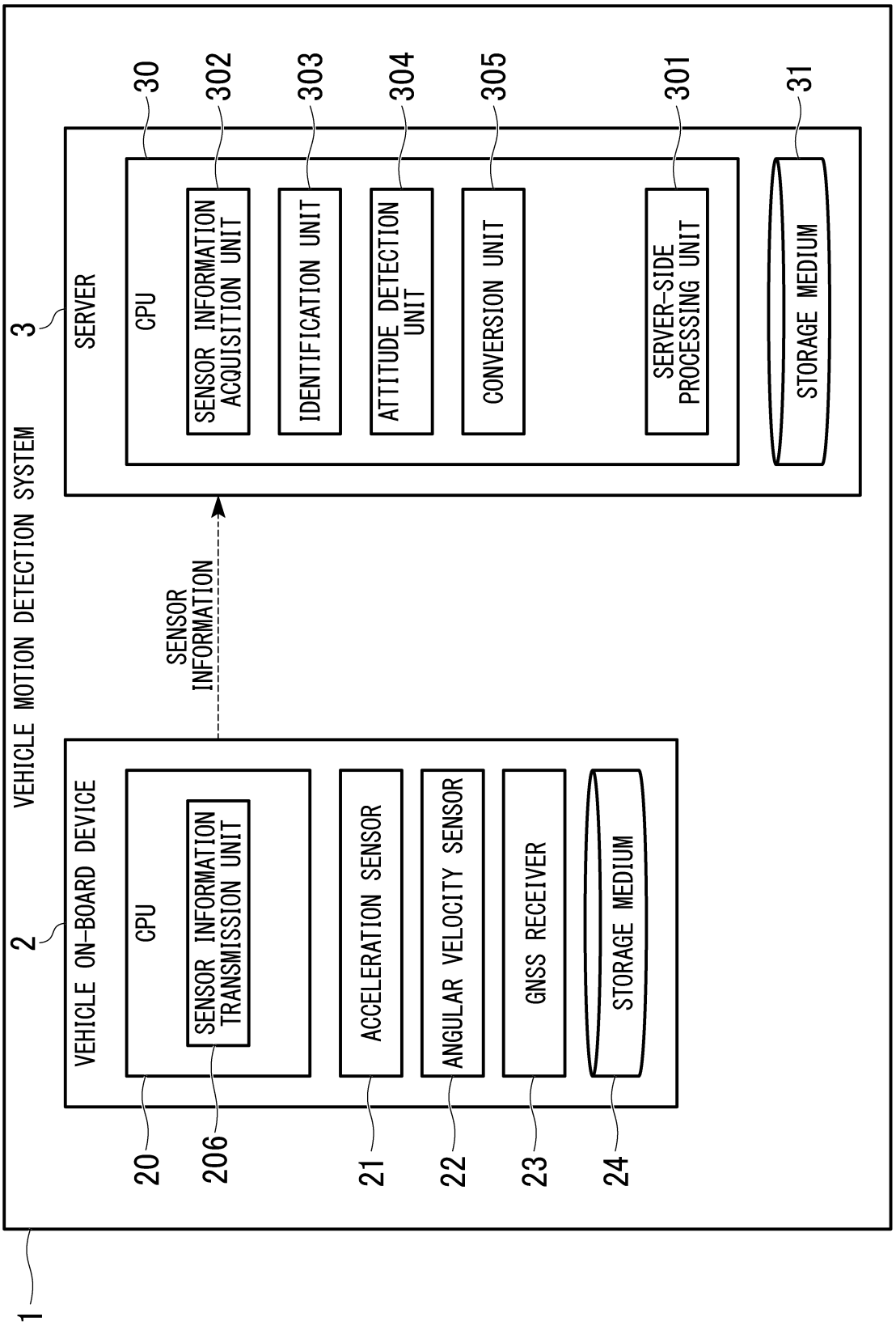

Y
FIRST PRINCIPAL COMPONENT
(X'-AXIS: FORWARD OR
BACKWARD DIRECTION)
Y-AXIS
DEVIATION
SECOND PRINCIPAL COMPONENT
(Y'-AXIS: LEFT OR
RIGHT DIRECTION)
X-AXIS DEVIATION
X
DISTRIBUTION OF ACCELERATION

FIG. 6


1
VEHICLE MOTION DETECTION SYSTEM
2
VEHICLE ON-BOARD DEVICE
CPU
SENSOR INFORMATION TRANSMISSION UNIT
ACCELERATION SENSOR
ANGULAR VELOCITY SENSOR
GNSS RECEIVER
STORAGE MEDIUM
20
206
21
22
23
24
SENSOR INFORMATION
3
SERVER
CPU
SENSOR INFORMATION ACQUISITION UNIT
IDENTIFICATION UNIT
ATTITUDE DETECTION UNIT
CONVERSION UNIT
SERVER-SIDE PROCESSING UNIT
STORAGE MEDIUM
30
302
303
304
305
301
31