Within the design process, as the problem is delivered, the first step is to always condense it into explicit and tangible features such that each element of the problem is clearly and precisely defined for the team and potential clients. This is usually done in the problem statement. In the task that was presented to us, project ACD, my problem statement is as follows: the design and creation of an autonomous, mechanical system that is able to move fragile cargo from unknown pickup and delivery locations, which are wirelessly communicated through control modules. It will also be required to automatically detect the heights of both pickup and delivery points and needs to be able to raise and lower the cargo to avoid damage through collisions with potential obstacles.

During the formation of this statement, the main ideas I considered were moving between the pickup and delivery locations, communicating with the control modules, raising and lowering the cargo and avoiding the obstacles. Along with this, features such as speed and robustness of the mechanical system will also have to be ensured so that the cargo can be delivered efficiently and safely.

After each team member had created their problem statement, we got together and had an open discussion on what aspects of each problem statement was good and which parts could be improved. This allowed everyone to consolidate their ideas on the project’s objectives and apply the critiques to improve their personal problem statement. Through this discussion, we were able to create a list of objectives as a culmination of everyone’s problem statement and were able to effectively create a cohesive group statement. This also ensured the overall robustness of the final problem statement due to the added perspectives of the problem and provided us with insight that we were able to use to improve on our own initial statement.

**Design an autonomous system so that it can communicate with a control module to accurately move cargo between initially unknown pickup and delivery locations. It needs to be able to move efficiently through the course, responding to the heights of the obstacles in its way, without damaging the package throughout the process.**