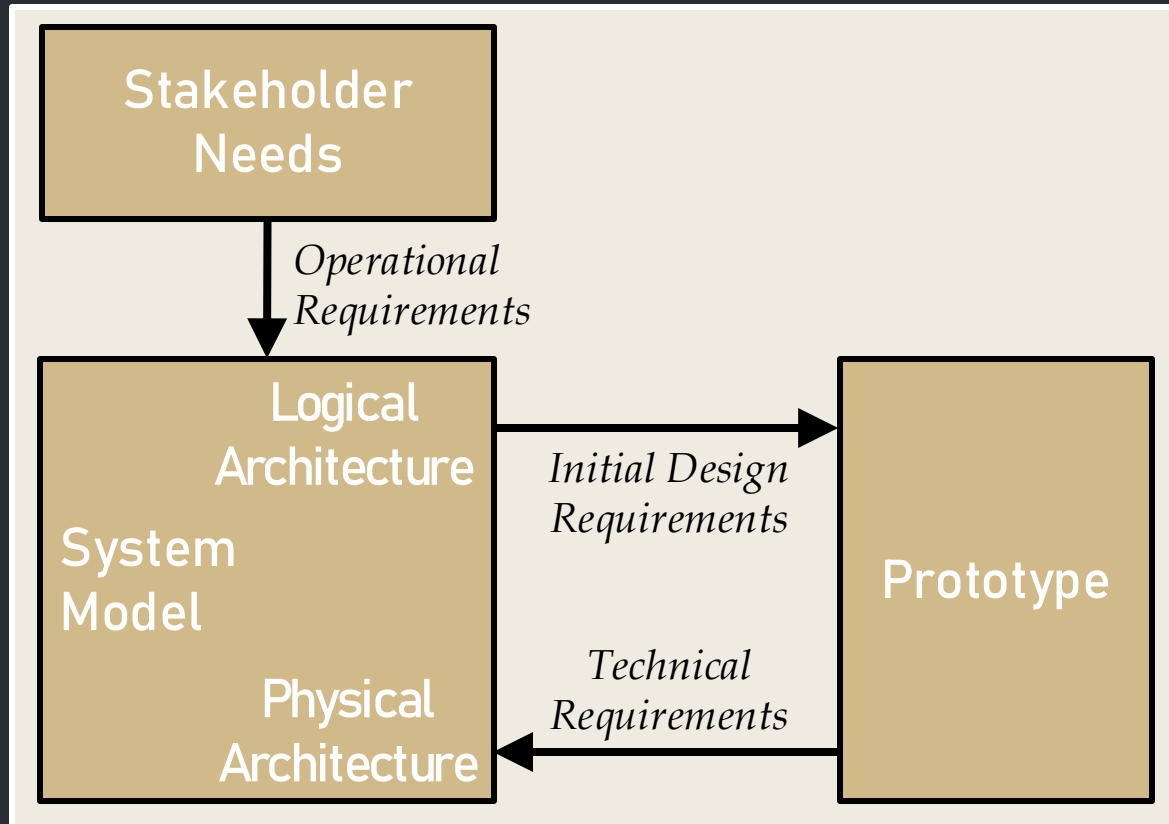


Prototyping Counter UAS Systems

How can we build low-cost, lightweight C-UAS systems?

DRAPER[®]

Methodology



Model-Based Systems Engineering (MBSE)



Results

- Created a prototype capable of detecting drones and emitting a jamming signal
- Prototyping yielded critical insights into technical requirements

Read more about this project at the following link: <https://ieeexplore.ieee.org/abstract/document/11014818>

Designing Hypersonic Rockets

How can we build cost-effective hypersonic rockets?



Methodology

- Attended a rocketry workshop and met with key stakeholders to build domain knowledge
- Developed a **functional hierarchy** to define system requirements
- Conducted **trade space analysis** of design alternatives (cost vs. strength, cost vs. altitude, density vs. strength)
- Evaluated design alternatives using a **weighted scoring matrix**

Results

- Launched four rockets into space, demonstrating the feasibility of producing reliable, low-cost hypersonic rockets



Read more about this project at the following link: https://www.ieworldconference.org/content/WP2025/Papers/GDRKMCC25_32.pdf

Detection Technology for Killshot Analysis

How can gunshot detection be automated to improve marksmanship evaluation and training?



Methodology



Results

- Developed **machine vision algorithm** to monitor a target for gunshots and store results
- Designed, fielded, & tested **prototype hardware** to deploy software



Read more about this project at the following link: https://www.ieworldconference.org/content/WP2023/Papers/GDRKMCC23_54.pdf