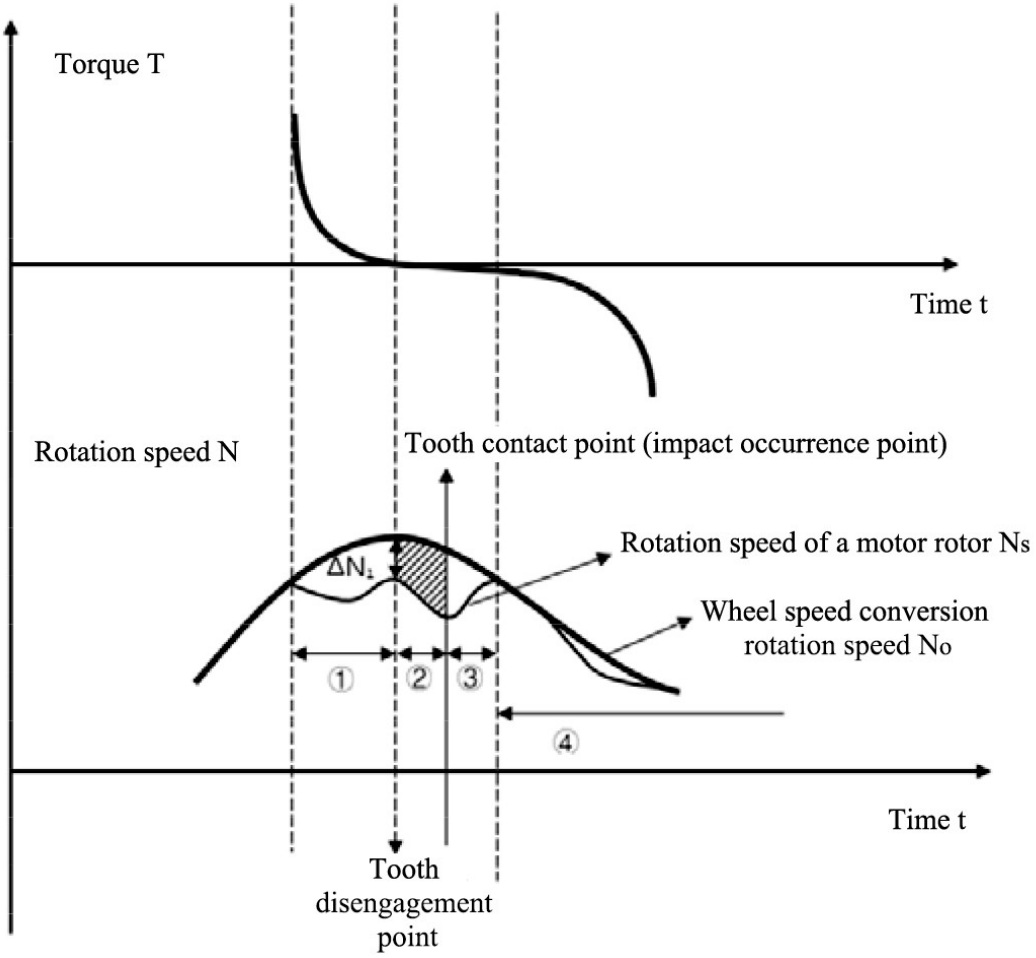

Torque T
Time t
Rotation speed N
Tooth contact point (impact occurrence point)
Rotation speed of a motor rotor Ns
ΔN1
Wheel speed conversion rotation speed No
①
②
③
④
Time t
Tooth disengagement point

FIG. 1

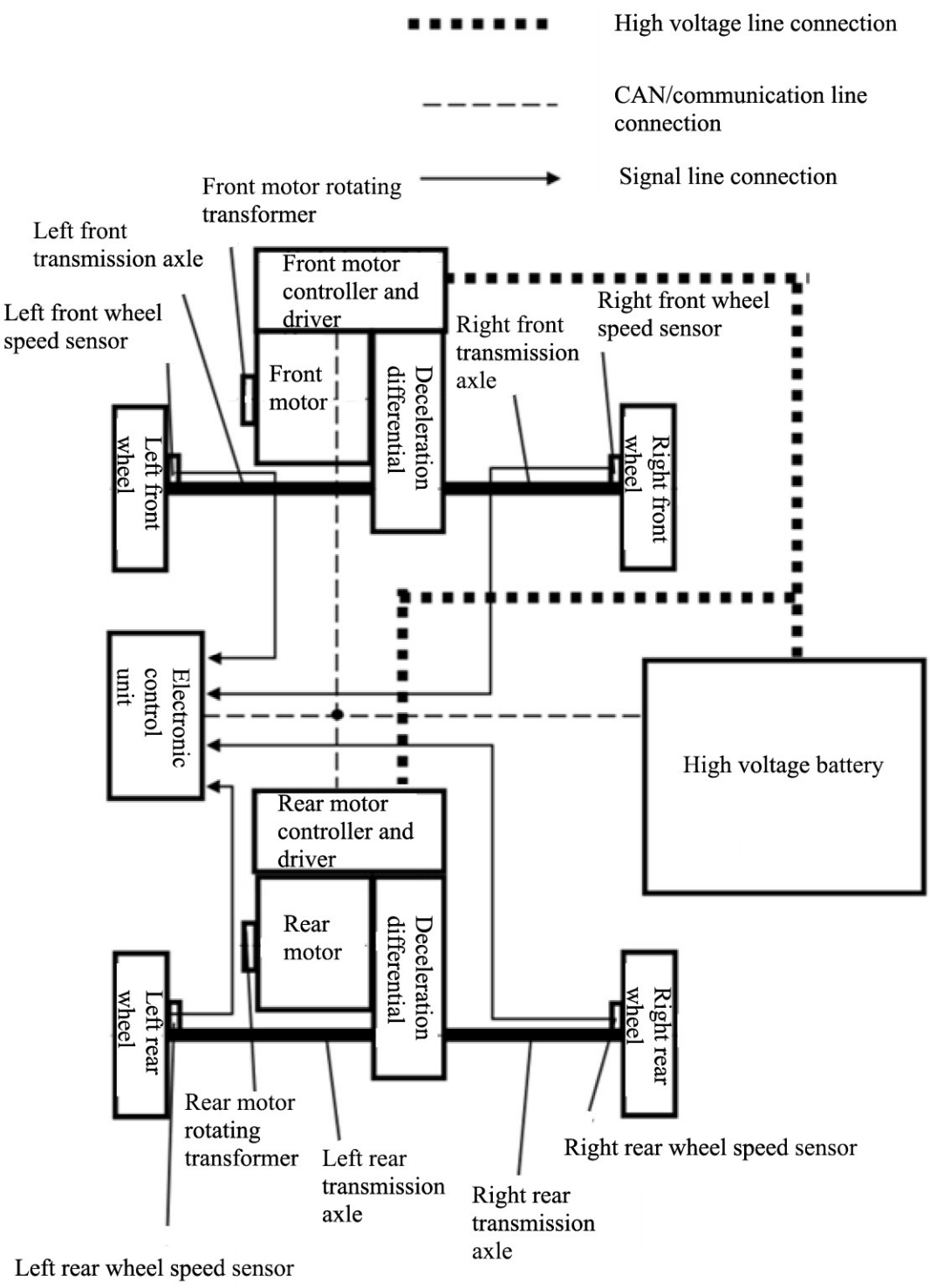

High voltage line connection
CAN/communication line connection
Signal line connection
Front motor rotating transformer
Left front transmission axle
Front motor controller and driver
Left front wheel speed sensor
Right front wheel speed sensor
Right front transmission axle
Front motor
Deceleration differential
Left front wheel
Right front wheel
Electronic control unit
High voltage battery
Rear motor controller and driver
Rear motor
Deceleration differential
Left rear wheel
Right rear wheel
Rear motor rotating transformer
Left rear transmission axle
Right rear wheel speed sensor
Right rear transmission axle
Left rear wheel speed sensor

FIG. 2

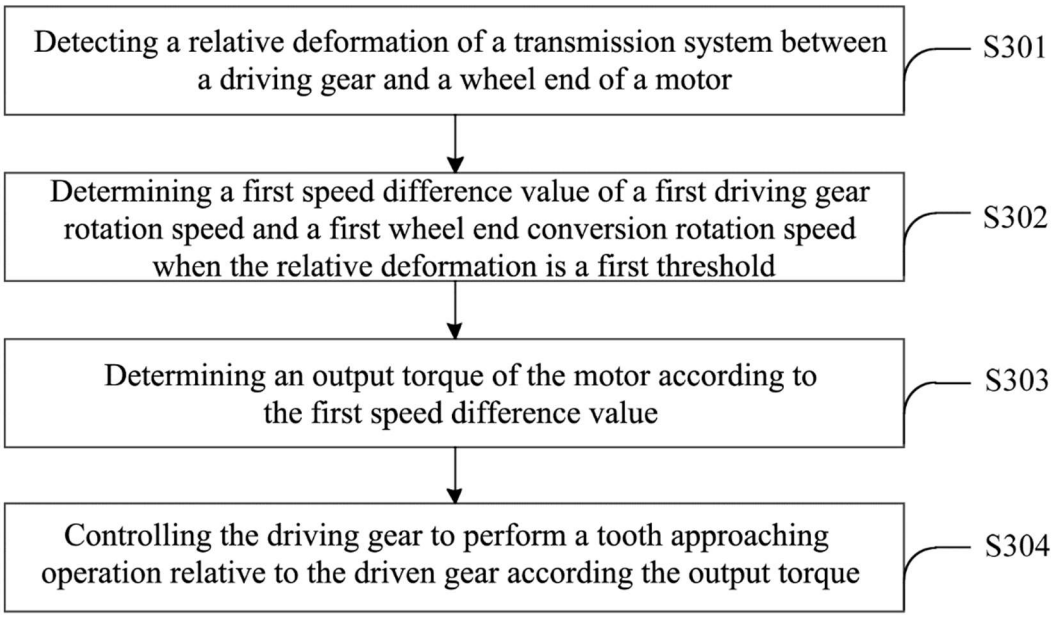

Detecting a relative deformation of a transmission system between a driving gear and a wheel end of a motor
S301
Determining a first speed difference value of a first driving gear rotation speed and a first wheel end conversion rotation speed when the relative deformation is a first threshold
S302
Determining an output torque of the motor according to the first speed difference value
S303
Controlling the driving gear to perform a tooth approaching operation relative to the driven gear according the output torque
S304

FIG. 3

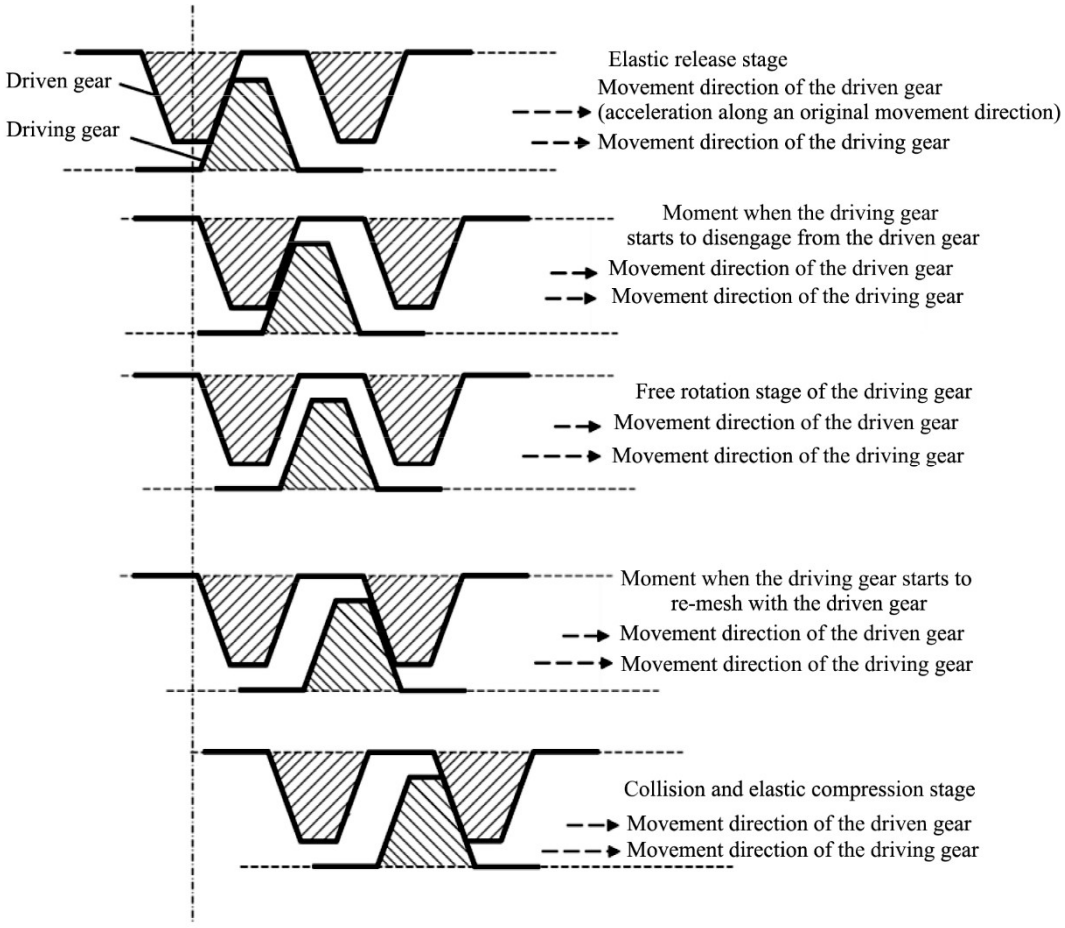

Driven gear
Driving gear
Elastic release stage
Movement direction of the driven gear
(acceleration along an original movement direction)
Movement direction of the driving gear
Moment when the driving gear starts to disengage from the driven gear
Movement direction of the driven gear
Movement direction of the driving gear
Free rotation stage of the driving gear
Movement direction of the driven gear
Movement direction of the driving gear
Moment when the driving gear starts to re-mesh with the driven gear
Movement direction of the driven gear
Movement direction of the driving gear
Collision and elastic compression stage
Movement direction of the driven gear
Movement direction of the driving gear

FIG. 4

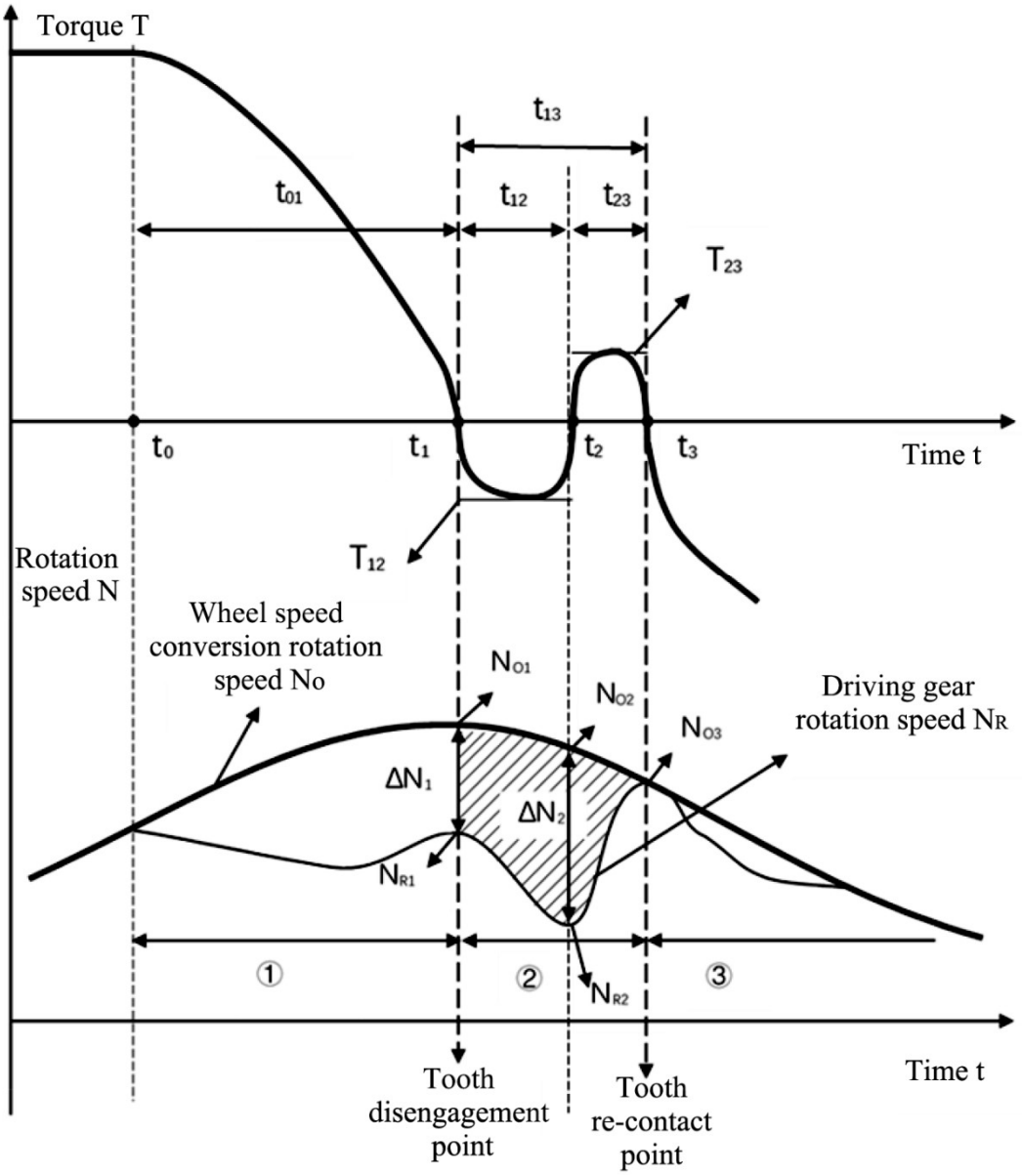

Torque T
t13
t01
t12
t23
T23
t0
t1
t2
t3
Time t
T12
Rotation speed N
Wheel speed conversion rotation speed No
NO1
NO2
NO3
Driving gear rotation speed NR
ΔN1
ΔN2
NR1
NR2
①
②
③
Tooth disengagement point
Tooth re-contact point
Time t

FIG. 5

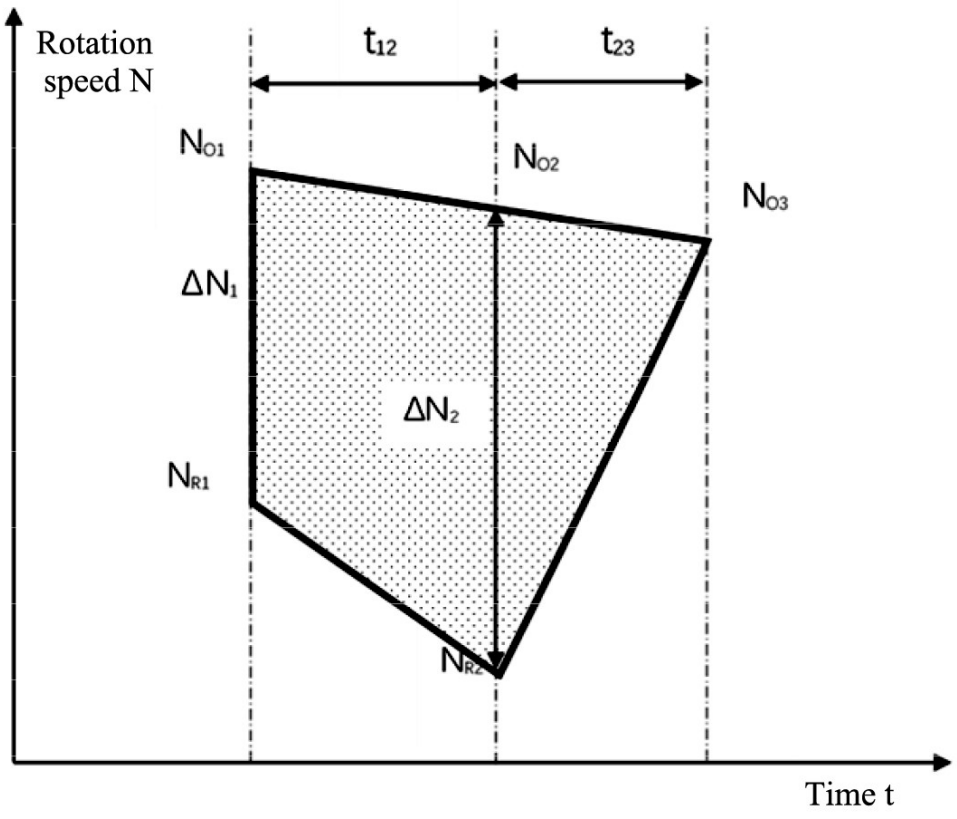

Rotation speed N
t12
t23
NO1
NO2
NO3
ΔN1
ΔN2
NR1
NR2
Time t

FIG. 6

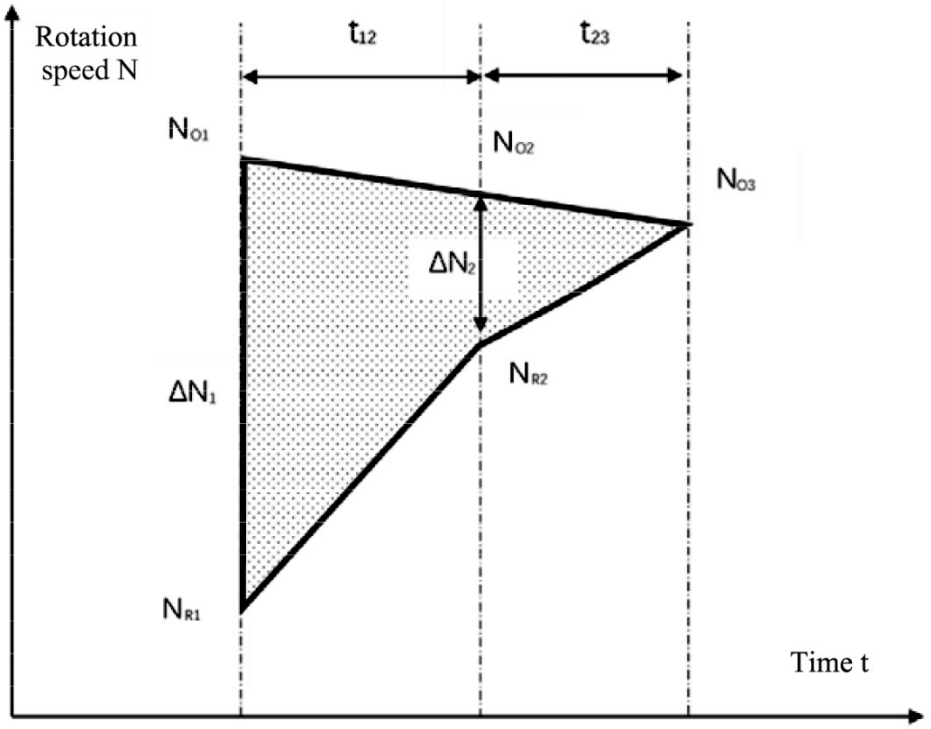

Rotation speed N
t12
t23
NO1
NO2
NO3
ΔN2
ΔN1
NR2
NR1
Time t

FIG. 7

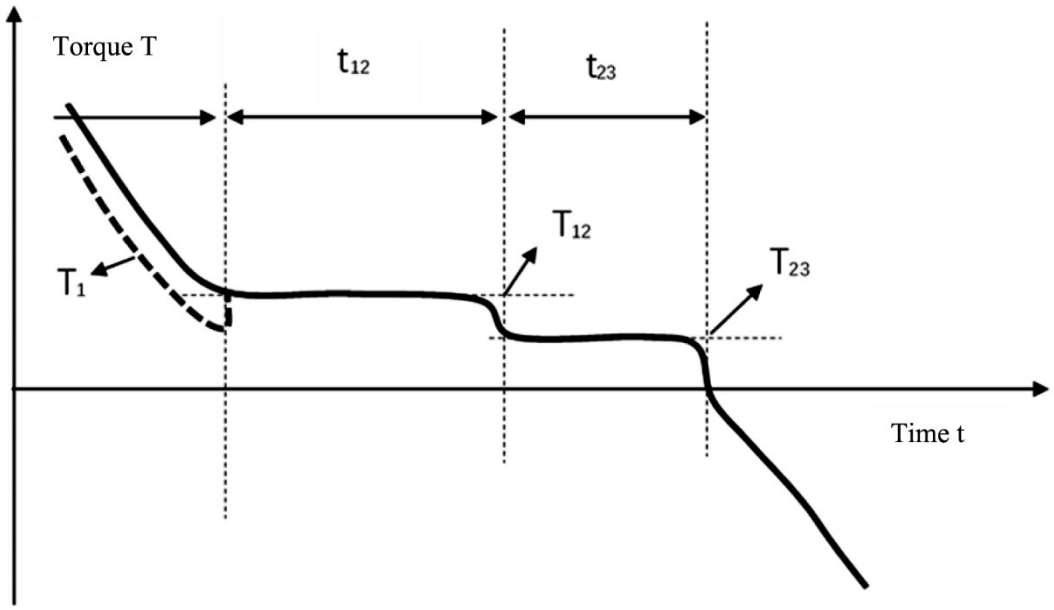

Torque T
t12
t23
T12
T23
T1
Time t

FIG. 8

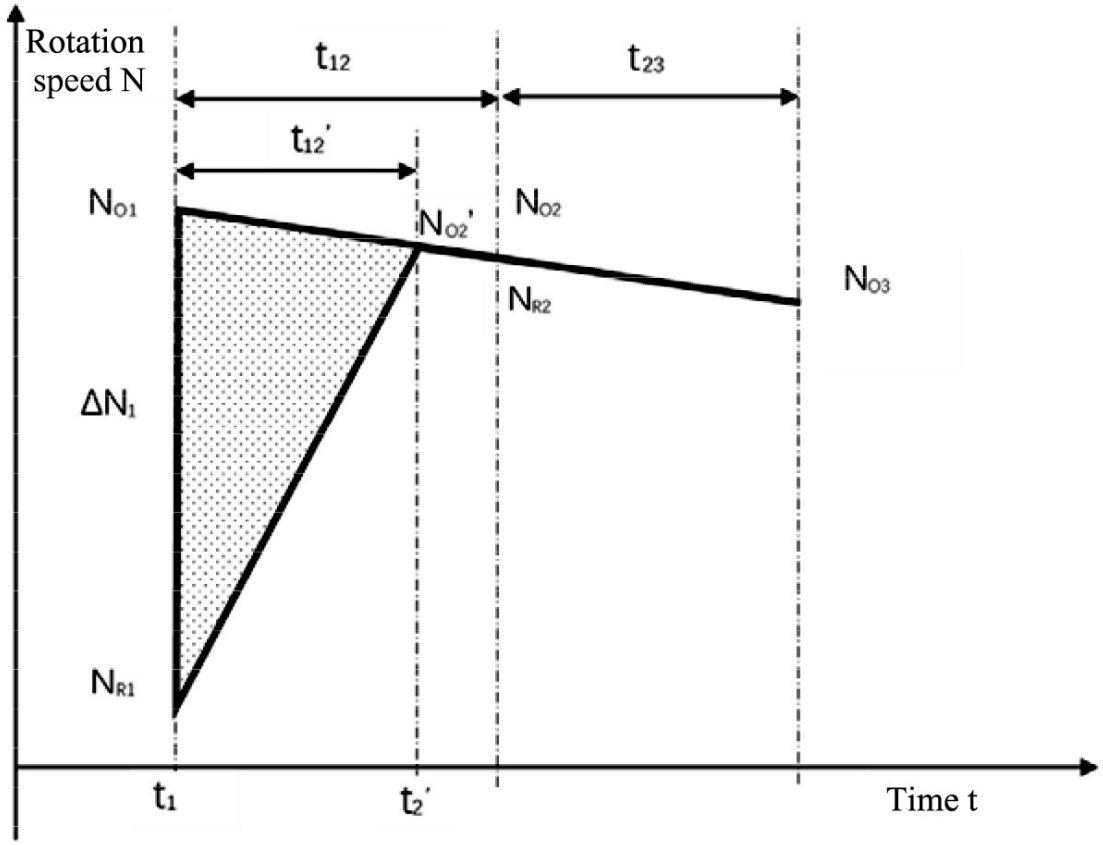

Rotation speed N
t12
t23
t12'
NO1
NO2'
NO2
NO3
NR2
ΔN1
NR1
t1
t2'
Time t

FIG. 9

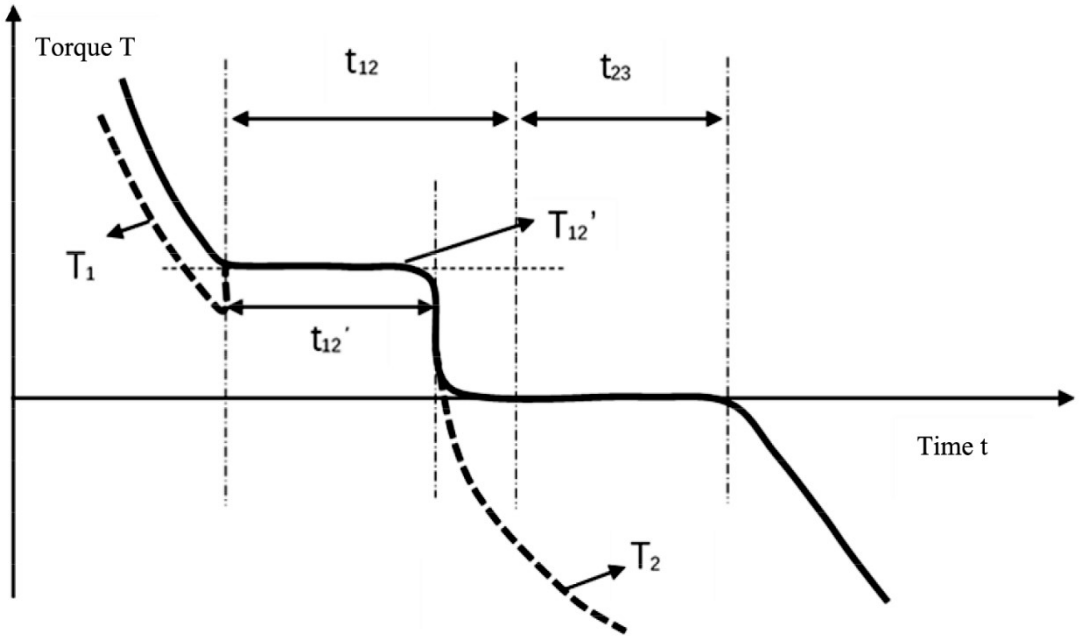

Torque T
t12
t23
T12'
T1
t12'
Time t
T2

FIG. 10

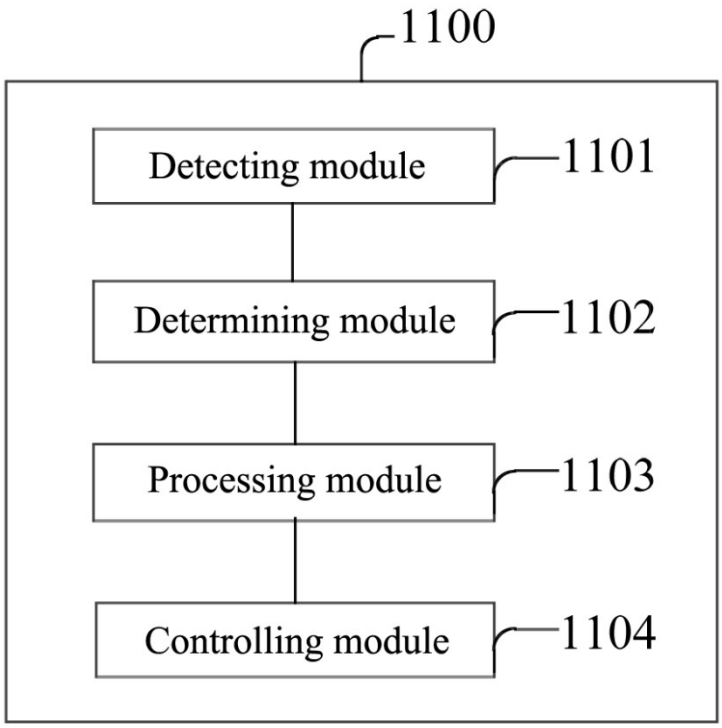

1100
Detecting module
1101
Determining module
1102
Processing module
1103
Controlling module
1104

FIG. 11

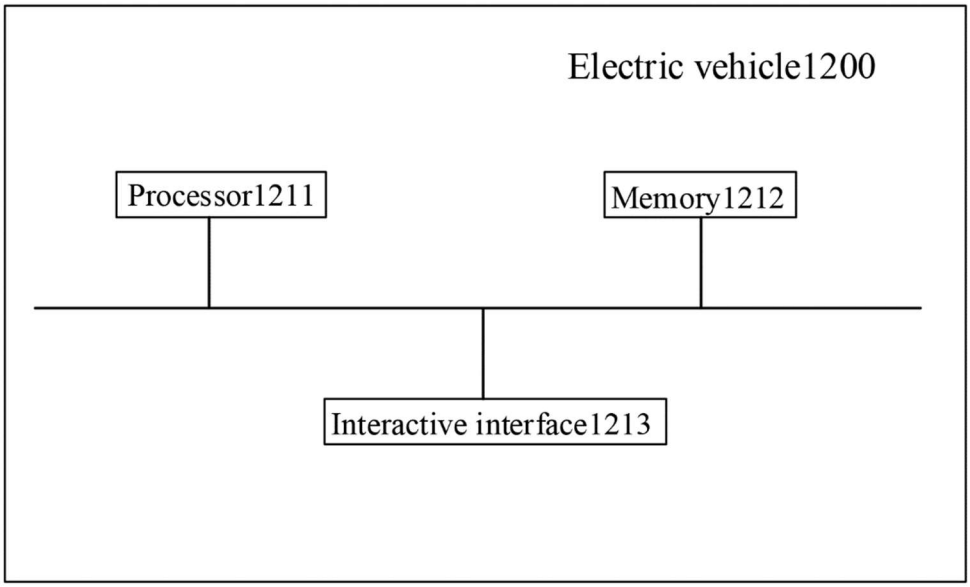

Electric vehicle1200
Processor1211
Memory1212
Interactive interface1213

FIG. 12