

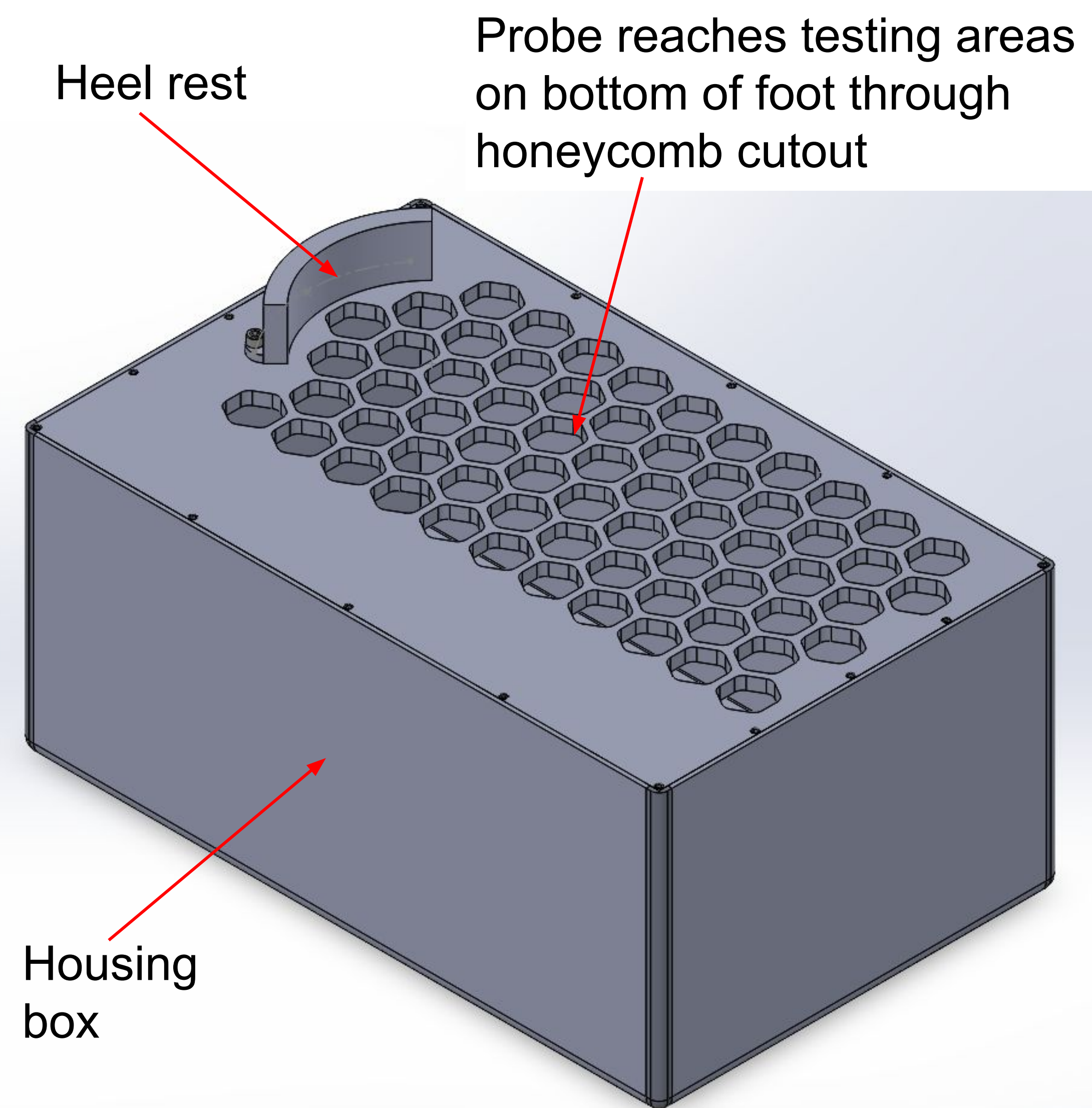
Objective

For people with diabetes, an annual foot examination is necessary to detect neuropathy. Early detection and treatment of this disease is crucial in preventing ulcers, gangrene, and even amputation.

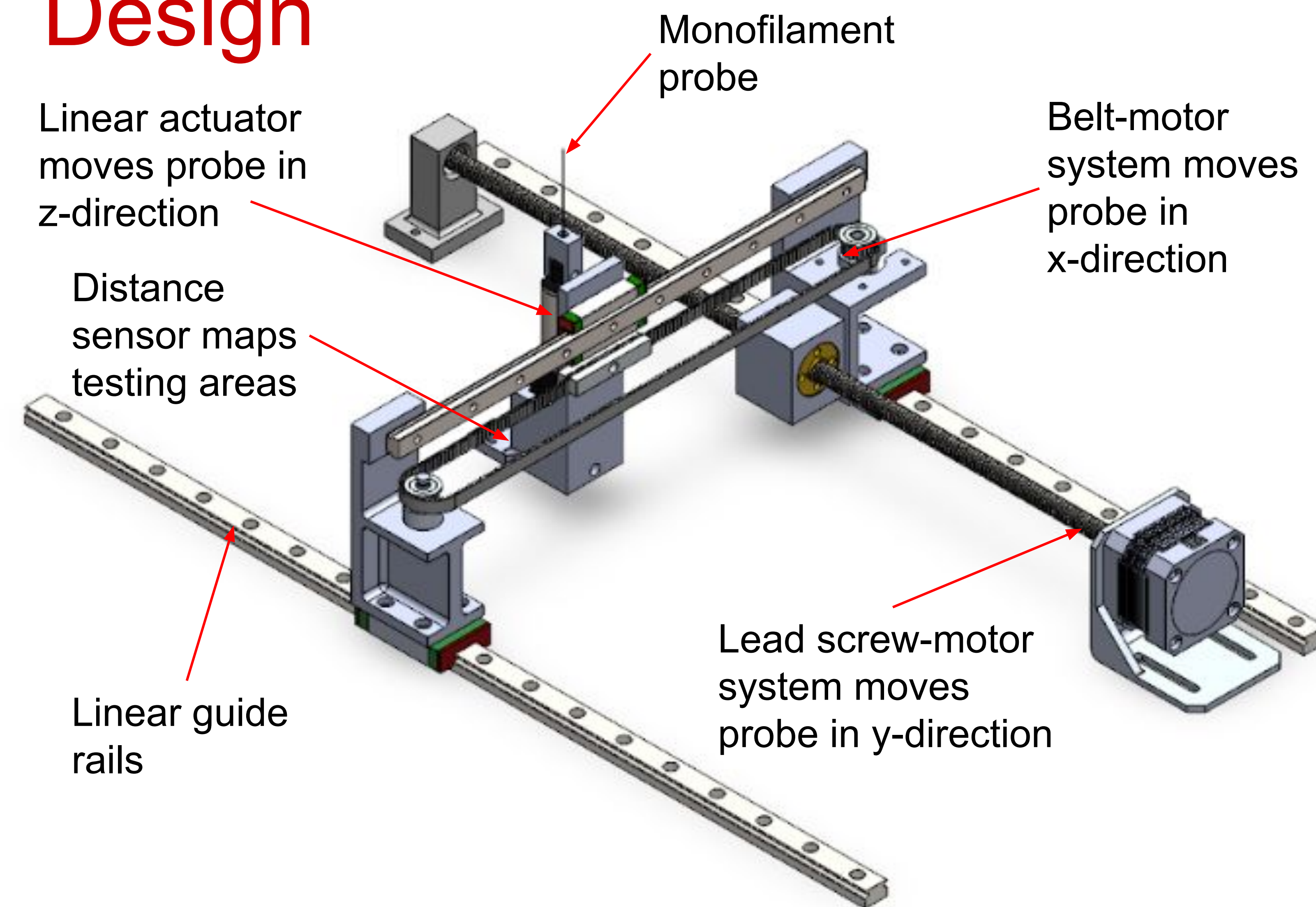
Our device provides automated foot examinations to diabetic veterans living in remote areas, who oftentimes struggle with receiving access to healthcare.

Customer Requirements:

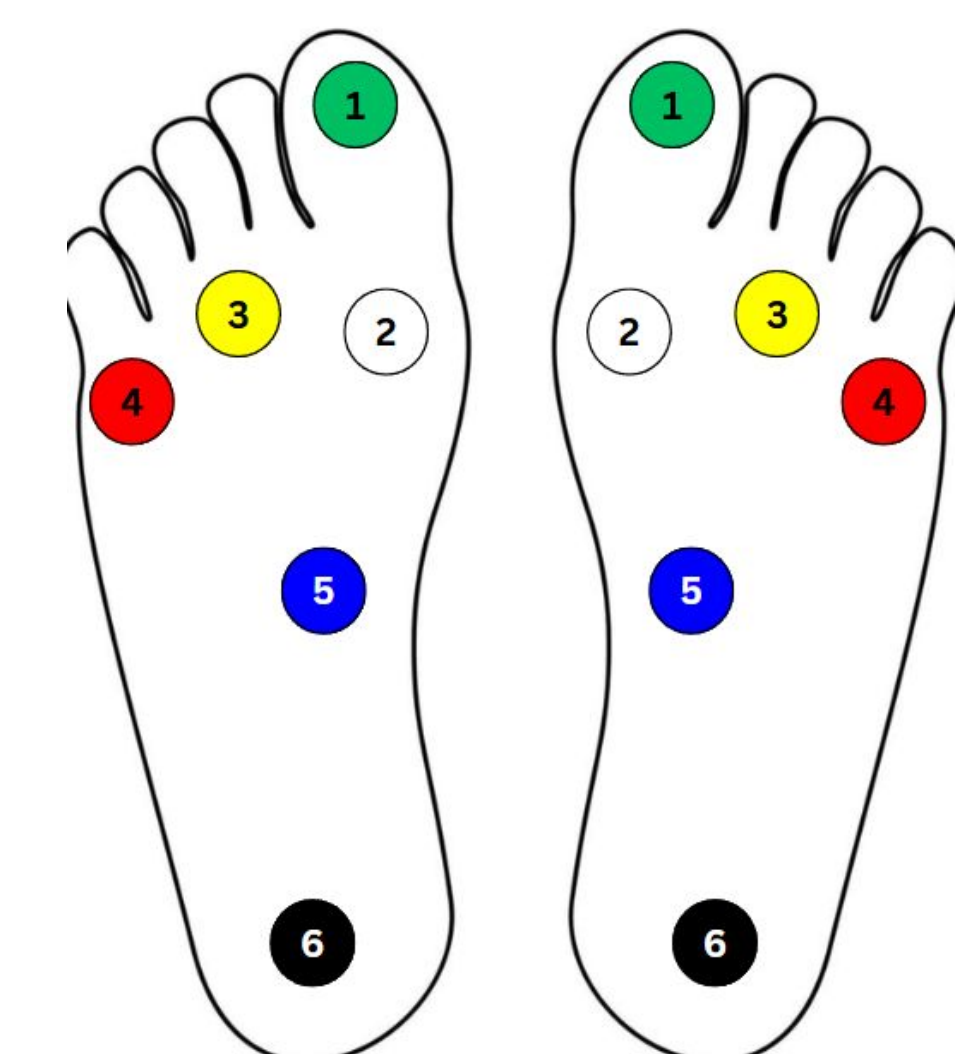
- Shippable to patients in remote areas
- Perform measurements to determine if nerves are damaged
- Record and store measurement data
- Transmit measurement data to neurologists



Design



Prototype



Human Factors

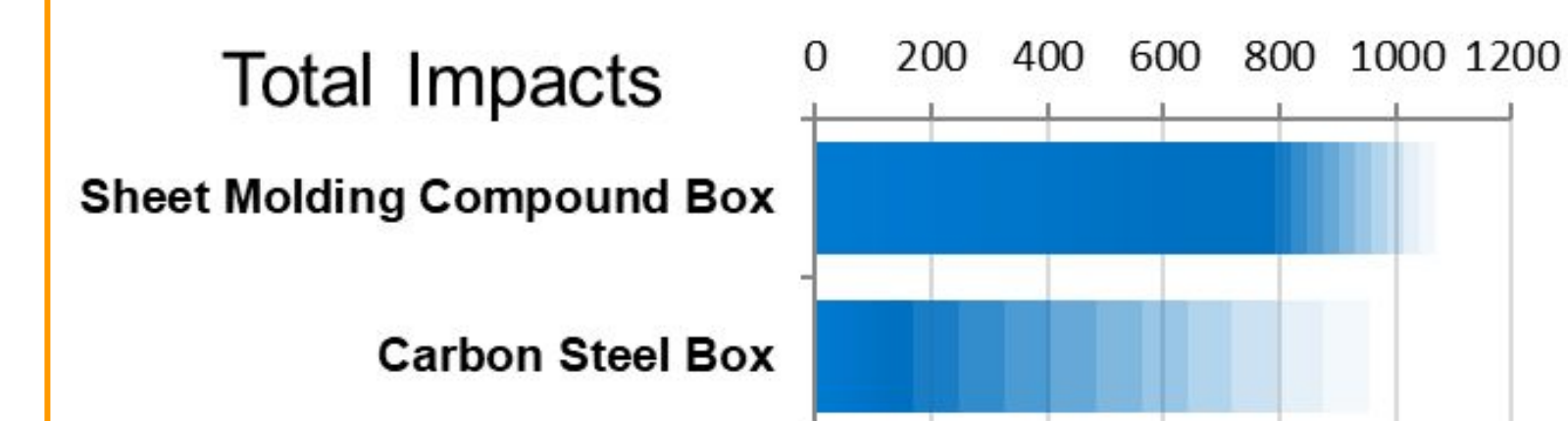
- **Foot Size Accomodation**
 - Device is able to test women's size 5 to men's size 14
 - Suitable for slim, medium, and wide foot widths
- **Patient Comfort**
 - Target patient is 40-80 years old
 - Patient can comfortably rest their foot on top of the housing box
 - This accommodates people who have leg pain and limited leg flexibility
- **Ease of Use**
 - Clear visual and auditory cues
 - Easy to follow instructions

Sustainability

We performed a Life Cycle Assessment comparing the environmental impacts of SMC and carbon steel housing boxes.

Scope:

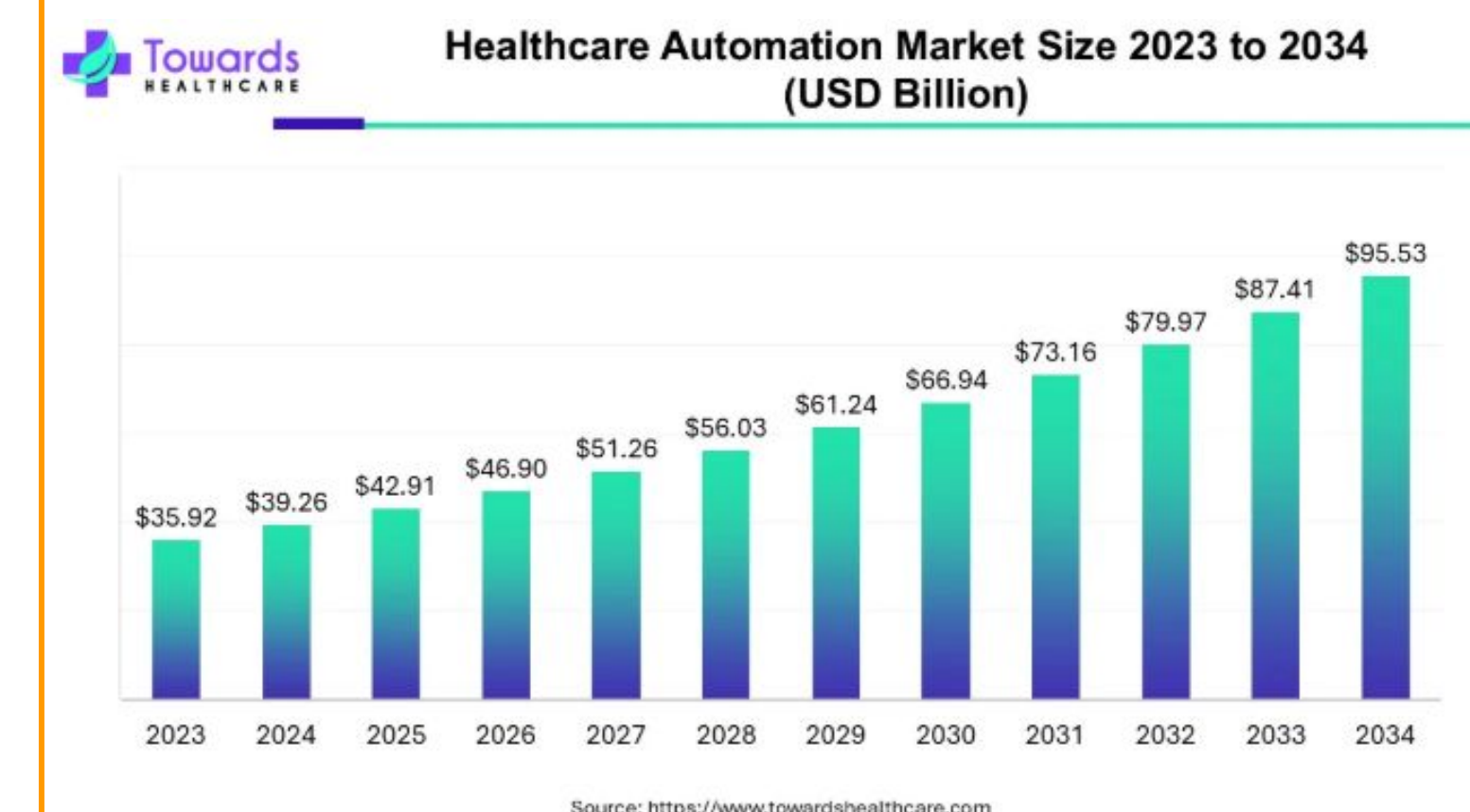
- Raw material extraction
- Manufacturing
- Transportation
- Disposal at end of life



References

- [1] Towards Healthcare, "Healthcare Automation Market Size to Soar \$95.53 Bn by 2034," *Towardshealthcare.com*, Mar. 26, 2025. <https://www.towardshealthcare.com/insights/healthcare-automation-market-size>
- [2] Pinkston Support, "The State of Rural and Tribal Veterans [2024] - Mission Roll Call," *Mission Roll Call*, Aug. 27, 2024. <https://missionrollcall.org/veteran-voices/articles/rural-and-tribal-veterans/>
- [3] J. S. Wooldridge, J. L. Morse, J. Delgado, and N. Afari, "Daily Functioning of Veterans With Type 2 Diabetes: Protocol for an Ambulatory Assessment Study," *JMIR Research Protocols*, vol. 12, no. 1, p. e53874, Nov. 2023, doi: <https://doi.org/10.2196/53874>.

Market Share



- The healthcare automation market is projected to reach \$95.5 billion by 2034, at an annual growth rate of 9.3% from 2025 to 2034 [1]
- Approximately 4.4 million veterans in the United States live in rural areas [2]
- Almost 25% of veterans have diabetes [3], giving us a customer base of 1.1 million people