Customer Statements/Needs:

The source for all of the customer needs listed below has been provided by the Charles Stark Draper Laboratory, Inc.

Number	Need/Statement	Source
1	Navigate an office environment and avoid collision with surrounding objects	Draper
2	Fit through doorway	Draper
3	Lightweight system	Draper
4	Small system	Draper
5	Do not use GPS input	Draper
6	Limit speed to average adult human walking pace	Draper
7	Safe to operate around humans	Draper
8	Operable in various building floor surfaces	Draper
9	Navigate with lights on or off	Draper
10	Receives target location data	Draper
11	Scans a QR code	Draper
12	Easily disable the system	Draper

Requirements:

Requirement Number	**Description**	**Need Addressed**
1	The system will be around 20 pounds	3
2	Will be utilized autonomously	5
3	The system can navigate multiple terrains	8
4	Will have an easily accessible cut off switch	12
5	Will include necessary sensors to avoid collision use obstacles and humans	1, 7, 9
6	Will have a QR reader	11
7	Will be able to scan QR Code when the light is off	11, 7
8	The system will be able to fit in a 24x24x24 inch space opening	2, 4
9	Will travel at around 2.5 to 4 miles per hour	6

Explanation:

The goal of this project is to design, program, and build a robot to navigate an office environment without the use of GPS to scan a QR code located in a known location.

During our first meeting with Draper representatives, we inquired into their needs and requirements for this project. Following the meeting, they sent, via email, a list of capabilities required for our final product. We then interpreted those capabilities into the needs and requirements that are listed above.

For example, Draper explained how our product must fit through a standard doorway. We then discussed how we could reasonably exceed that requirement and agreed on a goal to construct a mobile vehicle to fit within a 2-ft^3 space. As with all our customer's needs, we will attempt to exceed their expectations and requirements, within reason, to maximize satisfaction.