Research in a Suitcase: Building flexible hand anthropometric data collection studies outside of a lab environment

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Collaborators: Toyota, Driven to Discover

Human Dimensioning Lab

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Collecting anthropometric data outside of the lab environment could allow for greater access to participants who may not be able to come onto campus. This can create richer, more diverse anthropometric databases that could be beneficial for the design of products and the built environment. As anthropometric data collection moves outside of the lab environment, it is important to consider how methods can be adapted or changed to fit different environments. The purpose of this study was to discuss two cases in which hand anthropometric data collection was collected outside of a lab environment. The first case was a targeted database collected from two Toyota manufacturing facilities. The second case was a civilian database collected at the Minnesota State Fair through the Driven to Discover (D2D) research program. Methods were created that minimized the number of tools needed by the researchers, space needed for research to take place, and the time needed for participants to complete the data collection. The two cases increased our hand anthropometric database by over 750 participants for a total of 1,800 3D hand scans.

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Image 1: 3D Anthropometry.

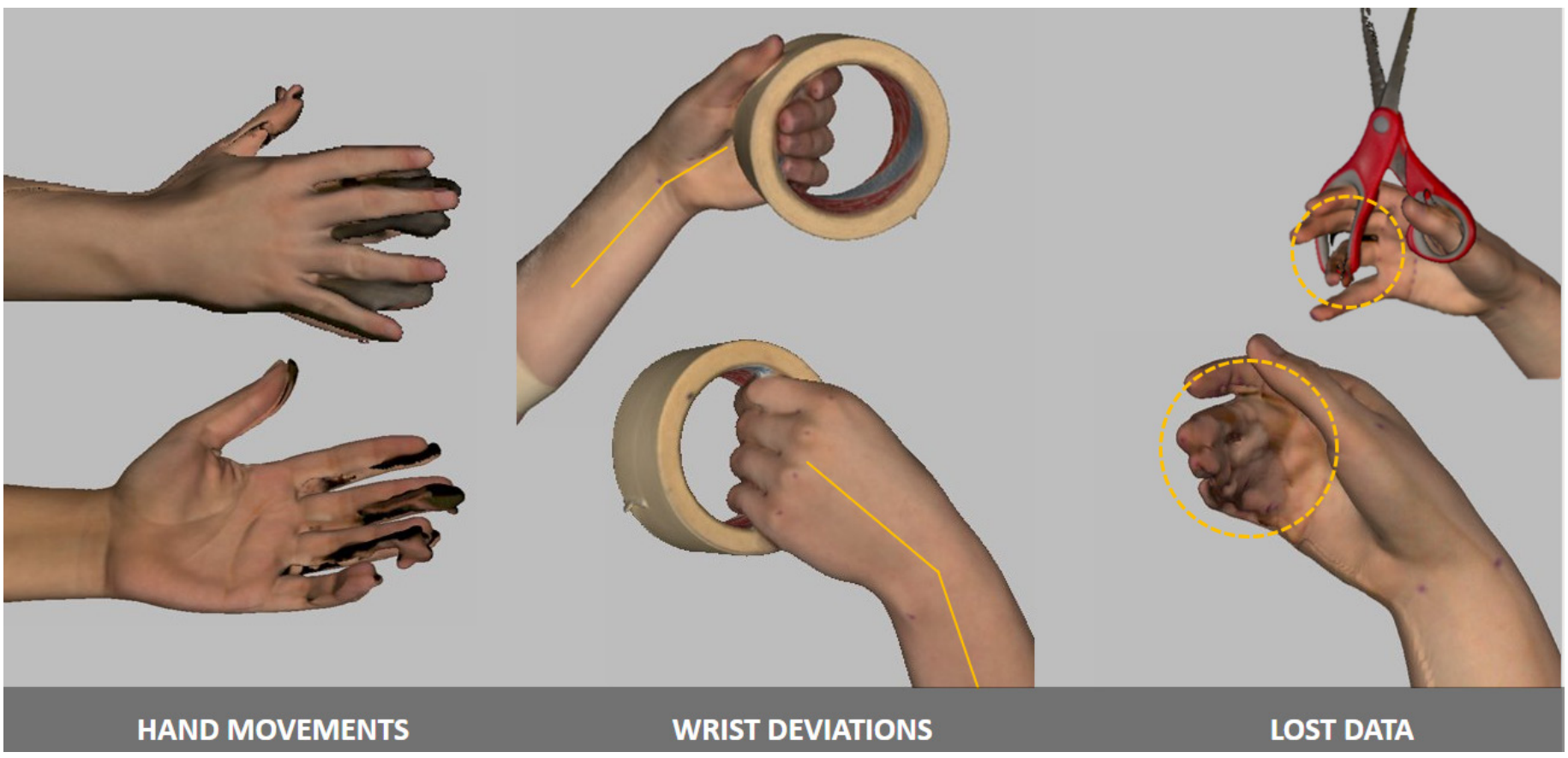


Image 2: Issues that can occur during Hand 3D Scanning.

Stability arm rest

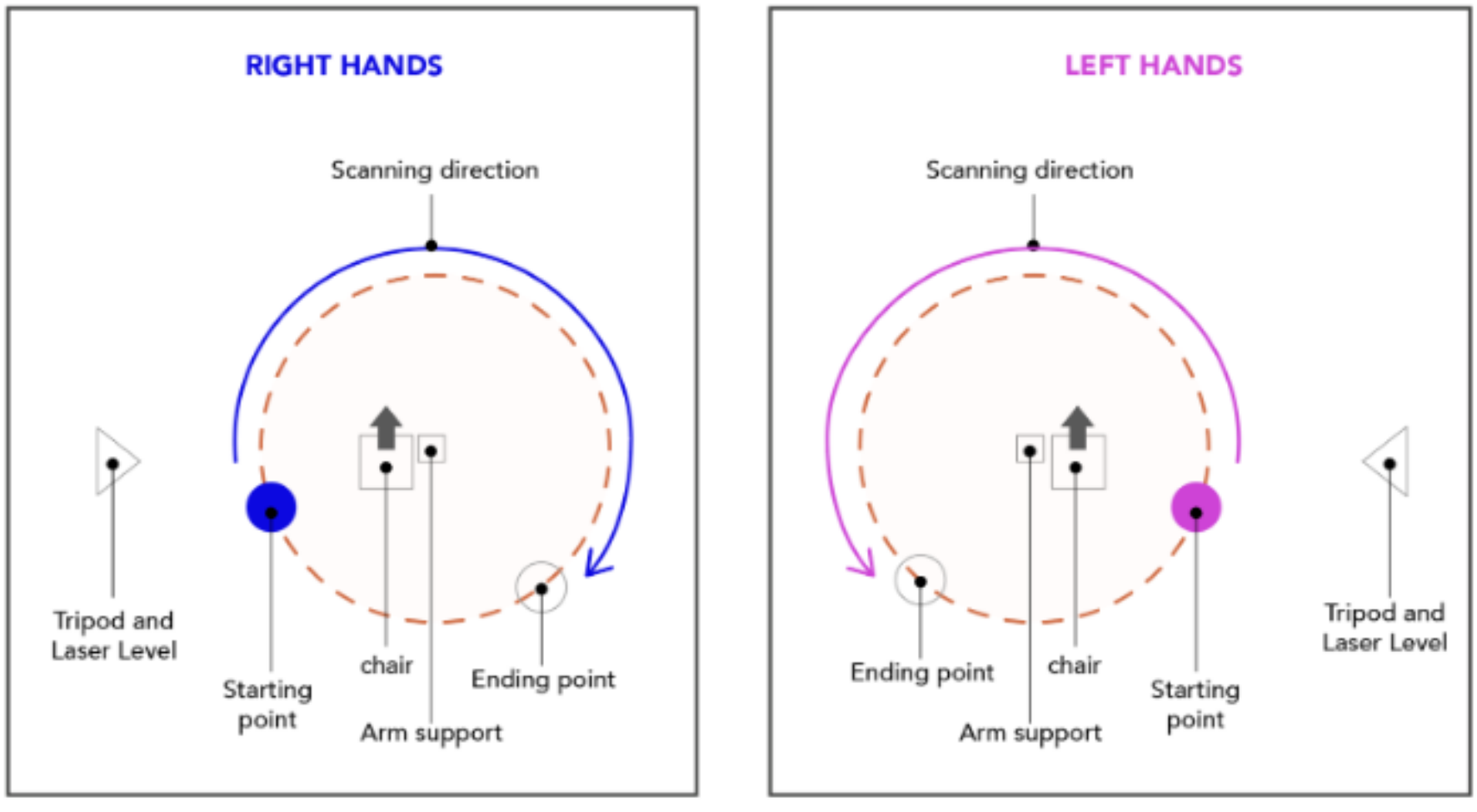
Pattern box for scan registration

Square Jigs (Size 5)

Cylinder Jigs (Size 8)

Laser Level

Image 3: Stability tools.



Scanning layout for right and left hands

Image 4: Scanning environment setup.

Image 5: Scanning practice.

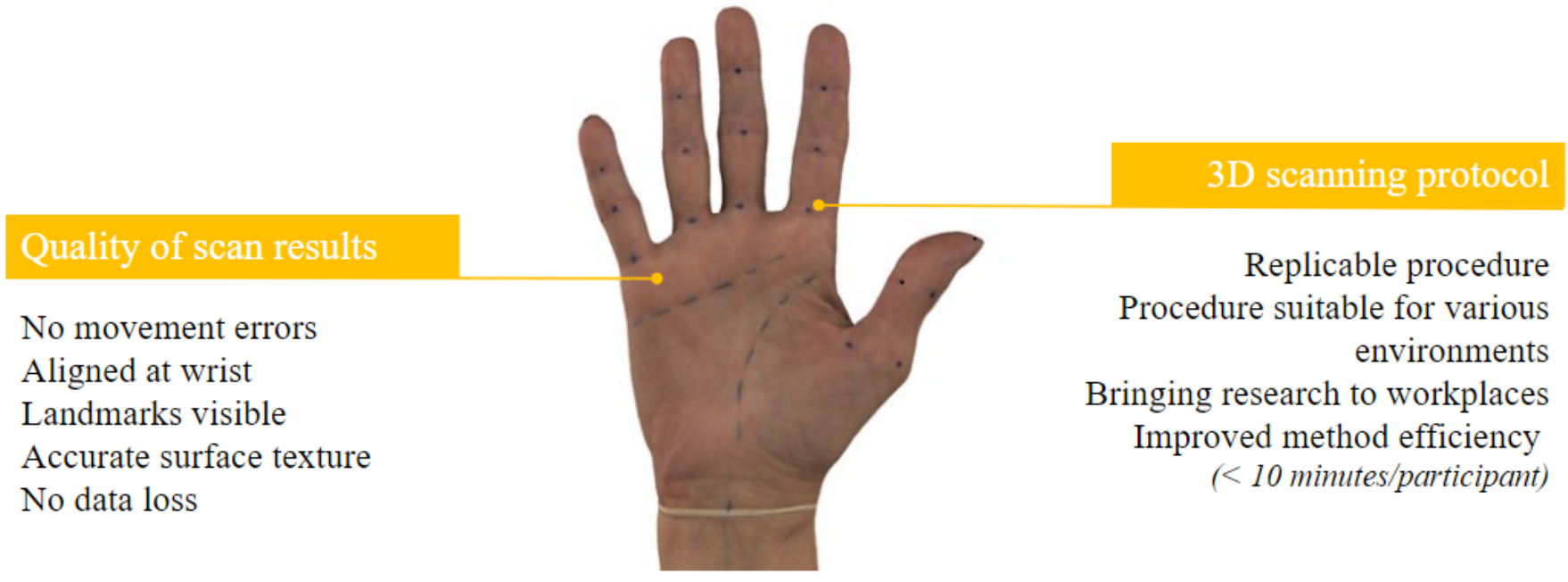


Image 6: What we achieved with this study.