

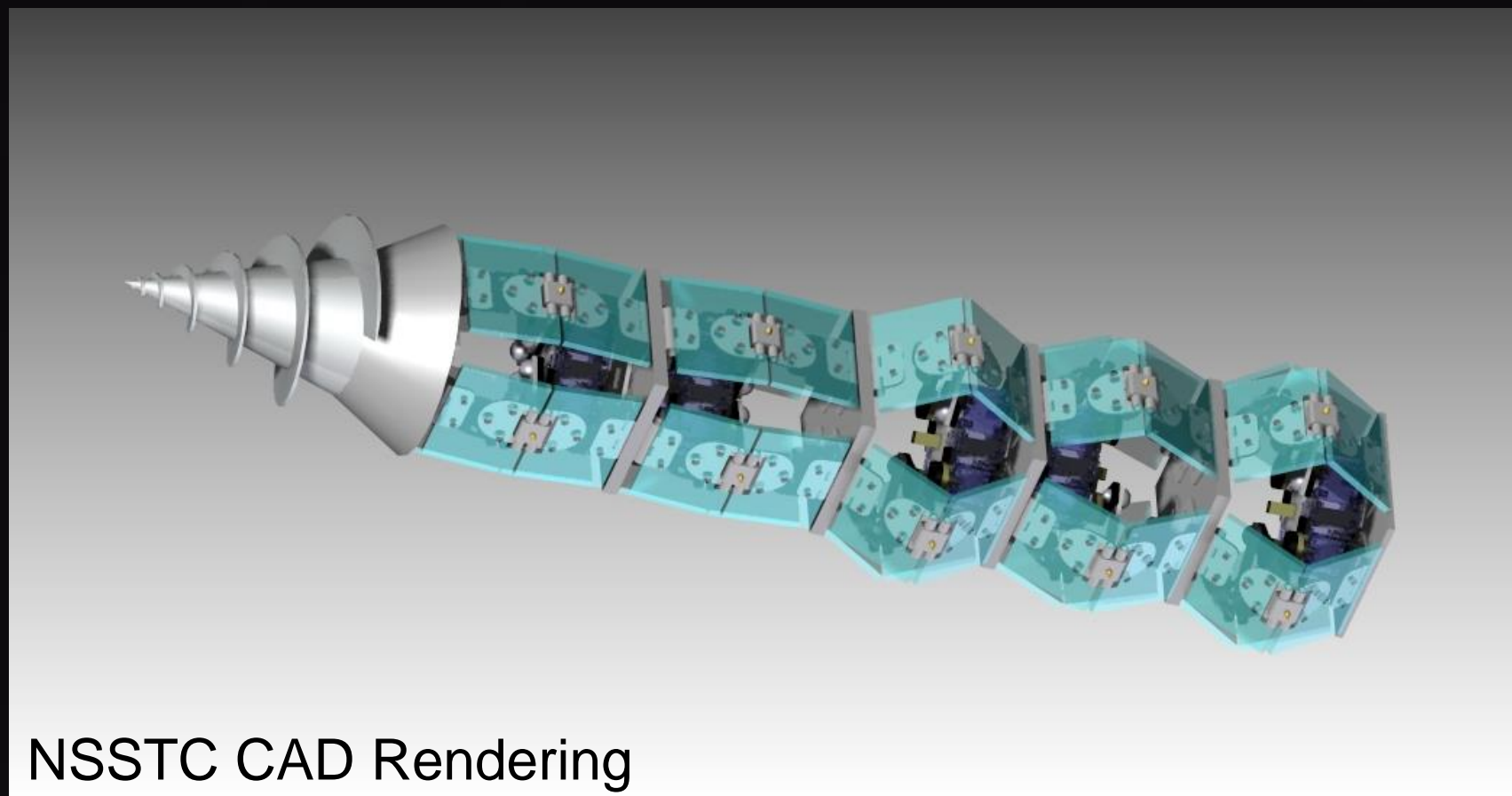
Lunar Wormbot- A Robotic Tunneling Worm for Operation in Harsh Environments

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Overview

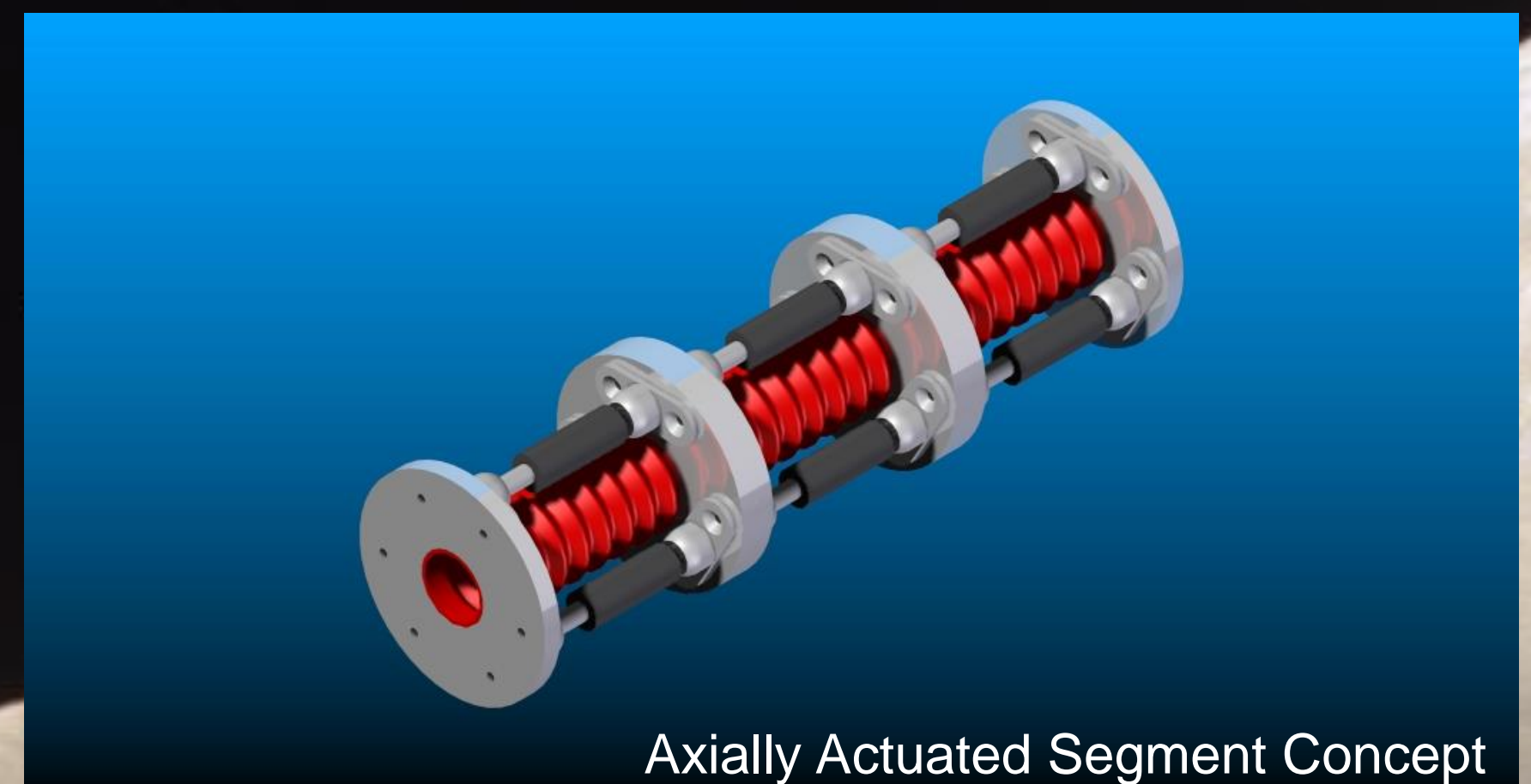
- NASA-NSSTC conceptual design developed during summer 2010
- MAE senior design students will refine the design, fabricate, and test the Lunar Wormbot during the 2010-2011 academic year
- Utilization of peristaltic motion
- Soil sample acquisition and analysis
- Teleoperated



NSSTC CAD Rendering

Key Findings

- Peristaltic motion allows for low power consumption
- Implementation of NASA Systems Engineering Design Process
- Quality design experience with NASA-NSSTC interaction
- Exposure to cutting edge design optimization software (X-TOOLSS)



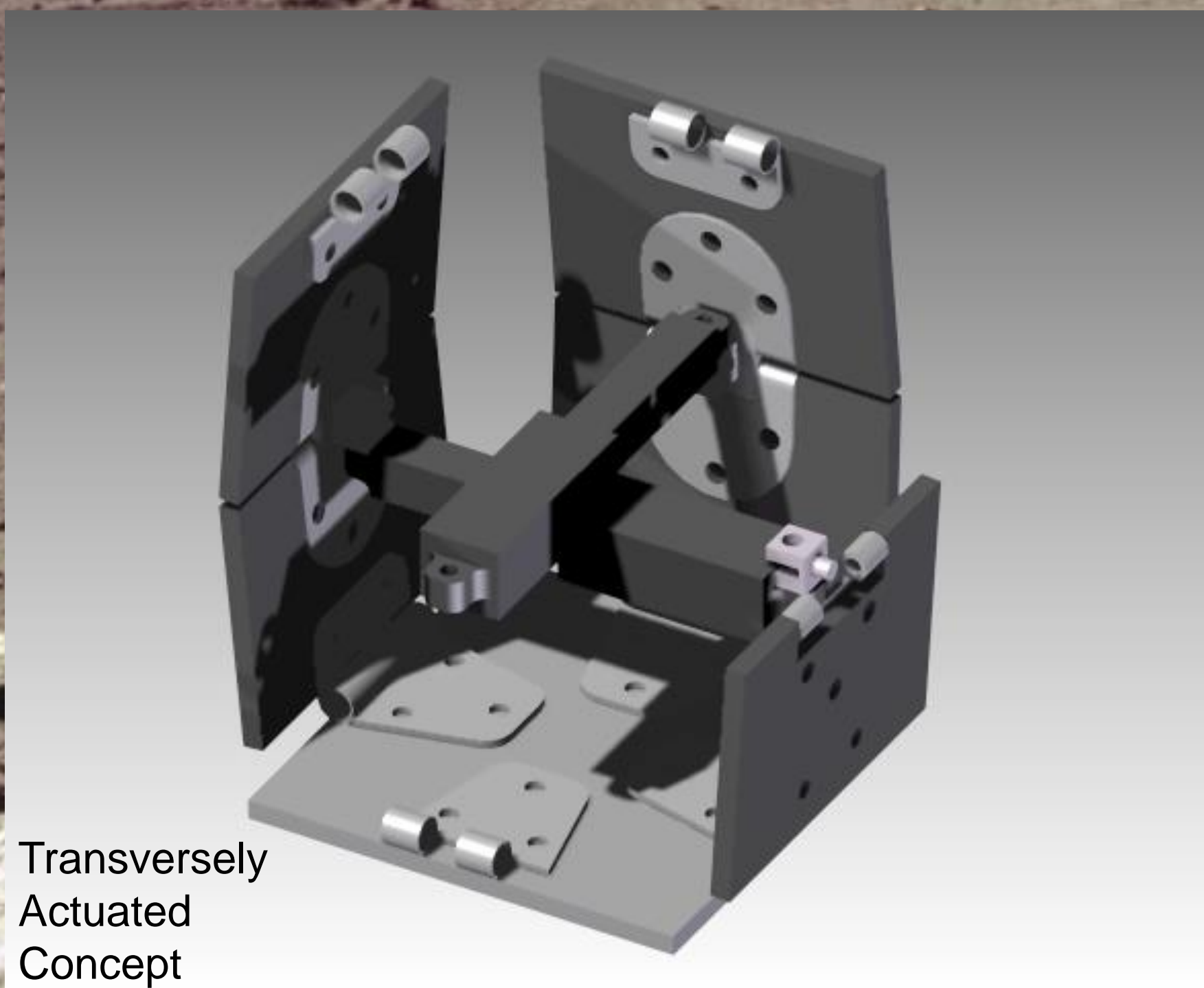
Axially Actuated Segment Concept

Explanation

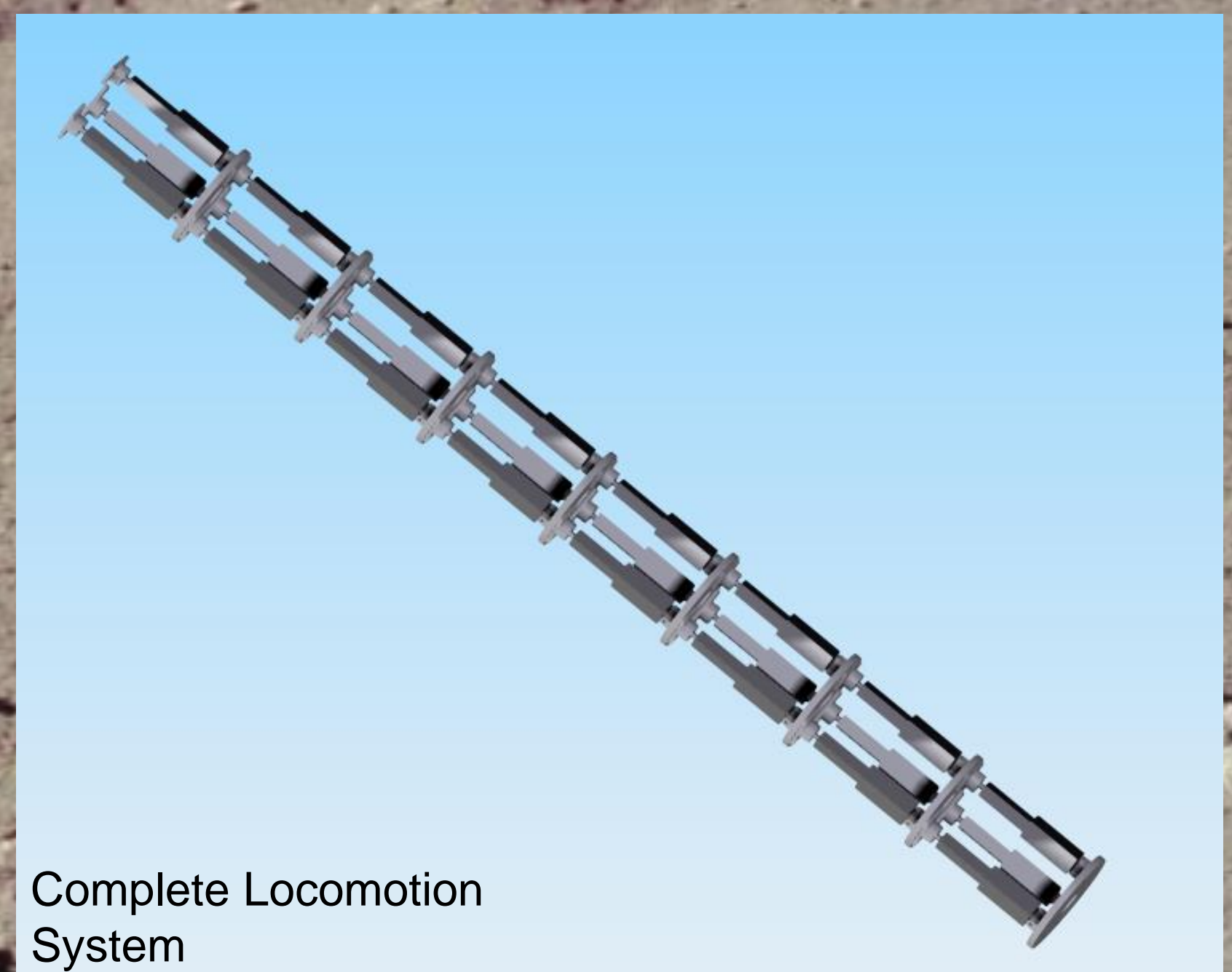
- Promotes interest in planetary exploration
- Allows expansion of scientific knowledge
- Increases student participation in space hardware design
- Decreased human risk in space exploration by teleoperation

Impact

- The design project allows MAE students to interact with NASA and NSSTC engineers as well as with technical advisors from Johns Hopkins University, the University of Maryland and Embry Riddle University
- Design innovation leading to similar missions relating to planetary exploration
- Modifications may allow commercial and military applications



Transversely Actuated Concept



Complete Locomotion System

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