**Project Title**

Connect-Two

**High Level Summary**

Catchphrase about project, XY is a docking mechanism for in-space assembly of spacecraft modules. This is a particular challenge for large-scale missions. We tackled this by constructing an innovative model based on the mechanics of quick release connectors. The factors considered include building materials, pressure requirements and minimization of moving parts. This has the advantage of making the process of assembly rapid, safe and cost-efficient.

**How this project addresses this challenge**

Modern technologies and research are increasingly dependent on space-based technologies. While the space environment proves advantageous for numerous reasons ranging from lack of atmospheric interference to clearer observations, a major drawback is the limitation of the dimensions of the satellite. The increasing complexity of recent space missions often results in the requirement of larger equipment size. This poses transportation challenges to move infrastructure in space via single rocket launches.

Placing larger satellites such as the James Webb Space Telescope amongst others has the added risk of overshooting launch vehicles’ capabilities and increases the risk of damage. Current assembly techniques involve highly complex robotic arms. However, although robotics and in-person assembly may achieve the accuracy needed, they significantly increase costs and results in higher risk factors.

The future leans on in-space assembly techniques and transportation of parts with multiple launches to minimize risk and resources. Our solution to this is deploying an autonomous docking mechanism consisting of the ‘guest’ and ‘host’ component with minimal mechanical modules to avoid complications. We have used a locking system, a pressurized system and bearings in our model.

**How we developed the project**

Brainstormed ideas

Chosen solution + description. Mechanism: alignment using thrusters and docking using a quick release connector model.

Materials and cost estimates?

**How we used space agency data**

Some of the key considerations we took into account when designing this system incorporate the following:

1. Materials
2. Costs

**Solution demo (link to slides)**

**References**

**Tags**