Dr.Hey - Clinician

- Who they are:
  - A scoliosis specialist with extensive experience using halo gravity traction (HGT) in pre-surgical treatment. They are familiar with the common challenges patients face in consistently maintaining prescribed traction weights.
- What we asked:
  - We explored how our device could support clinicians in monitoring patient compliance with HGT—specifically tracking weight adjustments and usage patterns over time.
- Their feedback:
  - The clinician emphasized the need for accurate, long-term tracking of traction weight and usage to make informed decisions about when a patient is ready for surgery. They noted that current systems lack an easy way to monitor this data outside of clinical settings.
- What we're doing with that feedback:
  - We've designed our device to track and store weight changes and usage duration over time. This data can be extracted by clinicians to assess patient progress and determine the optimal timing for surgical intervention.

Dr.Baysal - Electrical Engineer

- Who they are:
  - A Lead Electrical Engineer with over 20 years of experience in the med-tech industry, specializing in hardware design and embedded systems for medical devices.
- What we asked:
  - We specifically sought expert feedback on how to improve the efficiency, accuracy, and power management of our device's electrical system. Our goal was to transition from a basic wired prototype to a fully integrated PCB-based system optimized for real-world use.
- Their feedback:
  - Recommended using two separate buttons for power and calibration instead of a switch, improving usability and reducing power draw.
  - Proposed a more efficient communication pathway between the load cell and microcontroller to prevent data loss.
  - Suggested a battery-powered system with a sleep mode to extend battery life and reduce size.
  - Introduced us to PCB design tools like Fritzing and shared insights from industry experience.
  - For increased accuracy, advised using multiple load sensors to average weight readings.
- What we're doing with that feedback:
  - We are now implementing a battery-operated design with sleep functionality, integrating dual-button controls, and working toward a compact PCB layout. Additionally, we're experimenting with multi-sensor load measurement to improve data reliability and precision.

Charles McCall

- Who they are:
  - He is a Senior Design Engineer at Gilero with over three decades of experience in mechanical and product design, particularly within the medical device industry. He specializes in plastic injection molding, SolidWorks modeling, and manufacturability optimization for biomedical products. With a strong foundation in GD&T and extensive hands-on expertise in both prototyping and manufacture, he brings deep insight into medical device engineering, from CAD to mass production.
- What we asked:
  - We presented our device's outer shell and asked for feedback on material selection (PLA vs ABS vs other plastics), suggestions for improving the design, and guidance on designing for manufacturability (injection molding).
- Their feedback:
  - He recommended PLA as the most suitable plastic and suggested using heat inserts to secure the two halves of the shell. They also showed us how to attach the LCD screen using screws and provided guidance on optimizing the design for injection molding (reducing wall thickness, draft angles, ribs).
- What we're doing with that feedback:
  - We have incorporated the design changes suggested by Mr. McCall and designed a separate document for manufacturing, considering the injection molding required changes.