

1.1 Project's Scope

The objective of this project is to create a device that offers paraplegic scuba divers greater independence while in the water.

1.1.1 Project's Key Goals

- Design a scuba diving device that will allow paraplegics to independently control their body's orientation in the water
- Allow paraplegic scuba divers to have control of their leg's location relative to their body
- Design a scuba diving device that paraplegic people can attach and detach to their body without aid from others
- Design a device that allows paraplegic scuba divers to move safely throughout water without interfering with preexisting scuba diving equipment

1.1.2 Assumptions

The paraplegic scuba diver using the device is a certified scuba diver and they will not exceed their diving capabilities and diving certifications. The paraplegic person whom is using the device has a spinal injury no higher than the C8 spinal injury. This means the paraplegic diver will still have control of the majority of the muscles in their arms and still have at least limited dexterity of their hands. While the device is being used, the paraplegic scuba diver will be accompanied by at least one additional certified scuba diver. The paraplegic scuba diver will also have assistance getting in and out of the water.

1.1.3 Markets

The market for this product is much larger than just paraplegic divers themselves. The market ranges from dive shops, dive instructors, and dive charters to veteran

organizations such as Combat Wounded Veteran Challenge. Rehabilitation centers, underwater photographers, and researchers are also target markets for this device.

1.1.4 Stakeholders

Our adviser, Dr. McConomy, and sponsor, Dr. Devine, hold positions as stakeholders in this project along with dive instructors and dive shop owners who are purchasing the device. Dive instructors and dive shop owners can offer the device as equipment for rental in order to attract more customers. Stakeholders will also include all Aquasist team members, veteran organizations, rehabilitation centers, and any business with an interest in this device.