

Biopsy Needle Robot Arm Interface Mini™

Industry: Medical and Healthcare

Summary

Customer Challenge

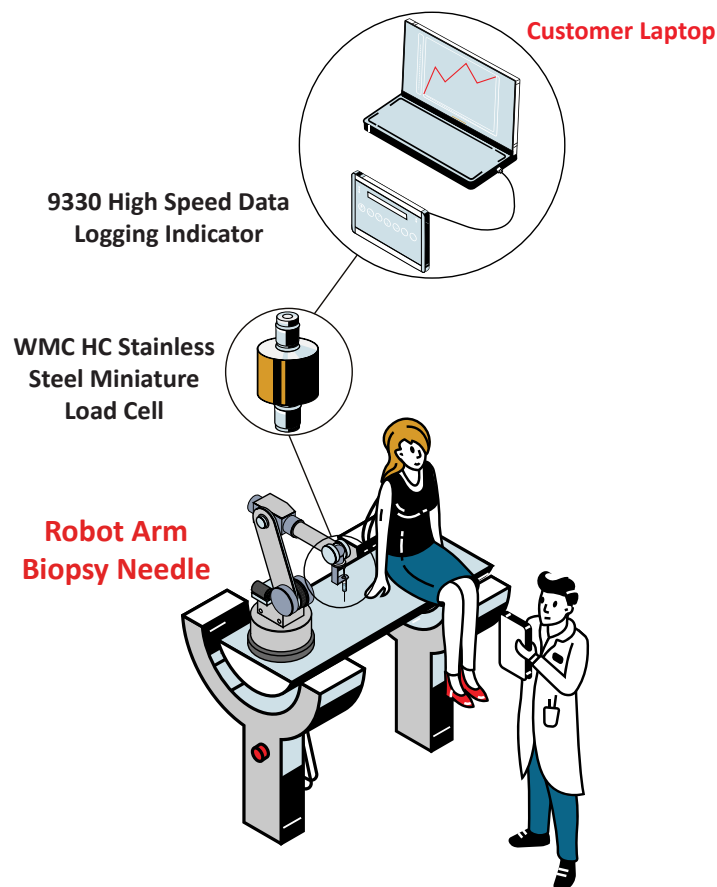
Robotic-assisted biopsy systems are transforming minimally invasive medical procedures. These systems use robotic arms to position and guide biopsy needles with real-time imaging. However, too much force can damage tissue. To ensure safe and consistent operation, the robotic arm requires continuous real-time force feedback.

Interface Solution

Interface suggests using the WMC Sealed High Capacity Stainless Steel Miniature Load Cell, which is integrated directly into the robotic arm assembly between the biopsy needle mechanism and actuator to accurately measure insertion forces during needle advancement. Clinicians can monitor live force measurements when connected to the 9330 Battery Powered High-Speed Data Logging Indicator for real-time feedback and data recording.

Results

By integrating Interface's force measurement technology into the robotic biopsy arm, clinicians gain greater control and visibility throughout the procedure.



Materials

- WMC Sealed High Capacity Stainless Steel Miniature Load Cell
- 9330 Battery Powered High-Speed Data Logging Indicator
- Customer PC
- Customer robotic arm

How It Works

1. The WMC Sealed High Capacity Stainless Steel Miniature Load Cell is installed in-line between the biopsy syringe and control arm to directly measure insertion force. The operator identifies and selects the biopsy target using real-time imaging.
2. The automated system positions and performs the biopsy while the operator supervises the process. During needle insertion, real-time force data is continuously monitored to ensure optimal force is maintained.
3. The forces from the WMC can be measured using the 9330 High Speed Data Logger, which then can be displayed through the customer's PC computer or laptop with supplied BlueDAQ software.