

Haptic Education

Accessible Education Trough Digital Fabrication

The Accessibility Foundation

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The Accessibility of Education

Solving IN-accessibility

- Monitoring accessibility
- Working together with publishers to solve the in-accessibility
- Implementing accessibility into the development process

Innovation

- Designing new ways of inclusive/accessible education

The Accessibility of Education



Improving & Innovating

Innovation

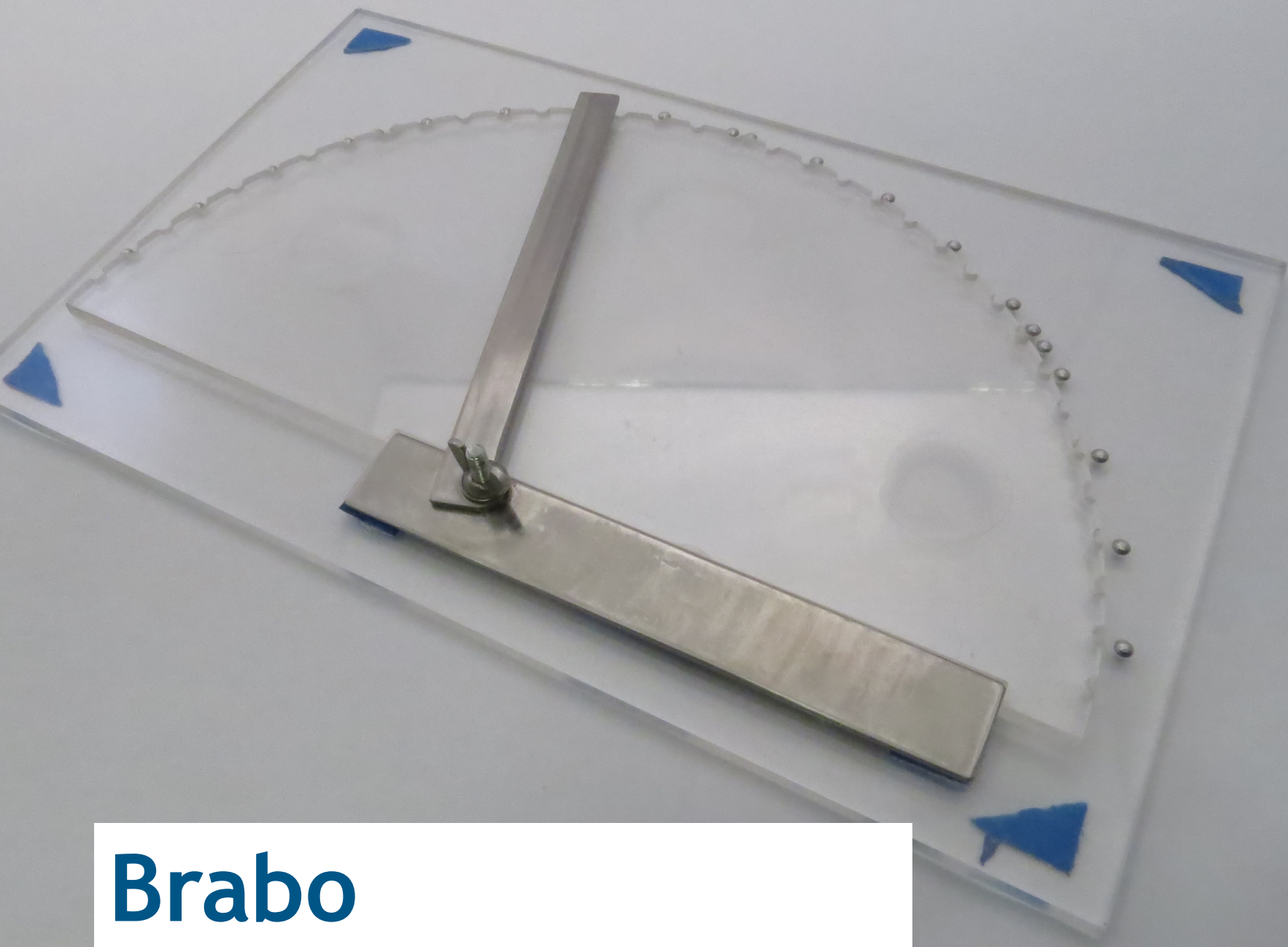
3D printing for persons with VI

- Adding tactile models to enrich education
- Dual Coding Theory
- Developed over 50 models (www.thingiverse.com/tep3D)
- 3D printing is only a means.
 - There is a lot of thing 3D printers are bad at
 - It's not about the production of the model, its about the information designed within the model, and the abbility of the user to get it out.

Innovation

A close-up photograph showing a person's hands holding a white, 3D printed tactile map. The map is a grid of streets with raised lines and small rectangular bumps representing buildings or landmarks. The person's fingers are touching the map, demonstrating its tactile nature. The background is a blurred outdoor setting with green grass and trees.

3D printing for VIP's



Brabo

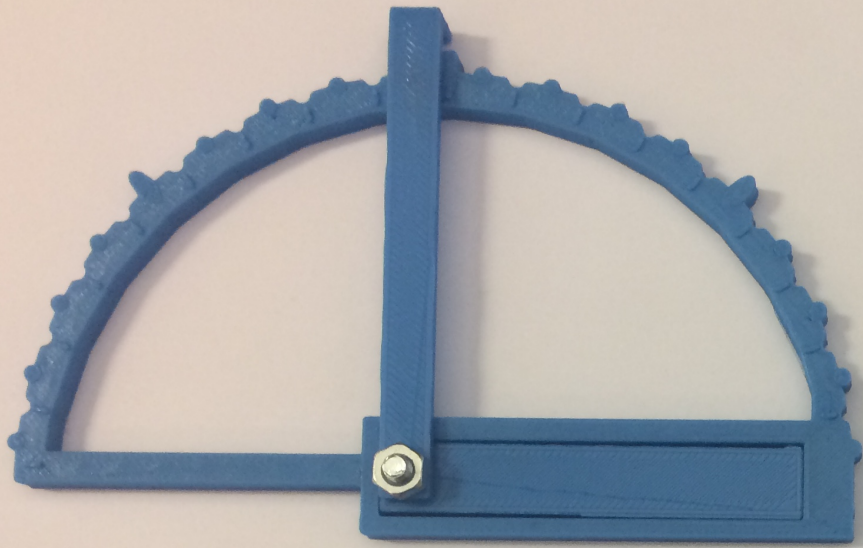
An Example: brabo

- **A protractor for person with VI**
 - Measure angles on tactile drawings
 - Draw angles

- **Problems:**
 - Heavy
 - Not that easy to use
 - Hard to make/ expensive (25-30 euro's)

An Example: brabo

- Teamed up with a teacher to improve it.
- Make it into a 3D print
 1. Print the model
 2. Test with end-users
 3. Improve model
 4. repeat



Improved Brabo

An Example: brabo

- **Results**

- Smaller - easier to use
- Changed the arms - they only fit one way now
- Increased accuracy
- Printing time around one hour
- Cost went from 25 euro's a piece to 1,80 euro
- Over 50 Brabo's are now in use in The Netherlands

Innovation

The most important thing we learned, was how far we still have to go, and there is still much to figure out...

But we now know how to get there!

Innovation

It's not about 3D printing, it's about using the **3rd dimension** and everything in between

It's not about models, it's about **information!**

It's not about production, it's about **design!**

It's not about touch, it's about **haptics!**

Solution: Haptic Education

Designing Haptic information for a better and accessible education

Solution: Haptic Education

What do we need to do?

- Research Impact of different levels of haptics
 - To make sure it actually works!
- Create Design Principles for haptic information
(Materials, Production, Information and Didactics)
- Create a method to convert Visual or inaccessible information to haptic information

Combining Haptics with Digital Systems

tactile
education
project
toolkit

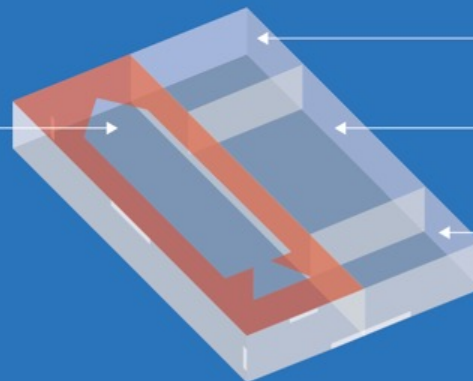


tep

Toolkit is gemaakt van
Transparant plexiglas
(lasercutter)



3D Raket



NFC reader

Handleiding

USB + NFC chips

- Software
- 3D modellen



Handleiding

- Leerling
- Docent
- 3d modellen

Thanks!

Want to know more, help, or give us more money?

Contact me at r.brandsma@accessibility.nl

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