

Tangible Web Layout Design For Blind And Visually Impaired People: An Initial Investigation



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RESEARCH PROBLEM

Although past research has enabled blind and visually impaired (BVI) developers to code, they still lack accessible ways to create visual layouts. This research highlights the potential of using a tangible user interface (TUI) to enable BVI people to design web layouts, and presents **Sparsha**, a novel TUI for layout design.

OUR APPROACH

Ability-based design is defined by Wobbrock et al. as an approach that advocates shifting the focus of accessible design from disability to ability.

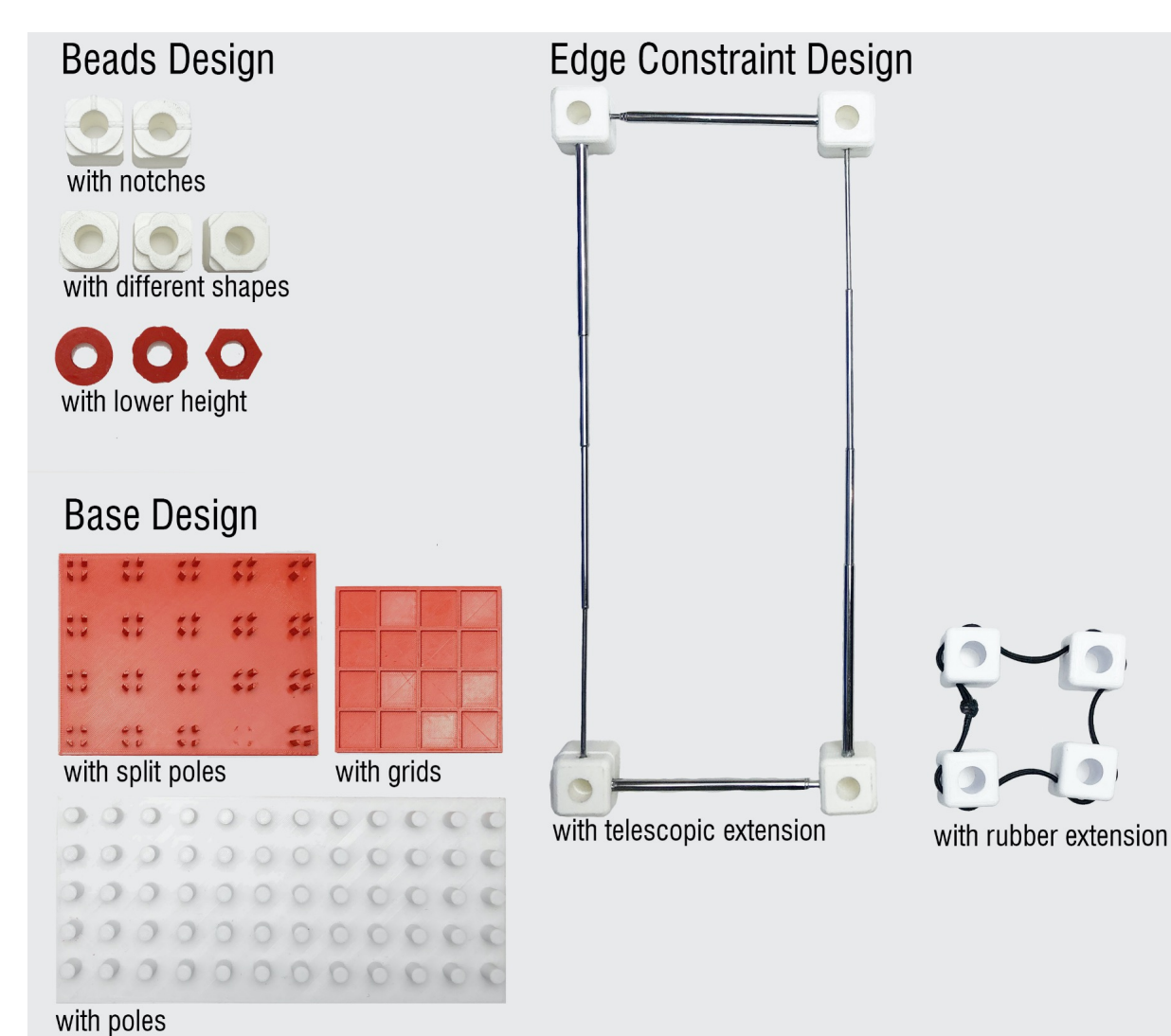
“BVI people have higher tactile acuity than sighted people (Cattaneo et al.)”

Hence, we see value in a tool that can support this tactile perceptual ability by using a **Tangible User Interface (TUI)**. We employed a user-centered research method and co-designed the prototype with a BVI developer.

Interview: We conducted a semi-structured interview to understand the challenges BVI people face as well as potential solutions that they have explored.

Co-design: Based on the interview, we prepared a list of low-fidelity physical artifacts that were then used in a co-design session with the BVI participant.

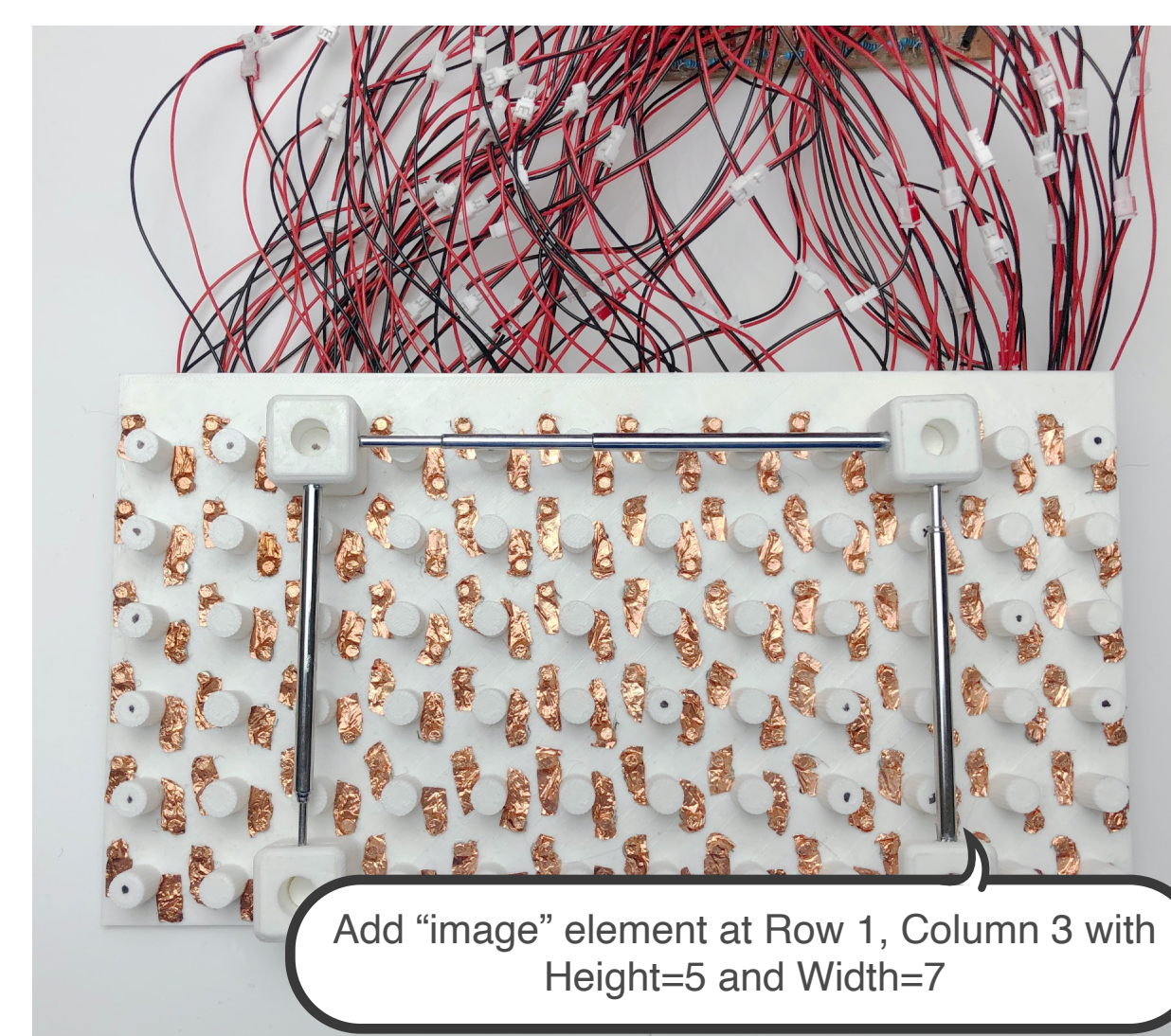
Prototype: Based on the interview and co-design session, we created our first prototype of Sparsha.



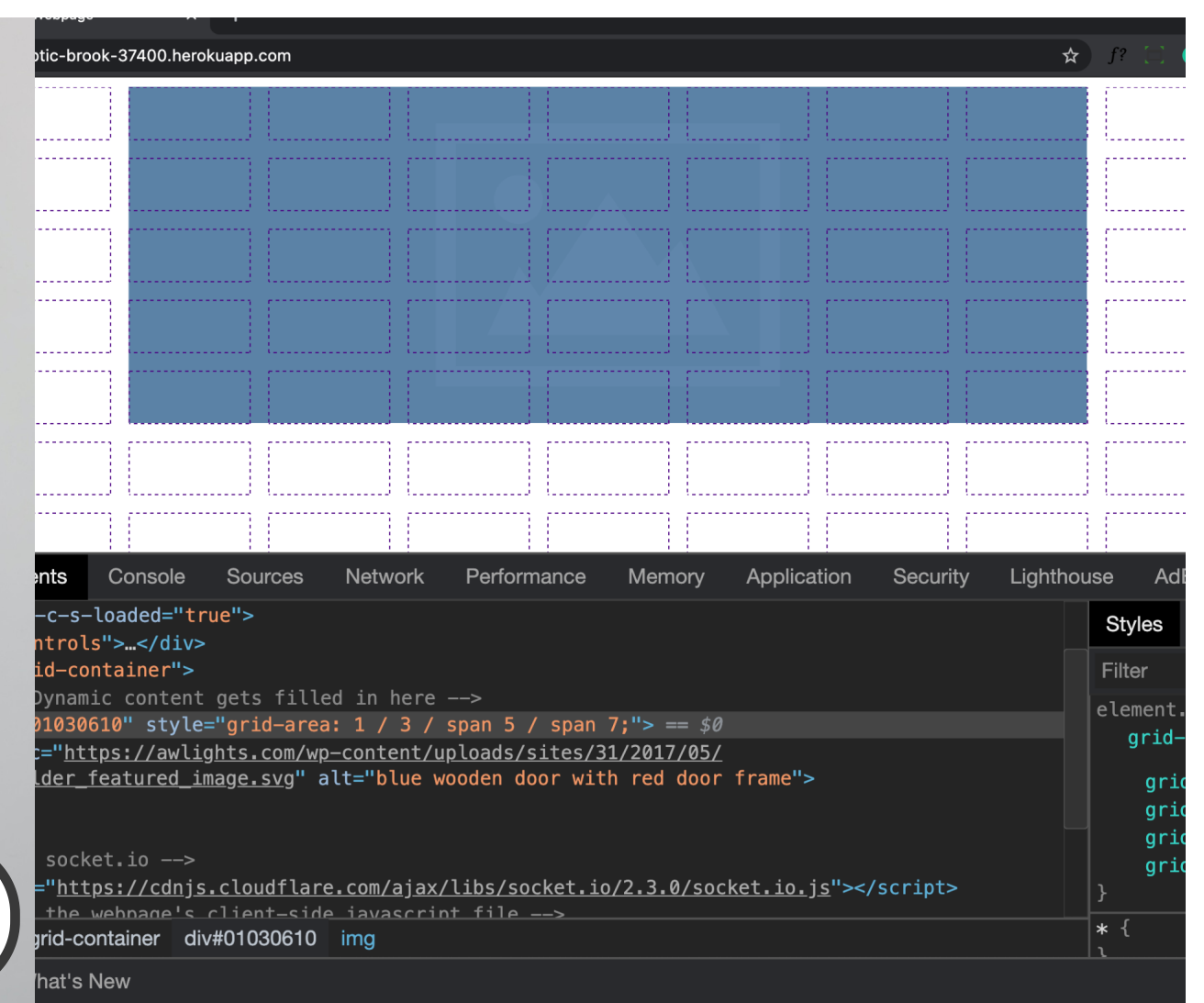
Co-design artifacts



Ebrima in the co-design session

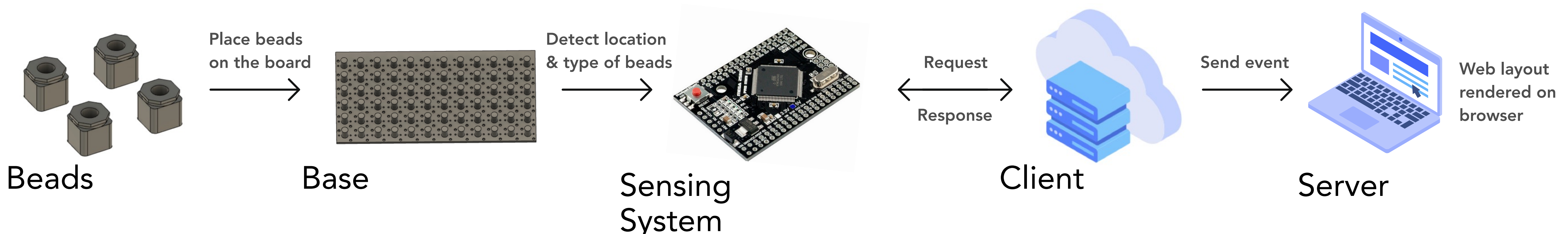


Sparsha prototype



HTML output

SYSTEM DIAGRAM



FUTURE WORK

In the next steps, we plan to conduct a formal evaluation with BVI participants to understand its effectiveness, and then work on incorporating content addition and management as the next feature.