

Wireless Tether Loading System



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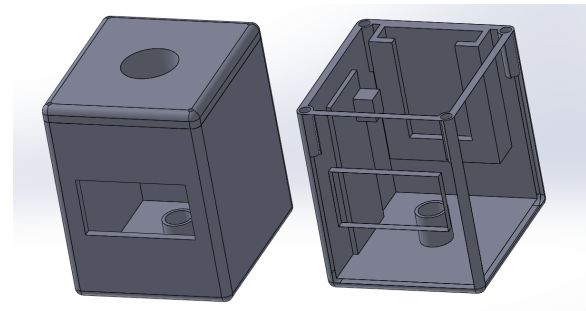
Project Summary

Our project aims at applying a wireless solution to measuring tension within a transcatheter mitral valve (TMVR) surgical application. TMVR offers a minimally invasive option to open heart surgery that can be beneficial to both geriatric and high risk patients. The system heavily relies on knowledge of tension in a tether attached to an artificial mitral valve in the heart. The hemodynamic monitoring system runs a wire into a sterilization zone and into the device to display tension information to the physician. The proposed solution will help eliminate some

challenges such as difficult and extensive preparation time, breaks in sterilization zone, and quicker prep-to-surgery time.

Design Goal

The tether loading system requires a physical tether to run from the surgical device to the hemodynamic monitoring system to display tension readings to the operator. This system creates challenges such as extensive preparation time and breaks in sterilization zone because of the inconvenience of a physical tether (cable) running from the surgical device to the hemodynamic monitoring system. Our goal was to replace the reliance on the hemodynamic monitoring system with a wireless solution, preserving the sterile operation zone and allow for easy setup.



Prototype Features

- Bluetooth Low Energy wireless communication replacing the hemodynamic monitoring system
- Improved tension measurement application with accuracy of 0.25 lbs.
- Monochrome 1.3" 128*64 OLED graphic display module