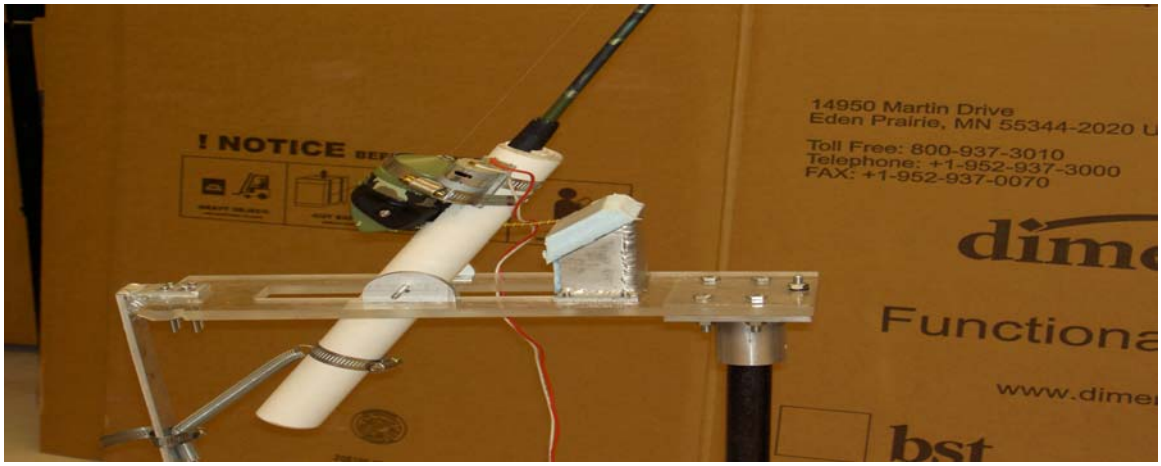

"Sip-and-Puff" Controlled Fishing Rod for Quadriplegics

The CEC design team was Cadets Christopher L. Eaton and Brandon R. Rocker. They were assigned to the ASME Design Competition. The design team's point of contact was Colonel Neel who was also the adviser.

The design team was assigned to the project of creating a quadriplegic fishing pole. The team had to be able to cast a lure a distance between six and ten meters. They also had to be able to reel in an eight pound bag.

The major constraints that the team had to deal with were the contraption had to fit within a box with the dimensions 400mm x 300mm x 300mm. The fishing line had to have a testing strength of eight pounds or less. The rod from tip to end could not exceed 1.5 meters. The device had to be able to run off of two momentary switches. When the buttons were released the device had to stop within two to three seconds. The maximum voltage was 24-V DC from one battery. The battery had to cost less than forty dollars.

The design team took a G.I. Joe fishing rod purchased from Wal-mart and placed a piece of PVC piping on the end of it to increase the length. They then placed a weight in the bottom of it to lower the center of rotation. They then created two brackets for the fishing rod to rotate about. The team then created a landing pad for the rod to land on to keep the rod from damaging the rod. They then created a spring extension which ran down the back side of the device; this was so they could place the spring underneath the base. They also created a base mount so that they could attach the device to the pole at the competition. The design team used a drill purchased at Lowe's to cock the rod into position. They also used a simple Black & Decker drill purchased at Wal-mart to reel in the fishing lure. They placed the motor from the drill along the fishing rod and attached a worm gear to it. They placed a 1.25 inch gear on the reel. The cocking drill was run off of 12-V battery and a 3.4-V battery to run the motor for reeling.