

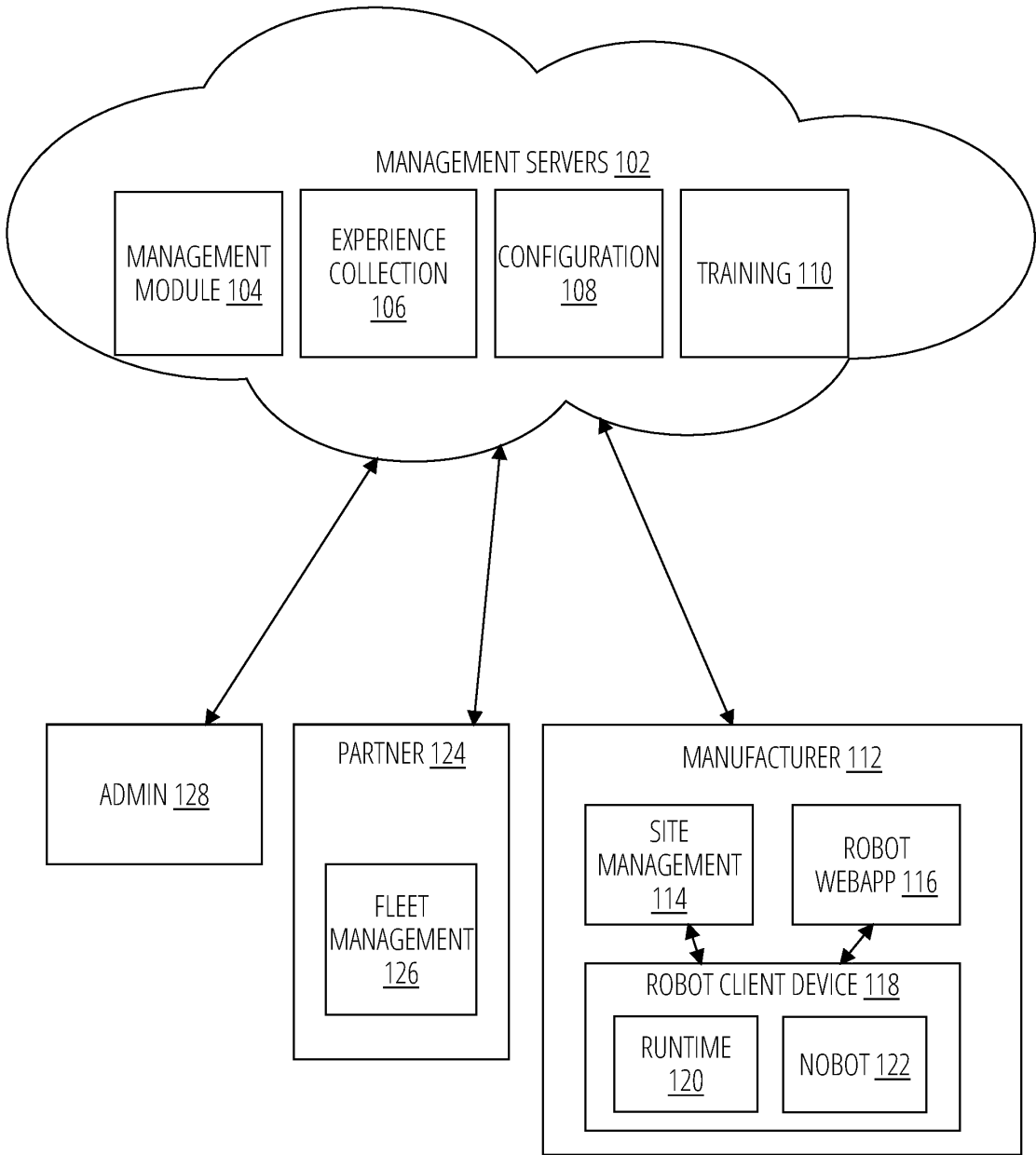


FIG. 1

200

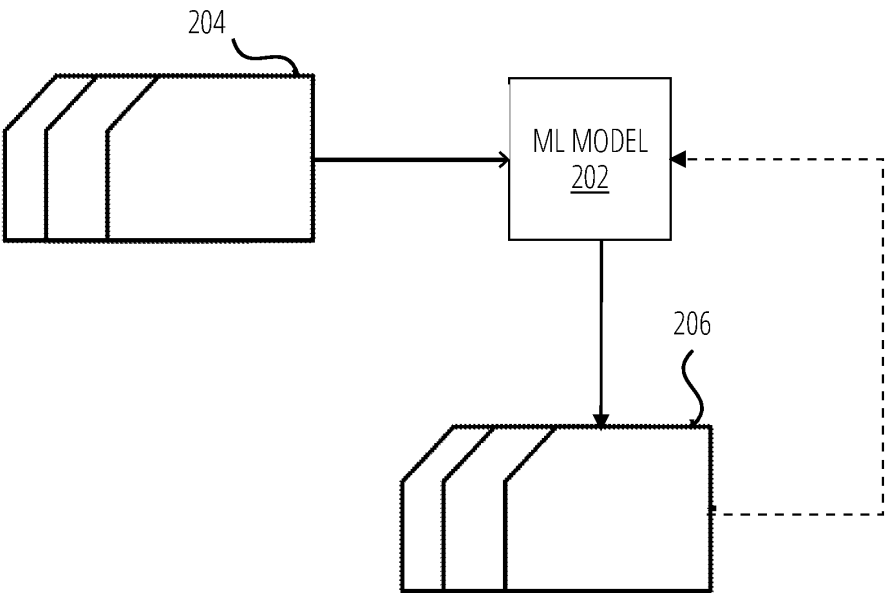


FIG. 2

3/10

300a



```
task_id: pnp_103

description: Right to left pick and place task

assets:
  task_package: pnp_103_101421_011.pkl
  robot_mods:   gv3_1_pnp_103.zip

dependencies:
  - system:
    - tensorflow:2.1.0
    - giant_robotics:1.5
    - giant_camera:1.4
    - realsense_lib:1.2.7
    - ...
  - hardware:
    - camera: rs_d435, rs_d435i
    - finger_sensor: bb_201, bb_205
    - gpu: titan_v, 1080ti, 2080ti
```

FIG. 3A

4/10

300b


```
cameras:
  type: rs_d435
  left:
    sn: 939622070907
  right:
    sn: 941322072560
finger_sensors:
  type: bb_201
  left:
    path: "pci-0000:00:14.0-usb-0:10.1:1.0-port0"
    baud: 230400
  right:
    path: "pci-0000:00:14.0-usb-0:10.2:1.0-port0",
    baud: 230400
joints:
  TWIST:
    currentlimit: 5.0
    servo_id: 39
    max: 500000
    min: -484000
    polarity: 1.0
    rest: 0.0
```

FIG. 3B

5/10

- tensorflow: 2.1.0
- giant_robotics: 1.5
- giant_camera: 1.4
- realsense_lib: 1.2.7
- influx: 1.4
- giant_ml: 1.8

FIG. 3C

300c



- giant_2.4.3.Dockerfile

FIG. 3D

300d



6/10

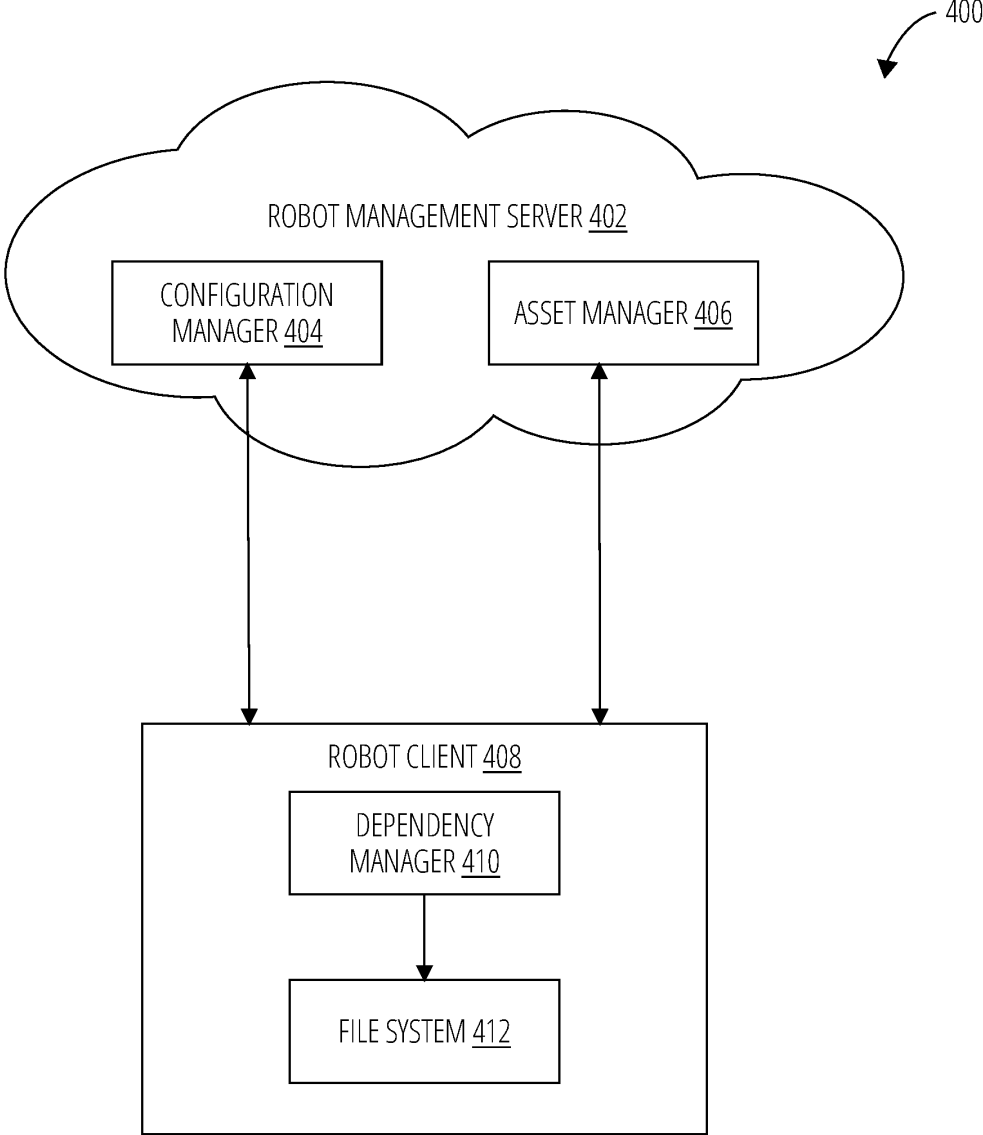


FIG. 4

7/10

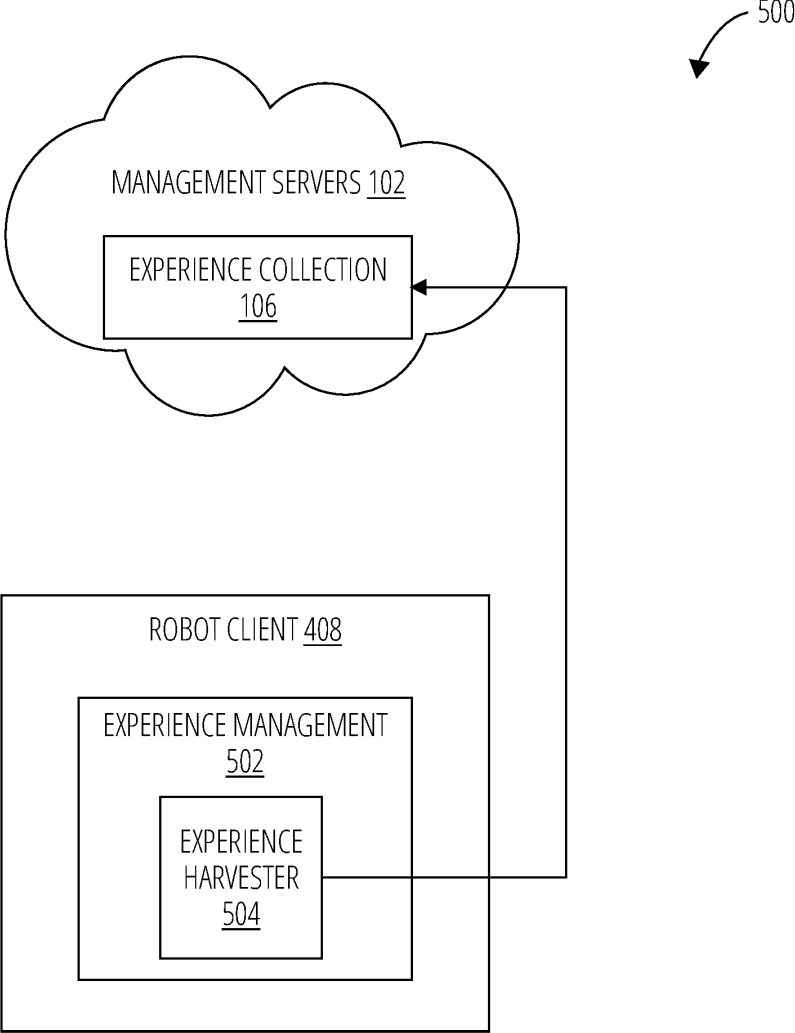


FIG. 5

8/10

600

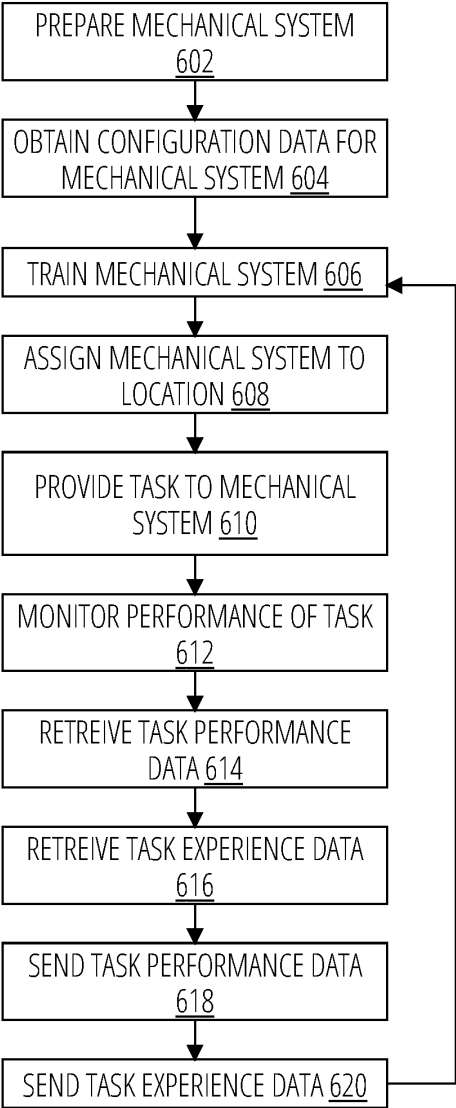


FIG. 6

700

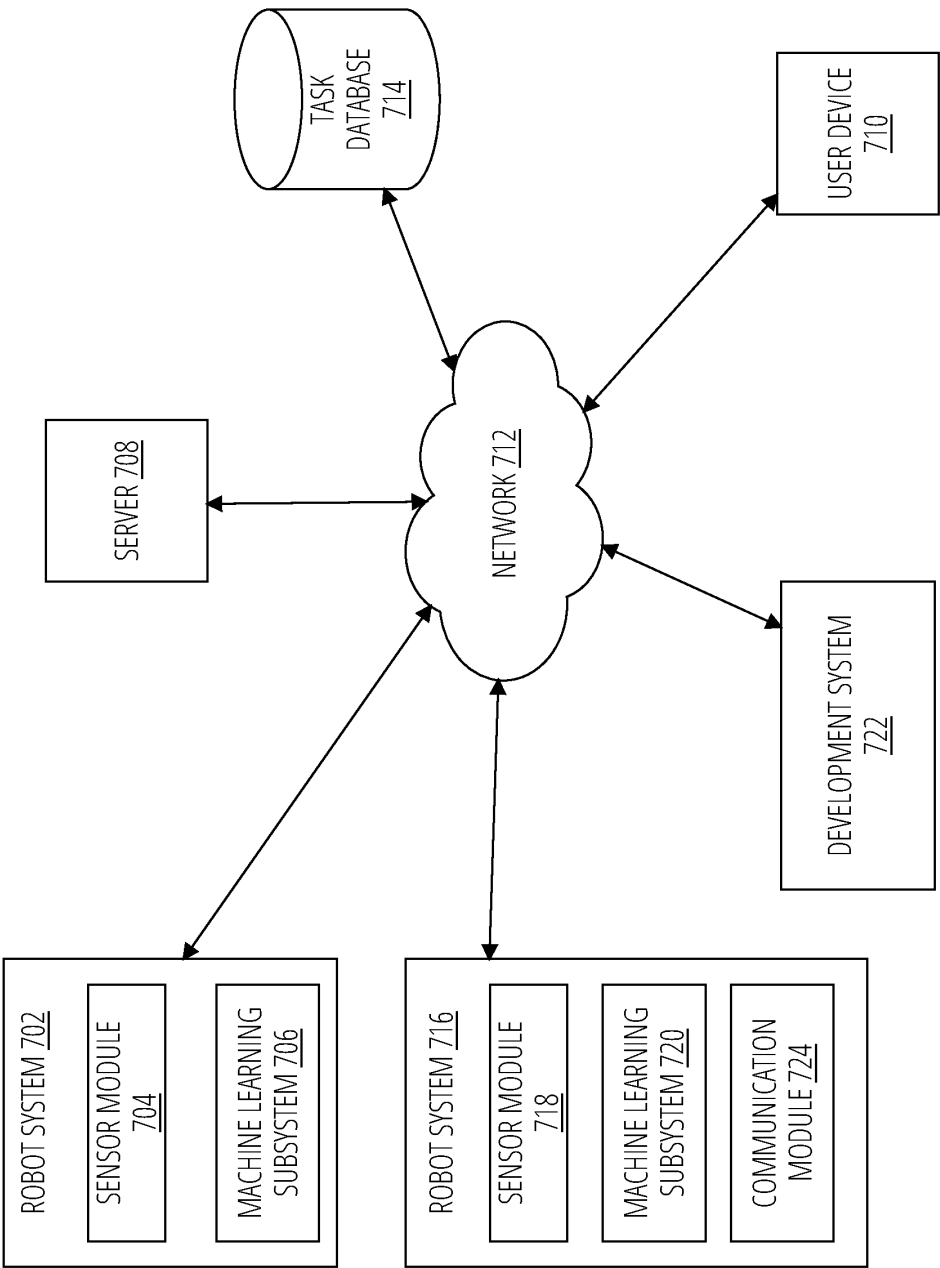


FIG. 7

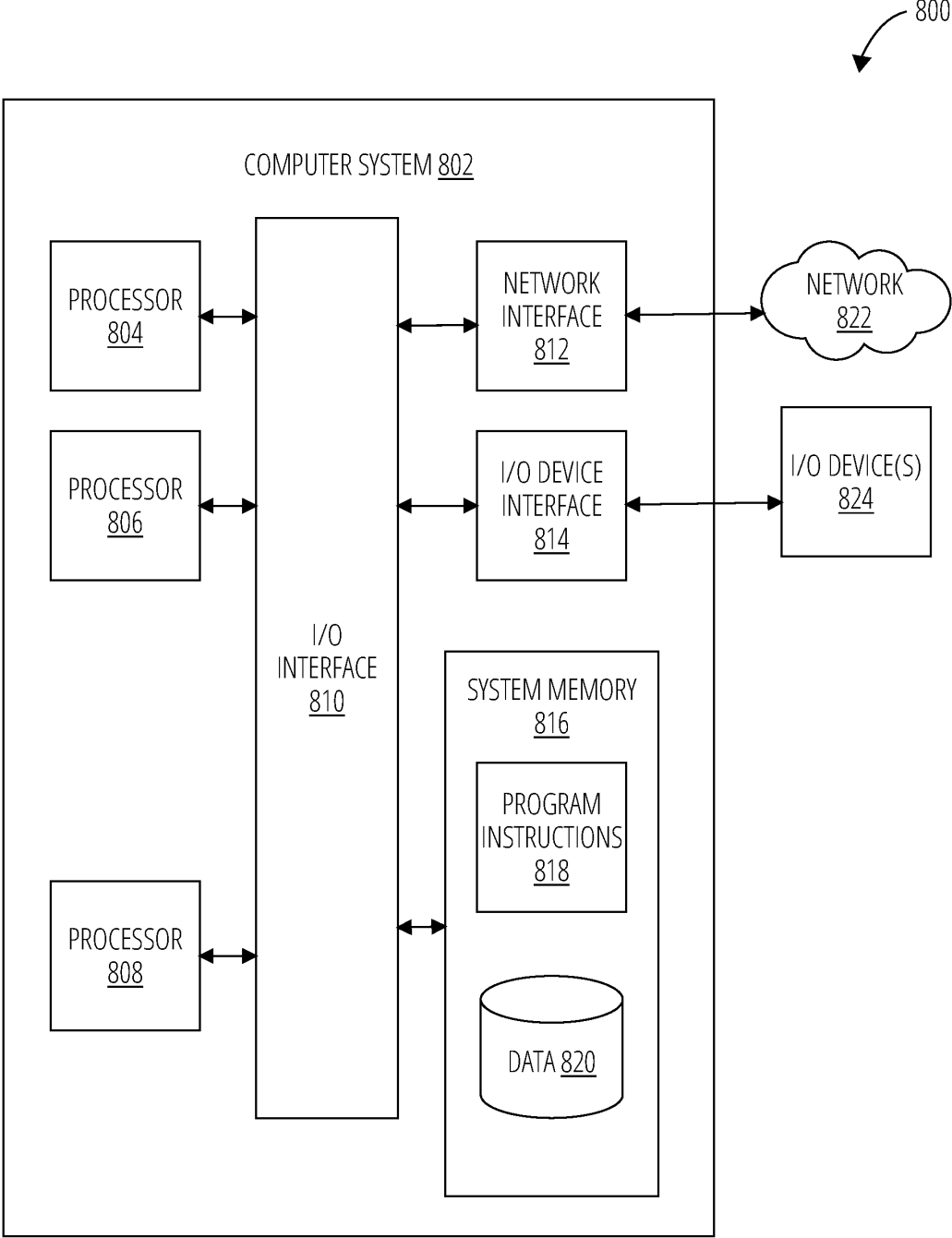


FIG. 8