Customer Needs

To better understand the desired project outcomes, we created a list of questions to ask the sponsor. Unfortunately, our sponsor was unable to meet with us, or return any of our emails, but that did not stop us from interpreting customer needs from assumed responses to our questions.

Question	Assumed Customer Response	Interpreted Need
How many uses will be considered reusable?	As many as possible.	1) The product can be used indefinitely.
What are aspects of the current product that are positive?	The Apollo struts were lightweight.	2) The product is lightweight.
What are aspects of the current product that are negative?	They could only be used once and were left behind on the moon.	3) The product can be sent to the moon and used repeatedly.
Will the project return to Earth?	No.	4) The product will not return to Earth in between trips.
How often should maintenance be performed on the product?	In between landings.	5) No routine maintenance is necessary during remainder of each lunar trip.
What does the project brief mean when it says “hop”?	Module will have smaller landings once already on the surface.	6) Shock absorber dynamic qualities does not change or diminish after an impact.
Why are shock absorbers needed?	To reduce the impact velocity of the lander to a comfortable level.	7) The dampeners reduce the velocity to 3 feet per second.
What tools will be needed for maintenance?	As few tools (light weight) as possible.	8) Multiple components can be fixed by the same tool.
What is the maximum landing speed of the lunar lander?	10 feet per second.	9) The product can handle an impact speed of 10 feet per second.
How many legs are on the module?	4 legs.	10) Each of the four legs will have a shock absorber component.
How massive is the lunar module?	About twice as much as the Apollo lander.	11) The product can support 32,800 kg.
Will the legs need to be load bearing on the Earth?	No.	12) The legs are only required to bear load under lunar gravity.
What is the maximum angle that the lander could make with the surface?	10 degrees.	13) The product can land at up to a 10-degree offset from the z-axis.

The fundamental needs of this project have been interpreted as the following: A lightweight product that is reusable in space and can repeatedly withstand an initial impact velocity of 10ft/s.