WHAT IS CLAIMED IS:

1. An automated system for mounting a front-end module (FEM) for a vehicle to a FEM installation portion of a vehicle body, the front-end module (FEM) including a first headlamp assembly and a second headlamp assembly assembled to both sides of a carrier body, the automated system comprising:

a FEM gripper mounted on an arm of a first handling robot;

a vision sensor mounted on an arm of a second handling robot through a mounting bracket, the vision sensor being configured to vision-photograph a first reference portion formed on the vehicle body and a first vehicle body coupling hole formed on the first headlamp assembly, and to vision-photograph a second reference portion formed on the vehicle body and a second vehicle body coupling hole formed on the second headlamp assembly, wherein the front-end module (FEM) is loaded on the FEM installation portion by the FEM gripper, wherein:

the first reference portion comprises a first reference hole formed on a first fender portion of the vehicle body; and

the second reference portion comprises a second reference hole formed on a second fender portion of the vehicle body; and

a controller configured to analyze vision data obtained from the vision sensor and to apply a position control signal to the first handling robot, wherein the controller is configured to, based on the vision data:

calculate a first distance value in a vehicle width direction between a first center line passing through a center of the first reference hole and a second center line passing

through a center of the first vehicle body coupling hole;

calculate a second distance value in the vehicle width direction between a third center line passing through a center of the second reference hole and a fourth center line passing through a center of the second vehicle body coupling hole;

calculate an average value of the first distance value and the second distance value; and

convert the average value to the position control signal.

2. The automated system of claim 1, wherein the vision sensor is configured to vision-photograph the front-end module loaded on a pallet, and to output the vision data to the controller.

3. The automated system of claim 2, wherein the vision sensor is configured to vision-photograph the FEM installation portion of the vehicle body, and to output the vision data to the controller.

4. The automated system of any one of claims 1 to 3, further comprising at least one bolt runner installed on the mounting bracket.

5. The automated system of claim 4, wherein the at least one bolt runner comprises:

a first bolt runner fixed on the mounting bracket and disposed in a vehicle length direction; and

a second bolt runner installed on the mounting bracket to be movable in a vertical direction, and disposed along the vehicle length direction.

6. The automated system of any one of claims 1 to 4 wherein the FEM gripper comprises:

a jig frame mounted on the arm of the first handling robot;

at least one upper clamper installed on the jig frame and configured to clamp an upper portion of the front-end module;

at least one lower clamper installed on the jig frame and configured to clamp a lower portion of the front-end module; and

at least one pusher installed on the jig frame and configured to pressurize a front portion of the front-end module.

7. The automated system of claim 6, wherein the FEM gripper further comprises at least one guide pin installed on the jig frame and configured to be inserted into at least one guide hole provided on the front-end module.

8. The automated system of claim 6 or claim 7, wherein the at least one upper clamper is rotatable in a vertical direction by a first driving portion, and movable in a vehicle length direction by a second driving portion.

9. The automated system of claim 6 or claim 7, wherein the at least one lower clamper is movable in a vertical direction by a third driving portion.

10. The automated system of any one of claims 6, 7 or 9, wherein the at least one pusher is movable in a vehicle width direction by a fourth driving portion.

11. The automated system of any one of claims 6, 7, 9 or 10, wherein the at least one pusher comprises:

a cylinder member disposed in a vehicle length direction;

a push rod coupled to the cylinder member to be movable back and forth in the vehicle length direction;

a push spring installed in an interior of the cylinder member to elastically support the push rod; and

a push pad installed on a front end portion of the push rod.

12. The automated system of claim 7, wherein the at least one guide pin is movable back and forth in a vehicle length direction by a fifth driving portion, movable in a vehicle width direction by a sixth driving portion, and movable in a vertical direction by a seventh driving portion.

13. The automated system of claim 7, wherein the at least one guide pin comprises:

a pin rod portion disposed in a vehicle length direction; and

a plurality of hole insertion portions formed at a front end portion of the pin rod portion, in multiple stages having different diameters.

14. The automated system of any one of claims 6, 7, 10, 11 or 13, wherein the FEM gripper further comprises:

an attachment member coupled to the at least one lower clamper and configured to support the lower portion of the front-end module; and

a detecting sensor installed on the at least one lower clamper and configured to detect a position of the attachment member.

15. The automated system of claim 14, wherein the attachment member comprises:

at least one attachment rod installed on the at least one lower clamper and movable in a vertical direction through a holding bracket;

an attachment pad coupled to an upper end portion of the attachment rod; and

an attachment spring installed on the attachment rod.

16. The automated system of claim 15, wherein the detecting sensor is installed on the holding bracket to correspond to the attachment rod.