

RISE Assistance Device

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Overview

- A student design team from the MAE Department has designed and developed a product to assist a four-year-old Rural Infant Stimulation Environment (RISE) School student who possesses a physical disability gain independent mobility.
- The RISE Assistance Device (RAD) has an electric powered differential drive that will be operated via the RISE student's feet.
- The RAD incorporates the RISE student's favored Tumble Form® seat.



CAD Rendering of RAD Design Using Keyshot™ Software

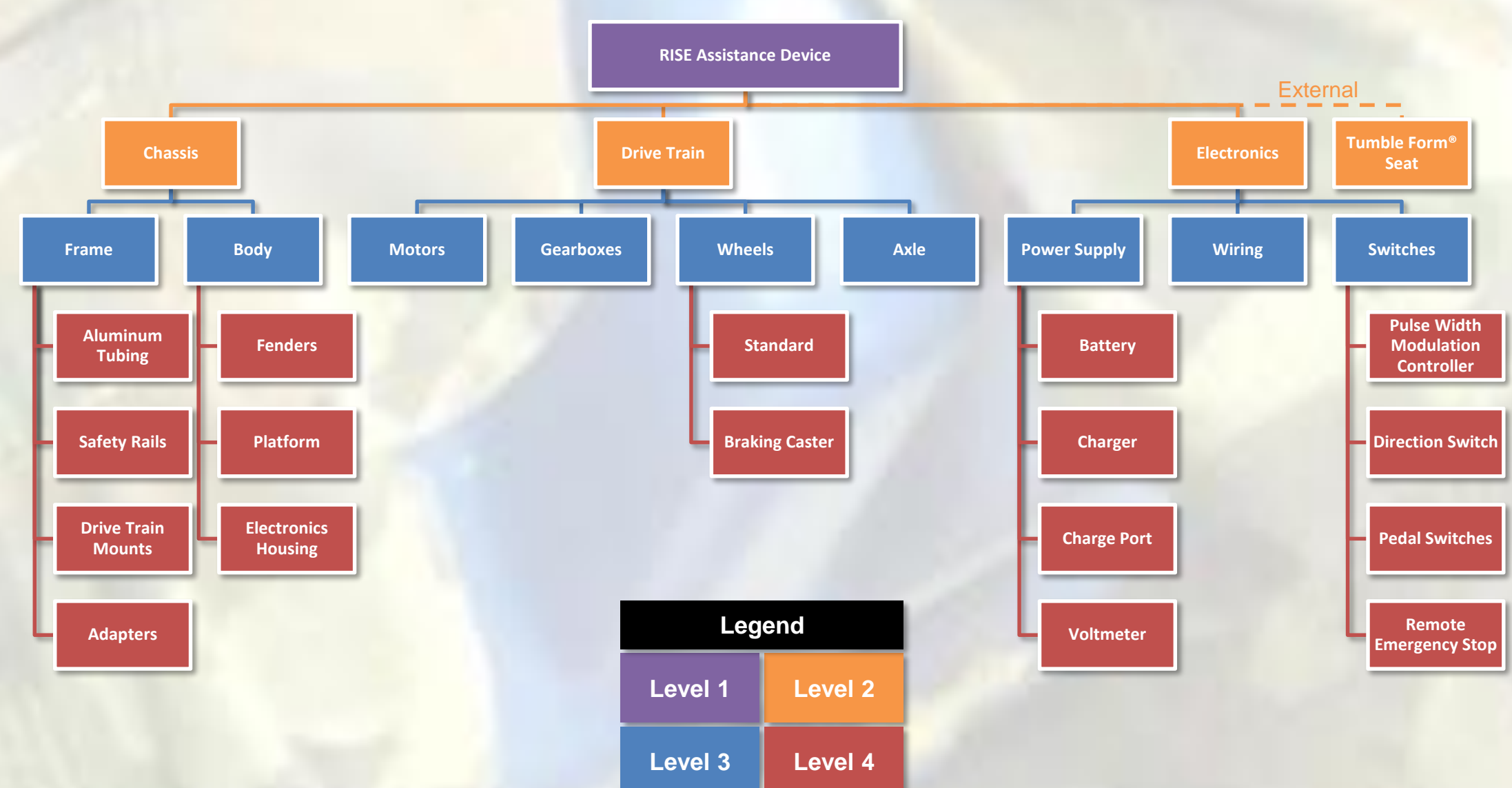


Completed RAD Assembly

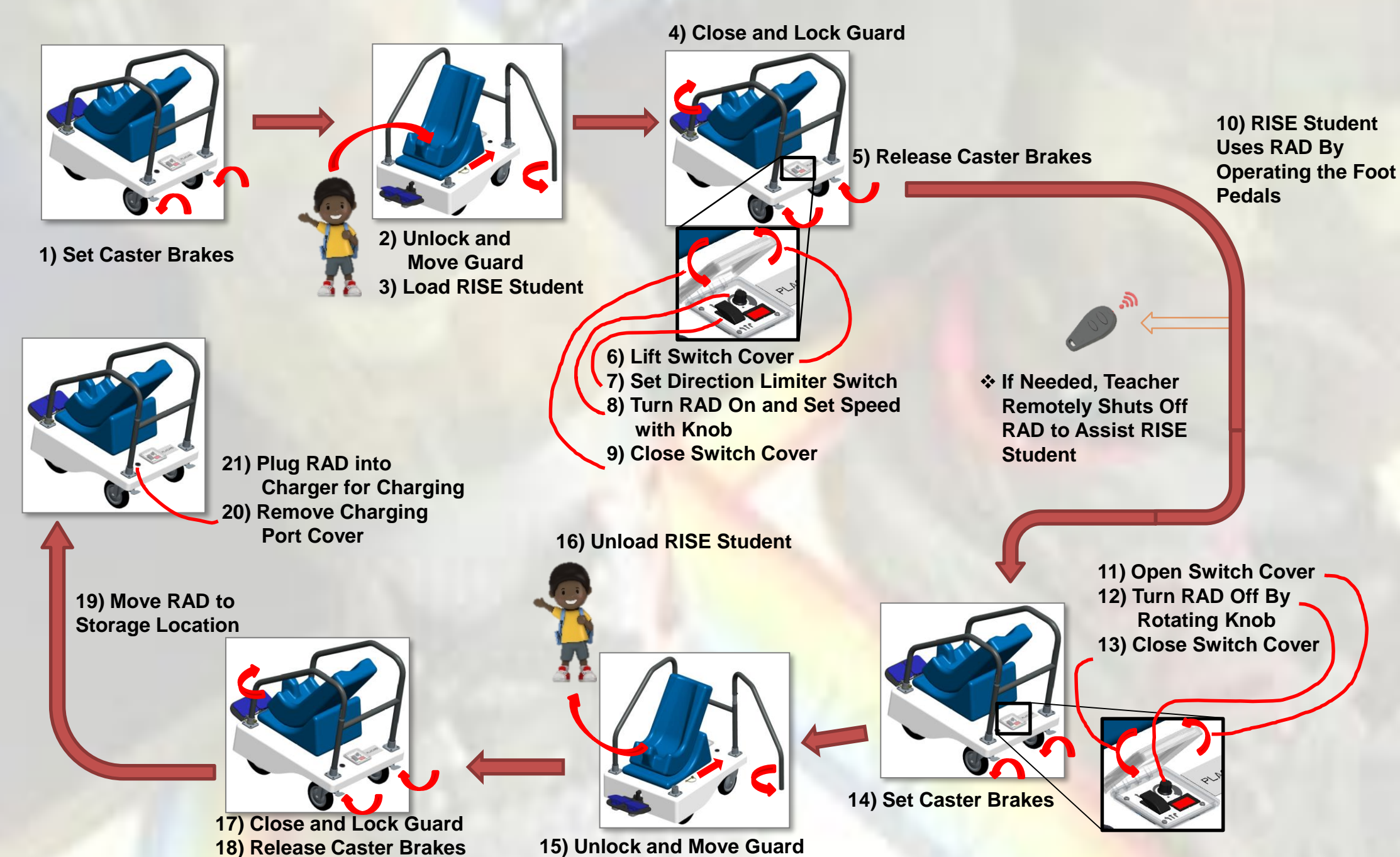
Methodology

The student design team utilized the National Aeronautics and Space Administration Systems Engineering Handbook to guide the following processes:

- Product Development Schedule
- Customer Questionnaire
- Market Surveys
- Patent Searches
- Benchmarking
- Product Requirements Document
- Concept of Operations
- Product Breakdown Structure
- Evaluation Matrices
- Technical Analyses
- Risk Assessment with Mitigation
- Manufacturing Process
- Hardware/Software Test Plans
- Cost Analysis
- Verification Testing
- Operations Manual
- Design Reviews



Product Breakdown Structure



Concept of Operations

Results

The student design team ensured a methodical approach to the design and development of a quality product by learning to apply important concepts that are practiced in industry.

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Impact

The RAD will facilitate an increase in the RISE student's educational and social involvement with his teachers and typical peers and can be shared with many RISE students possessing similar capabilities.