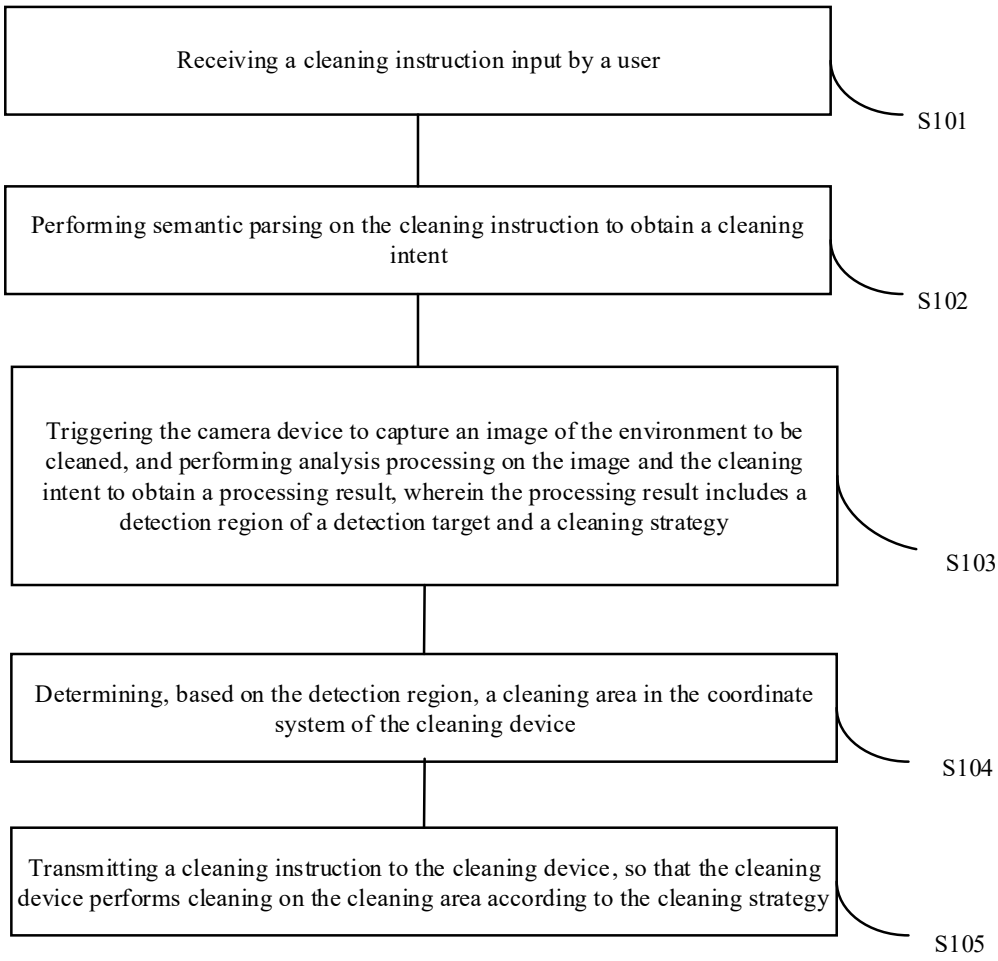
Receiving a cleaning instruction input by a user
S101
Performing semantic parsing on the cleaning instruction to obtain a cleaning intent
S102
Triggering the camera device to capture an image of the environment to be cleaned, and performing analysis processing on the image and the cleaning intent to obtain a processing result, wherein the processing result includes a detection region of a detection target and a cleaning strategy
S103
Determining, based on the detection region, a cleaning area in the coordinate system of the cleaning device
S104
Transmitting a cleaning instruction to the cleaning device, so that the cleaning device performs cleaning on the cleaning area according to the cleaning strategy
S105

FIG.1

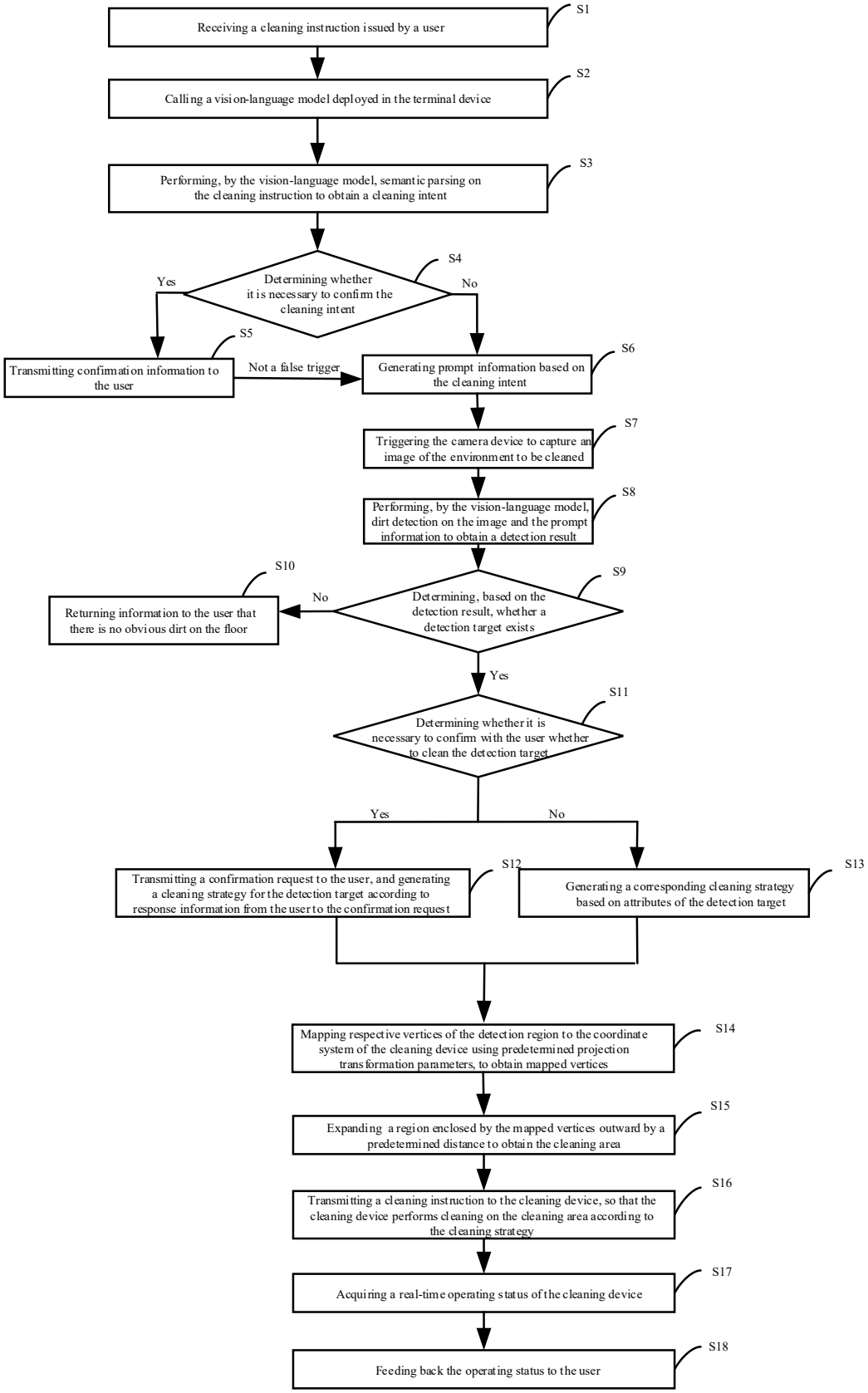
S1
Receiving a cleaning instruction issued by a user
S2
Calling a vision-language model deployed in the terminal device
S3
Performing, by the vision-language model, semantic parsing on the cleaning instruction to obtain a cleaning intent
S4
Determining whether it is necessary to confirm the cleaning intent
Yes
No
S5
Transmitting confirmation information to the user
Not a false trigger
S6
Generating prompt information based on the cleaning intent
S7
Triggering the camera device to capture an image of the environment to be cleaned
S8
Performing, by the vision-language model, dirt detection on the image and the prompt information to obtain a detection result
S9
Determining, based on the detection result, whether a detection target exists
No
S10
Returning information to the user that there is no obvious dirt on the floor
Yes
S11
Determining whether it is necessary to confirm with the user whether to clean the detection target
Yes
No
S12
Transmitting a confirmation request to the user, and generating a cleaning strategy for the detection target according to response information from the user to the confirmation request
S13
Generating a corresponding cleaning strategy based on attributes of the detection target
S14
Mapping respective vertices of the detection region to the coordinate system of the cleaning device using predetermined projection transformation parameters, to obtain mapped vertices
S15
Expanding a region enclosed by the mapped vertices outward by a predetermined distance to obtain the cleaning area
S16
Transmitting a cleaning instruction to the cleaning device, so that the cleaning device performs cleaning on the cleaning area according to the cleaning strategy
S17
Acquiring a real-time operating status of the cleaning device
S18
Feeding back the operating status to the user

FIG.2

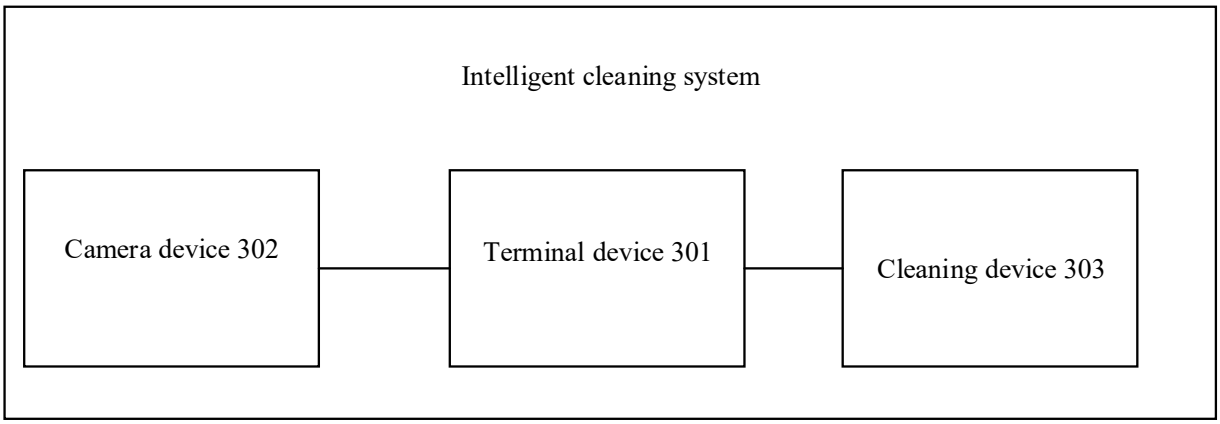
Intelligent cleaning system
Camera device 302
Terminal device 301
Cleaning device 303

FIG.3

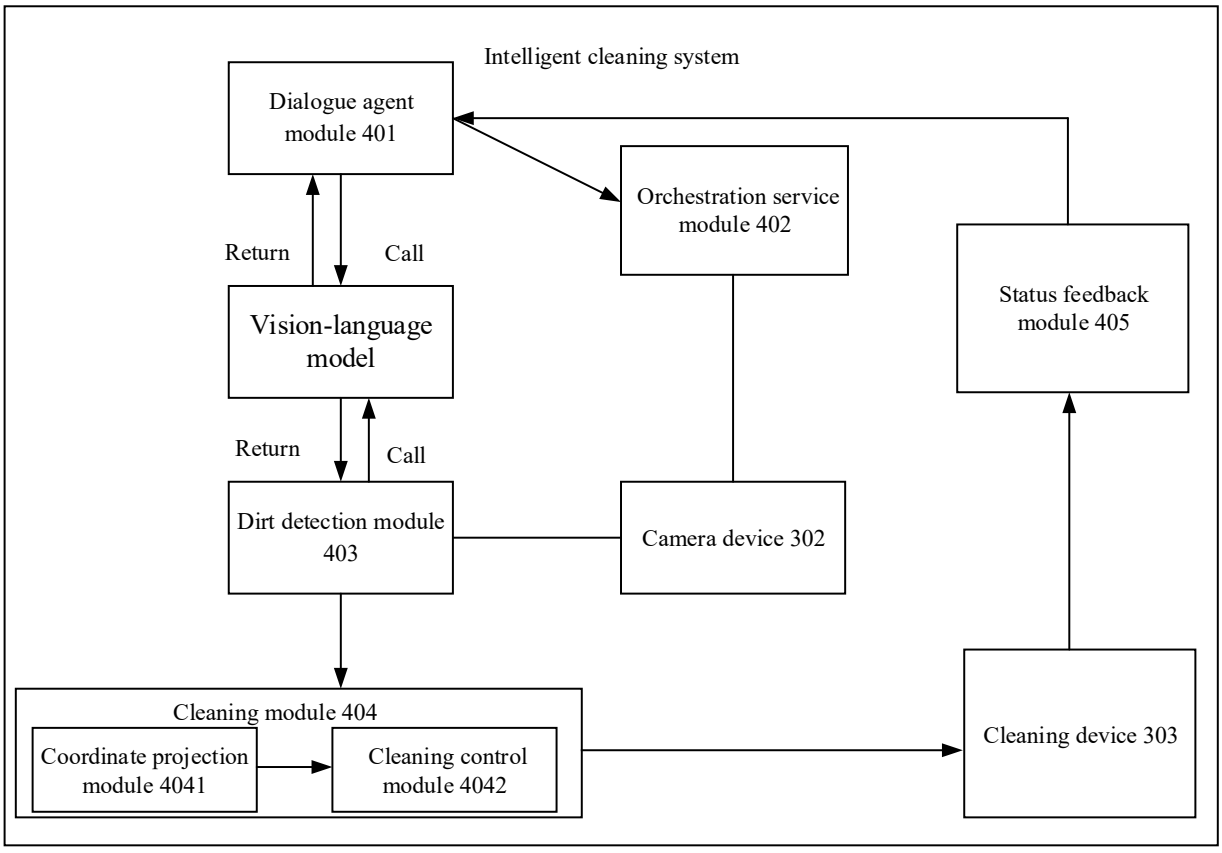
Intelligent cleaning system
Dialogue agent module 401
Orchestration service module 402
Status feedback module 405
Return
Call
Vision-language model
Return
Call
Dirt detection module 403
Camera device 302
Cleaning module 404
Coordinate projection module 4041
Cleaning control module 4042
Cleaning device 303

FIG.4

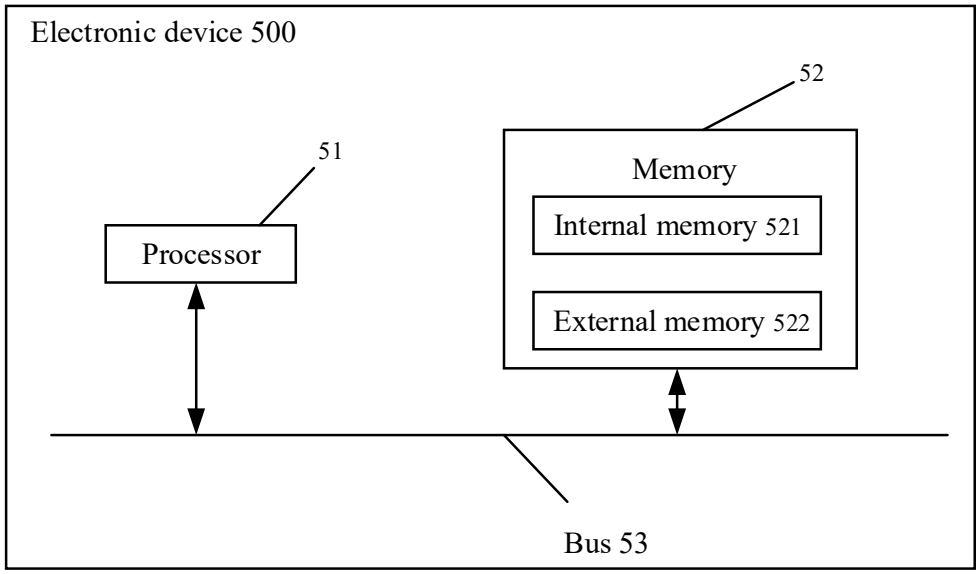
Electronic device 500
52
51
Memory
Internal memory 521
Processor
External memory 522
Bus 53

FIG.5