CLAIMS

1. A spacecraft servicing system, comprising:

a spacecraft servicing device; and

at least one pod comprising at least one spacecraft servicing component, the at least one pod carried by the spacecraft servicing device, wherein the spacecraft servicing device is configured to transfer the at least one pod to a target spacecraft using propulsion of the spacecraft servicing system in order to service the target spacecraft with the at least one spacecraft servicing component of the at least one pod, wherein the spacecraft servicing device is configured to remain in at least partial physical contact with the at least one pod until the at least one pod is secured to the target spacecraft, and wherein the spacecraft servicing device is configured to cease physical contact with the at least one pod after the at least one pod is secured to the target spacecraft, wherein the at least one spacecraft servicing component of the at least one pod comprises a thruster assembly configured to alter at least one of an orbit or a velocity of the target spacecraft.

2. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured to transfer the at least one pod to a target spacecraft using only the propulsion of the spacecraft servicing system.

3. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device comprises a propulsion system configured to move the spacecraft servicing device in six axes of movement.

4. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device comprises at least one sensor configured to detect a characteristic of a portion of the target spacecraft.

5. The spacecraft servicing system of claim 4, wherein the at least one sensor is configured to detect a characteristic relating to a docking structure of the target spacecraft.

6. The spacecraft servicing system of claim 4, wherein the at least one sensor is configured to facilitate at least one of rendezvous operations or proximity operations relative to the target spacecraft in order to at least one of deploy, install, or remove the at least one pod.

7. The spacecraft servicing system of claim 1, wherein the at least one pod comprises a plurality of pods.

8. The spacecraft servicing system of claim 7, wherein the spacecraft servicing device is configured to store and deploy the plurality of pods to at least one of a plurality of target spacecraft.

9. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device comprises at least one movable mechanism configured to deploy the at least one pod to the target spacecraft.

10. The spacecraft servicing system of claim 9, wherein the at least one movable mechanism comprises a robotic arm configured to deploy the at least one pod to the target spacecraft.

11. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured to retrieve and/or refuel the at least one pod from the target spacecraft.

12. The spacecraft servicing system of claim 1, further comprising a resupplying device configured to supply at least another pod to the spacecraft servicing device.

13. The spacecraft servicing system of claim 1, wherein the spacecraft servicing device is configured to position the at least one pod at a position adjacent the target spacecraft, and wherein the at least one pod comprises a coupling mechanism configured to engage with the target spacecraft at the position adjacent the target spacecraft in order to secure the at least one pod to the target spacecraft.

14. A spacecraft servicing system, comprising:

a spacecraft servicing device; and

at least one pod comprising at least one spacecraft servicing component, the at least one pod carried by the spacecraft servicing device, wherein the spacecraft servicing device is configured to transfer the at least one pod to a target spacecraft in order to service the target spacecraft with the at least one spacecraft servicing component of the at least one pod, the at least one pod further comprising a coupling mechanism to secure the at least one pod to the

target spacecraft, the coupling mechanism configured to engage with an external portion of the target spacecraft such that the at least one pod remains positioned at a location external to the target spacecraft.

15. The spacecraft servicing system of claim 14, wherein the spacecraft servicing system is configured to transfer the at least one pod to the target spacecraft using only propulsion of the spacecraft servicing system.

16. The spacecraft servicing system of claim 14, wherein the spacecraft servicing device is configured to position the at least one pod at a position adjacent the target spacecraft, and wherein the coupling mechanism is configured to engage with the target spacecraft at the position adjacent the target spacecraft in order to secure the at least one pod to the target spacecraft.

17. The spacecraft servicing system of claim 14, wherein the at least one spacecraft servicing component is configured to perform at least one of station-keeping, orbital raising, momentum balancing, attitude control, relocation, de-orbit, refueling, component replacement, component addition, or repair to the target spacecraft.

18. The spacecraft servicing system of claim 14, wherein the coupling mechanism of the at least one pod is configured to couple the at least one pod to a portion of a propulsion engine of the target spacecraft.

19. A spacecraft servicing system, comprising:

a spacecraft servicing device comprising at least one sensor; and

at least one pod comprising at least one spacecraft servicing component, the at least one pod carried by the spacecraft servicing device, wherein the spacecraft servicing device is configured to transfer the at least one pod to a target spacecraft in order to service the target spacecraft with the at least one spacecraft servicing component of the at least one pod, and wherein the at least one sensor of the spacecraft servicing device is configured to detect a characteristic relating to a docking structure of the target spacecraft, and wherein the spacecraft servicing device is configured to determine a manner of attachment between the at least one pod and the docking structure of the target spacecraft based on the characteristic detected by the at least one sensor.

20. The spacecraft servicing system of claim 19, wherein the at least one pod comprising a coupling mechanism configured to couple the at least one pod to a portion of a motor of the target spacecraft.

21. The spacecraft servicing system of claim 19, wherein the at least one sensor is configured to facilitate at least one of rendezvous operations or proximity operations relative to the target spacecraft in order to at least one of deploy, install, or remove the at least one pod.

22. The spacecraft servicing system of claim 19, further comprising a propulsion system configured to move the spacecraft servicing device in six axes of movement.

23. A spacecraft servicing system comprising a spacecraft servicing device and a plurality of pods, wherein the spacecraft servicing device is configured to install at least one pod of the plurality of pods to a portion of a propulsion engine of a target spacecraft and further configured to at least two of detach the at least one pod of the plurality of pods from the portion of the propulsion engine of the target spacecraft, reinstall the at least one pod of the plurality of pods to the portion of the propulsion engine of the target spacecraft, reinstall the at least one pod of the plurality of pods to a portion of a propulsion engine of another target spacecraft, or replenish and reuse the at least one pod of the plurality of pods.

24. A method of servicing a spacecraft, the method comprising:

positioning a spacecraft servicing device proximate the spacecraft;

transferring at least one pod of a plurality of pods comprising at least one spacecraft servicing component to an external portion of the spacecraft while the at least one pod is in physical contact with the spacecraft servicing device; and

ceasing physical contact with the at least one pod after the at least one pod is secured to the spacecraft leaving the at least one pod in a position connected and external to the spacecraft.

25. The method of claim 24, further comprising servicing the spacecraft with the at least one spacecraft servicing component of the at least one pod.

26. The method of claim 24, further comprising supplying another plurality of pods to the

spacecraft servicing device with a resupply spacecraft after the spacecraft servicing device has transferred a selected amount of the plurality of pods to multiple spacecraft.