# Improving Localization of Chemo Port and Precision of Drug Administration

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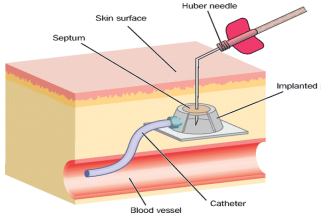
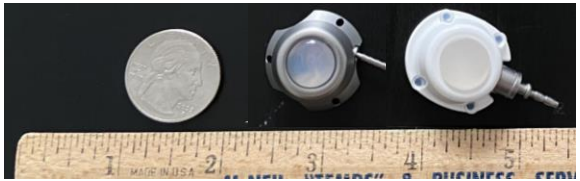
## Need

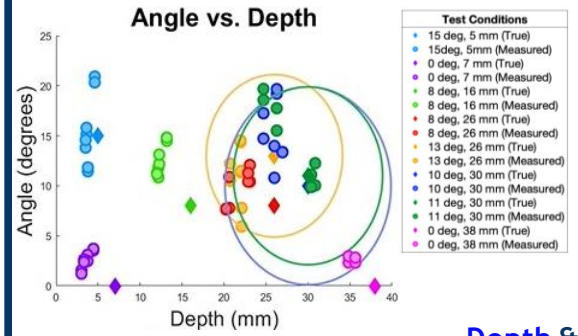
**Infusion nurses** need to **locate implanted chemo ports under fat & tissue** to deliver **cancer treatment** to patients



**Requirements:** Detect chemo port location, angle, & depth
**Constraints:** Time (9 months) & Biocompatibility (no human testing)

## Verification Testing




For **5 of 8** test conditions (known angle and depth), **all measured values** were **within tolerance.**

For the remaining 3 conditions, **79% of measured values** were **within tolerance** (large circles).

**Depth & Angle Detection= *Possible***

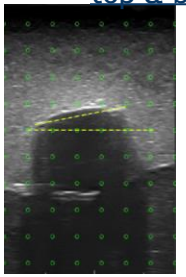
## Solution

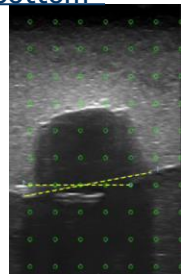
Used ultrasound technology and built-in measurement software to locate port



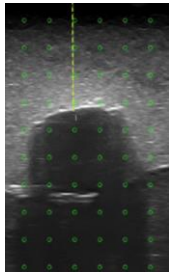
**Hydrogel:** 5.5 wt% Gelatin, 3.4 wt% Metamucil

Angle - measured from top & bottom





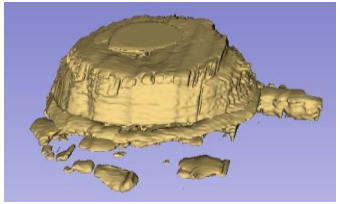
Depth



## Conclusions

***Impact:***

Optimize patient care and ease cancer treatment



***Future Revisions:***

- Develop AI software to uniformly process ultrasound images to measure port depth & angle and render 3D scans
- Develop standard measurement procedures