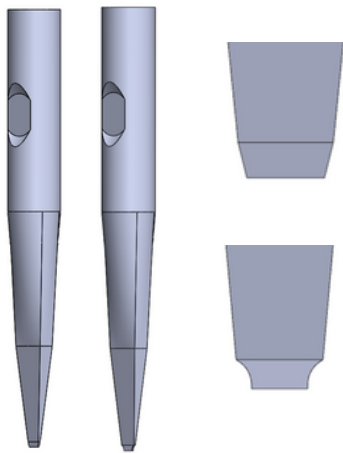


INSULIN PUMP AWAKENER - INSULET CORPORATION

What?

- Used insulin pumps contain data and need to be manually "shorted" to retrieve data
- Goal was to design and fabricate a fixture that streamlines this "awakening" process and minimizes the damage to pump



How?

- Used **SolidWorks** and **3D printing** to design 4 iterations of the fixture
- Created drawings to outsource the custom parts
- Conducted **data analysis** and determined most successful design



Results

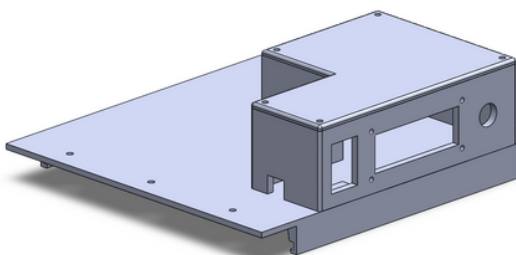
- The final fixture design fulfilled its purpose with 90% success and 100% recoverability for the 10% of pumps that failed
- Minimal pump damage observed upon inspection of internal components after procedure



INFANT PHOTOTHERAPY INCUBATOR - INNOVATORS FOR GLOBAL HEALTH

What?

- Deliver a low-cost, low-maintenance phototherapy incubator to hospitals in Ghana for infants with jaundice
- Design housing for the electrical components of the control system for the phototherapy device
- Ensure access to the components and wiring for easy maintenance



How?

- Designed housing on **SolidWorks** and **3D printed**
- Printed housing directly onto the phototherapy light housing
- Joined the lid to the housing via heat set inserts and screws



Results

- Housing protected all electrical components and enhanced the project's appearance
- Removable lid allowed for easy access to internal components



HUNGRY SHARK ARCADE GAME - CORNERSTONE PROJECT

What?

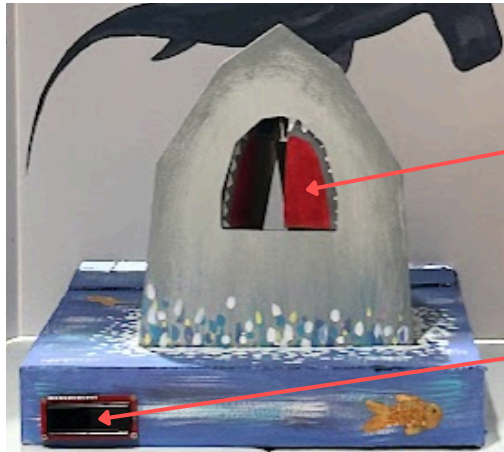
- Design a fun and competitive arcade game by combining two existing games
- The game must include one moving feature and an automated score counter

How?

- Used Arduino and servo motors for the opening and closing of the shark's mouth (the moving feature)
- Utilized a motion sensor to sense when the ball entered the shark's mouth and keep track of the player's score

Results

- An arcade game that met the project requirements
- Maximized user experience, participants played multiple rounds



Shark's mouth opened and closed on timed intervals

Automated score counter using motion sensor, score displayed on screen