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Tradespace Analysis of the Rucksack Portable UAS

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Abstract: The Capstone team has used the Engineered Resilient Systems Tradespace Tool to test how well the tool itself works while at the same time gathering useful information for our client at PMUAS, Eric Thomas. The purpose of the project is to conduct a tradespace analysis in order to recommend a new UAS design. We built a Block Definition Diagram with the ERS tool that created a specific list of feasible subcomponents which reflect both the value properties and the constraints defined by Program Manager Unmanned Aircraft Systems. The research conducted not only provides crucial feedback for the ERS Tradespace Analysis tool, but also identifies the best possible system subcomponents for future research and development. Also by utilizing the ERS tool, we are able to analyze the data from a cost perspective and provide a complete and full value analysis on the system. Our complete analysis on UAS subcomponents considers several quality-based factors in conjunction with threshold level system requirements in order to ensure effective design quality.

Keywords: ERS Tradespace, UAS, Rucksack Portable, PMUAS