



UNIVERSITY OF
TORONTO

Wall-Mounted UV Phone Sanitizer for Hospitals



cleanslateUV

Supervisor: Edmond Young

Team Members: Tamara Abugharbieh, Seifeldin Hassan, Omar Tahan, James Trew

Purpose and Impact

- Digitalization of hospitals has led to an increase use of mobile devices
- Mobile devices carry high levels of pathogens increasing HAI that pose a risk to patients with compromised immune systems
- UV-C light is used to sanitize phones
- Existing designs are **too large, too expensive, or non-intuitive!**

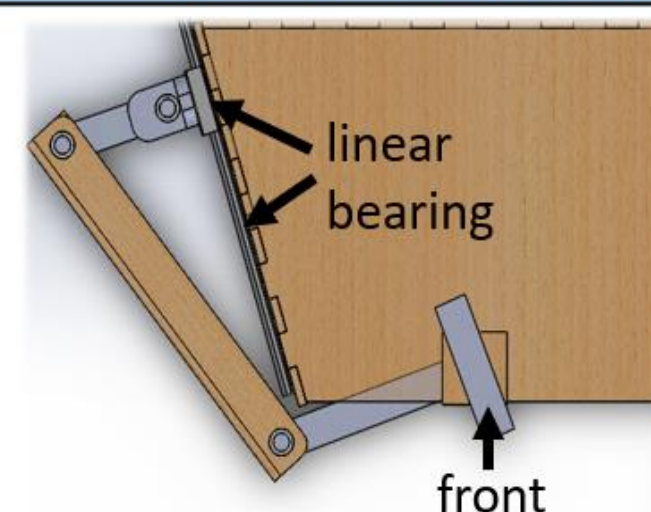
Key Specifications

- The goal is to design a wall mounted, low-cost, solution that does not interfere with the workflow. It must also be:
 - Touch-free after sanitization
 - Doors open in idle state
 - Less than 6" in depth
 - Compact

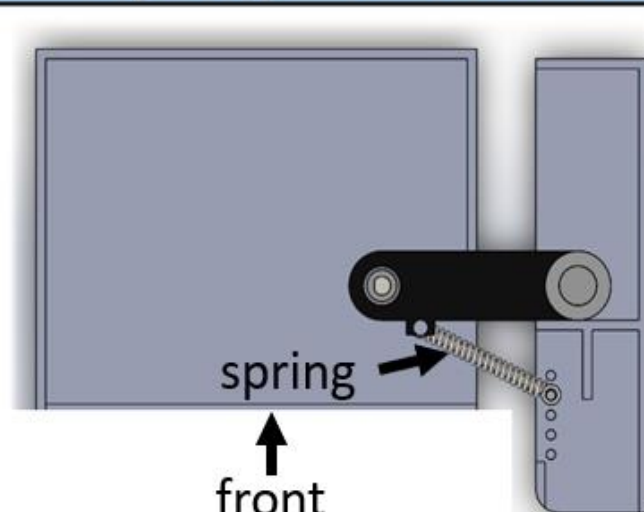
Mockups: Mechanism Comparison

- Following a conceptual design process, a two-door concept was selected
- Mockups were built to evaluate and compare different door mechanism

Slider Mechanism



Spring Mechanism



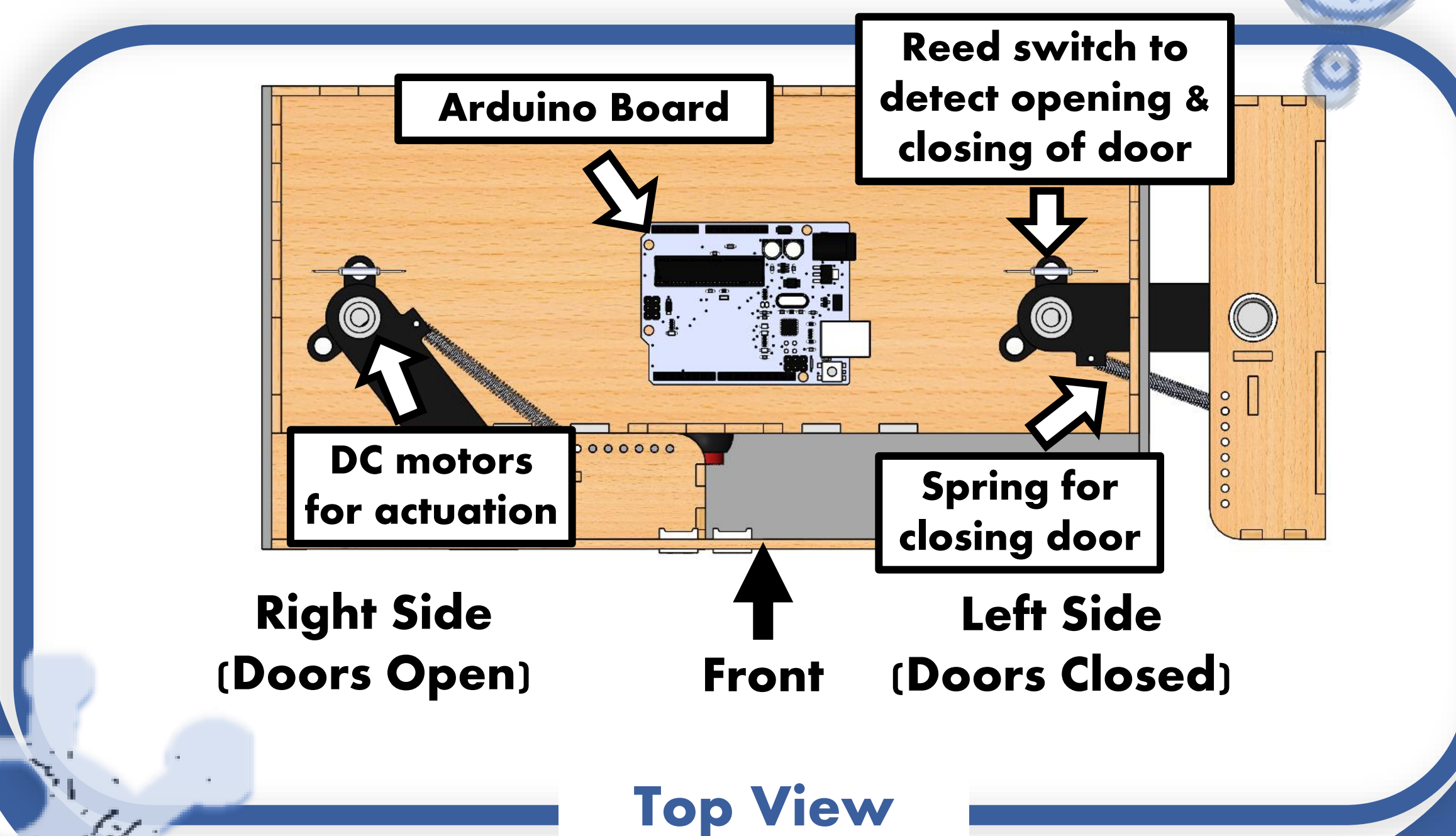
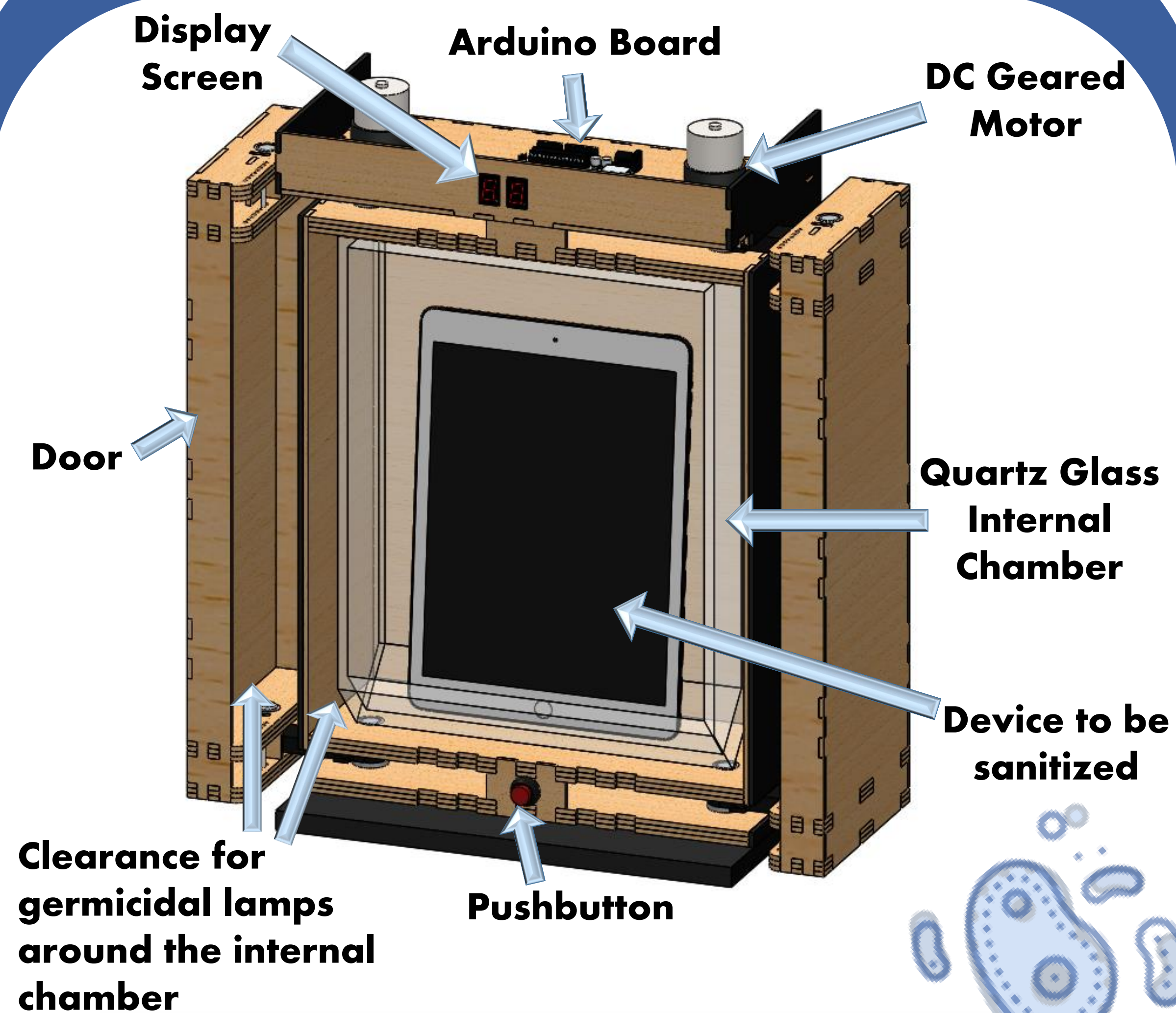
✔ Robust, precise movement and easy to manufacture

✔ Chosen design due to its **low-cost, compact design and scalability.**

✘ High cost and encroaches space

✘ Sensitive to manufacturing tolerances

SOLUTION



Top View

Pilot Studies

- Pilot studies were conducted to test user interaction with internal chamber and industrial design. Each pilot study included ~30 participant.

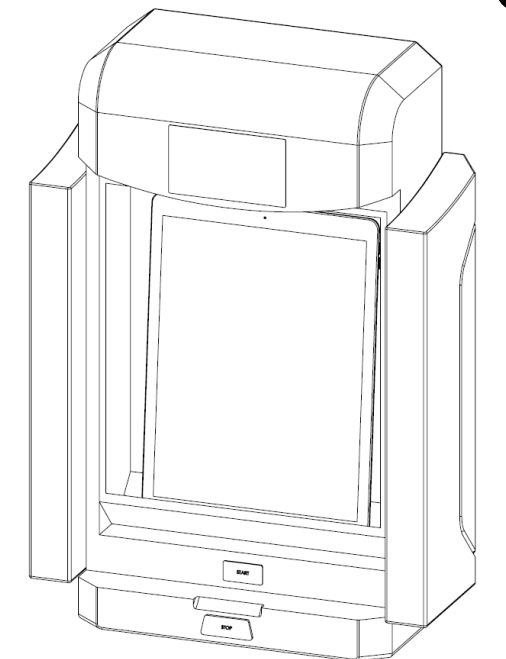
User Interface

100% Intuitive to Use (Placing Device)

82% Device Feels Safe and Secure

88% Comfortable Placing Own Device

Industrial Design



★★★★★
4.02/5.00 Average Score

Results

Criteria	Our Solution
Intuitive	No training required
Efficacy	4-log reduction rate in 20s
Enhanced Workflow	20 second cycle time vs. 4min for disinfecting wipes drying!
Aesthetics	4/5 rating on pilot study
Economical	\$600 to manufacture. ~1/3 of current design! Payback period of 3.7 months
Lightweight	26.76 lbs

Conclusion

- Compact, wall mountable and low cost to allow multiple units to be placed in one department
- Intuitive to use and does not disrupt workflow
- Reduces hospital-acquired infections

Next Steps

