

Safe Handling of Masses in Motion

A NEW CO-DEVELOPMENT OPPORTUNITY

Reference No: NNJ14ZBH021L

Potential Commercial Applications: logistics, heavy lifting, simulated gravity, and others

Keywords: mass handling, gravity offload, control monitoring

Purpose:

NASA JSC seeks parties interested in co-developing technology associated with its Active Response Gravity Offload System (ARGOS).

The ARGOS allows humans, robotics, and passive systems to experience reduced gravity environments from microgravity to full gravity (e.g., earth surface, lunar surface, Martian surface and microgravity).

This technology can be adapted to modernize and develop systems and methods where humans or robots are required to handle heavy masses.

Technology:

ARGOS supplies continuous ability to offload a portion or all of a person's or object's weight during dynamic motions such as walking, running, and jumping. The ARGOS system tracks the person or object's motion in the horizontal direction to maintain a vertical offload force directly above the person by measuring the deflection of the cable and adjusting accordingly.

ARGOS accomplishes this feat using a full motion based robotic system. This system, while similar to an under-hung gantry crane system, reacts to the motion of the mass instead of a manually operated controller.

NASA designed this facility to be capable of accomplishing the following: surface operation studies; space suit and space vehicle requirements development; space suit and space vehicle design evaluation; and testing of rovers and robots in simulated reduced gravity environments.

For more information please visit the ARGOS [website](#).

R&D Status:

The ARGOS utilizes advanced hardware and software technology that continues to be developed and updated.

Intellectual Property:

Patent pending: NASA-MSC-25386-1 – Active Response Gravity Offload System and Method.

This co-development project may produce new IP that could be jointly owned by NASA and the partner or may become the property of the partner.