



Challenges:

1. Residual limbs change in size and shape

Changes in muscle mass or body fat can cause the socket to fit poorly. There can be both short- and long-term changes.

2. Poor clinic attendance (especially in LMICs)

Clinics sparse and public transport can be difficult for people with a limb difference. Follow up appointments missed.

3. Socket rectification can be physically challenging

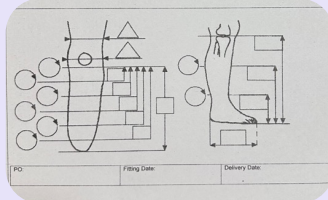
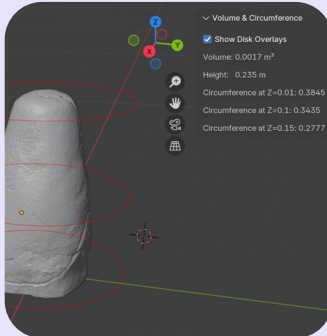
Plaster casts can be large and heavy which can cause MSK pains over time for prosthetists.

Solution: Smartphone 3D Scanning

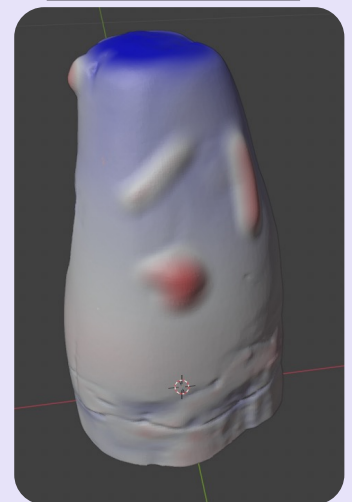
- **3D scanning** of residual limbs with smartphones can enable **remote scanning** and **digital rectification**.
- **First** the residual limb is **scanned** with a **smartphone**. **Then** the scan is **scaled** and **cropped** before being **processed**. **Finally**, it is **imported** to our software for **analysis** and **visualisation**.

Residual Limb Scanned

Measurements Taken



Changes Visualised



Use Cases (How it Addresses the Challenges):

1. Long term regular monitoring

1. Patient has a monthly scan taken at home or in clinic.
2. If concerns arise (e.g. swelling, muscle atrophy, or ulcers), the patient can be seen.
3. If size or shape changes significantly, they return for socket alterations or replacement.

2. Remote scanning

1. Patient attends for initial screening.
2. At home, a scan is taken every 2 weeks by someone nearby and sent to their prosthetist.
3. Once the size and shape has stabilised, they return for socket measurements.

3. Digital socket rectification

- Using software to rectify sockets. 3D printed for plaster casting.
- Reduce the physical strain of plaster rectifications.
- 3D scanning is more convenient than plaster moulding and can capture residual limbs that are difficult to cast in plaster.

Software Testing: (Please Join Our Participant Study!)

- We are now looking for **prosthetist participants!**
- We are running a study to explore the software usability and functionality to understand barriers to use and adoption of the technology.
- Please have a chat to us about participating in our study if you are interested!