CLAIMS

WHAT IS CLAIMED IS:

1. A robotic assembly for servicing equipment, the robotic assembly comprising:

an area configured to receive components associated with a workscope of the equipment;

an environmental capture device configured to capture information associated with an environment in which the robotic assembly is disposed; and

one or more computing devices configured to:

locate the equipment in the environment;

autonomously navigate the robotic assembly through the environment to the equipment; and

autonomously adjust a position of the robotic assembly in response to the workscope.

wherein the robotic assembly is in communication with at least one other robotic assembly disposed within the environment,

wherein the at least one other robotic assembly comprises a secondary robot mounted to the robotic assembly configured to operate independent of the robotic assembly.

2. The robotic assembly of claim 1, wherein the robotic assembly is configured to detect proximity to humans and operate at a slower speed when navigating the environment within a prescribed proximity of a human.

3. The robotic assembly of claim 1, wherein the one or more computing devices is further configured to cause the robotic assembly to perform the service, the service including at least one of inspection and repair of the equipment.

4. The robotic assembly of claim 1, wherein the equipment comprises a gas turbine engine.

5. The robotic assembly of claim 1, wherein the robotic assembly further comprises a fluid dispenser, a temperature control component, or both configured to operate on the equipment.

~~6. The robotic assembly of claim 1, wherein the robotic assembly is in communication with at least one other robotic assembly disposed within the environment.~~

~~7. The robotic assembly of claim 6, wherein the at least one other robotic assembly comprises a secondary robot mounted to the robotic assembly.~~

~~8~~6. A method of servicing equipment, the method comprising:

receiving a workscope associated with the equipment;

selecting one or more kitted components associated with the workscope, the one or more kitted components being disposed in one or more storage areas of a kitting station;

navigating a robotic assembly to the kitting station;

loading the kitted components onto ~~a~~the robotic assembly, wherein the robotic assembly includes an area configured to receive the kitted components, separate from the kitting station;

navigating the robotic assembly with the kitted components to the equipment; and

performing servicing operations on the equipment with the robotic assembly using the kitted components, wherein the robotic assembly includes a robotic arm to perform servicing operations.

~~9~~7. The method of claim ~~8~~6, wherein at least one of receiving the workscope, selecting one or more kitted components, loading the kitted components, and navigating the robotic assembly is performed autonomously.

~~10~~8. The method of claim ~~8~~6, wherein performing servicing operations on the equipment with the robotic assembly using the kitted components comprises autonomously performing servicing operations on the equipment with the robotic ~~assembly~~ arm using the kitted components.

~~11~~9. The method of claim ~~8~~6, further comprising at least partially-autonomously positioning the robotic assembly relative to the equipment prior to performing servicing operations with no human input, and wherein the robotic assembly receives human input prior to performing servicing operations.

~~12~~10. The method of claim ~~8~~6 wherein navigating the robotic assembly to the equipment comprises moving the robotic assembly within ~~the~~an environment at a first speed when located outside a prescribed proximity of humans and moving the robotic assembly within the environment at a second speed when located within a prescribed proximity, wherein the first speed is greater than the second speed.

~~13~~11. The method of claim ~~8~~6, wherein the step of loading the kitted components onto the robotic assembly occurs at a location different from an environment associated with the equipment.

~~14~~12. The method of claim ~~8~~6, wherein the equipment comprises a gas turbine engine.

~~15~~13. The method of claim ~~8~~6, wherein the steps of navigating the robotic assembly and autonomously performing the service are performed using information provided by a same environmental capture device.

~~16~~14. A robotic assembly for autonomously servicing equipment, the robotic assembly comprising:

a kitting area configured to receive kitted components associated with a workscope of the equipment from a kitting station, wherein the kitting station is separate from the kitting area;

an environmental capture device configured to capture information of an environment in which the robotic assembly is disposed;

a robotic arm configured to operate on the equipment;

a drive system configured to reposition the robotic assembly relative to the environment in response to the worksope;

a fluid dispenser, a cooling system, or both configured to operate on the equipment;

one or more computing devices configured to locate the equipment, navigate the robotic assembly to the kitting station, navigate the robotic assembly to the equipment, and perform a service of the equipment.

~~17~~15. The robotic assembly of claim ~~16~~14, wherein the one or more computing devices comprises at least one remote computing device.

~~18~~16. The robotic assembly of claim ~~16~~14, wherein the robotic assembly further comprises a system configured to monitor the robotic arm, or one or more locations thereof, with respect to the equipment and compensate for relative motion between the robotic arm, or one or more locations thereof, and the equipment.

~~19~~17. The robotic assembly of claim ~~16~~14, wherein the robotic assembly is configured to at least partially-autonomously deploy one or more sensors or detectors along the equipment prior to performing the service.

~~20~~18. The robotic assembly of claim ~~16~~14, wherein the robotic assembly is configured to be aligned relative to the equipment prior to performing the service, and wherein the robotic assembly is configured to at least partially-autonomously perform a precision alignment with the equipment.

19. The method of claim 6 wherein performing servicing operations on the equipment comprises moving the robotic arm relative to the equipment at a first speed when located outside a prescribed proximity of humans and moving the robotic arm relative to the equipment at a second speed when located within a prescribed proximity, wherein the first speed is greater than the second speed.

20. The robotic assembly of claim 14, wherein the robotic assembly is configured to communicate peer-to-peer with at least one other robotic assembly to co-navigate within the environment, perform simultaneous service of the equipment, or both.