Physical Computing 2022
Group 1

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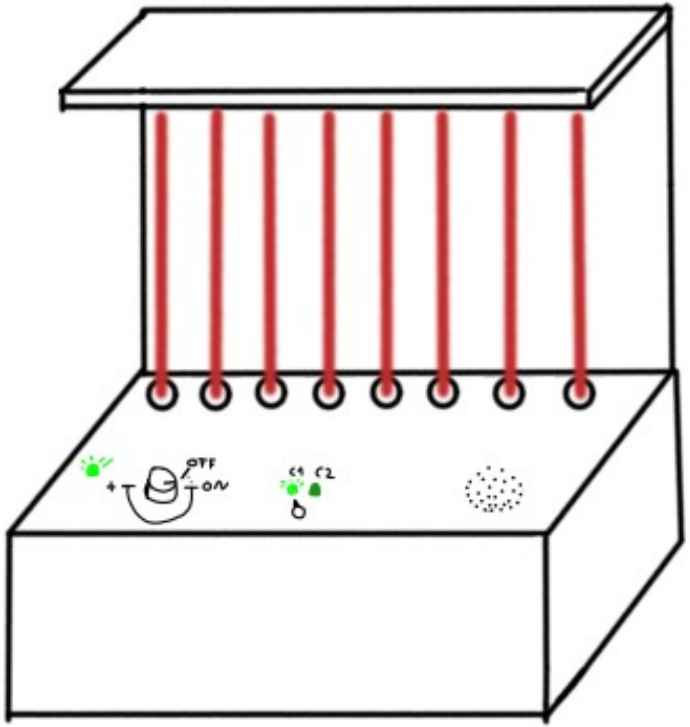
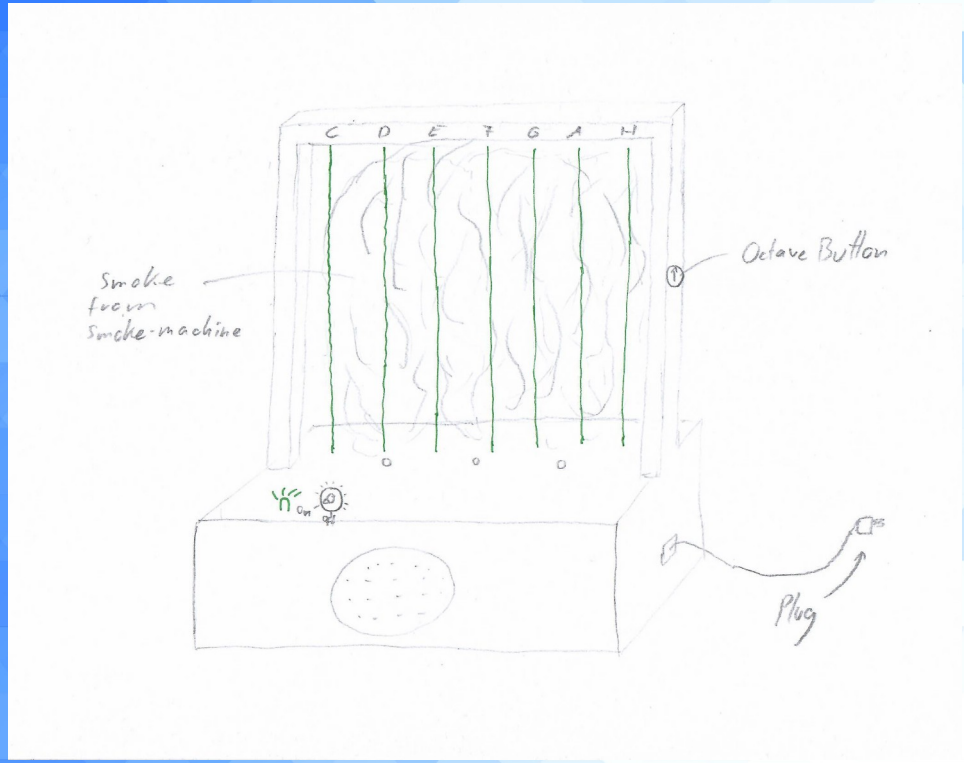
Concept/Requirements

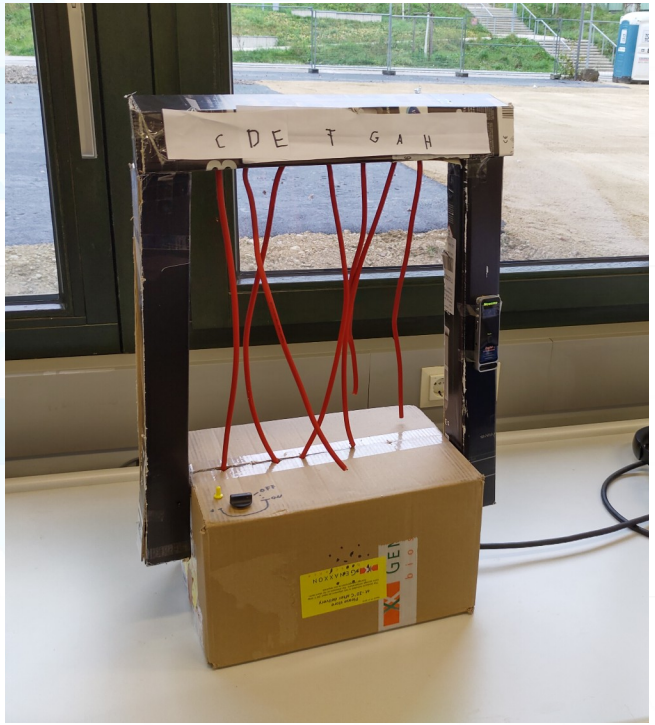
- Laser harp
- Playable with your hands by disrupting lasers
- 7 playable basic notes
- 2 octaves
- 5 halftones (per octave)
- Visual feedback of the location of the lasers
- Target Group: Tech enthusiasts,
  people who like quirky instruments

Initial design

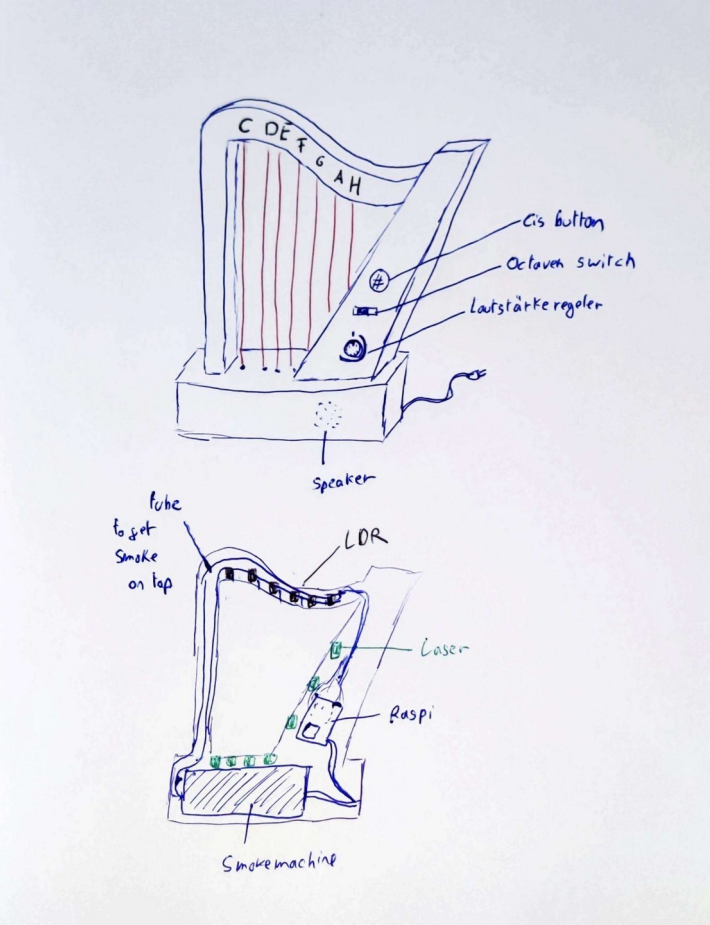


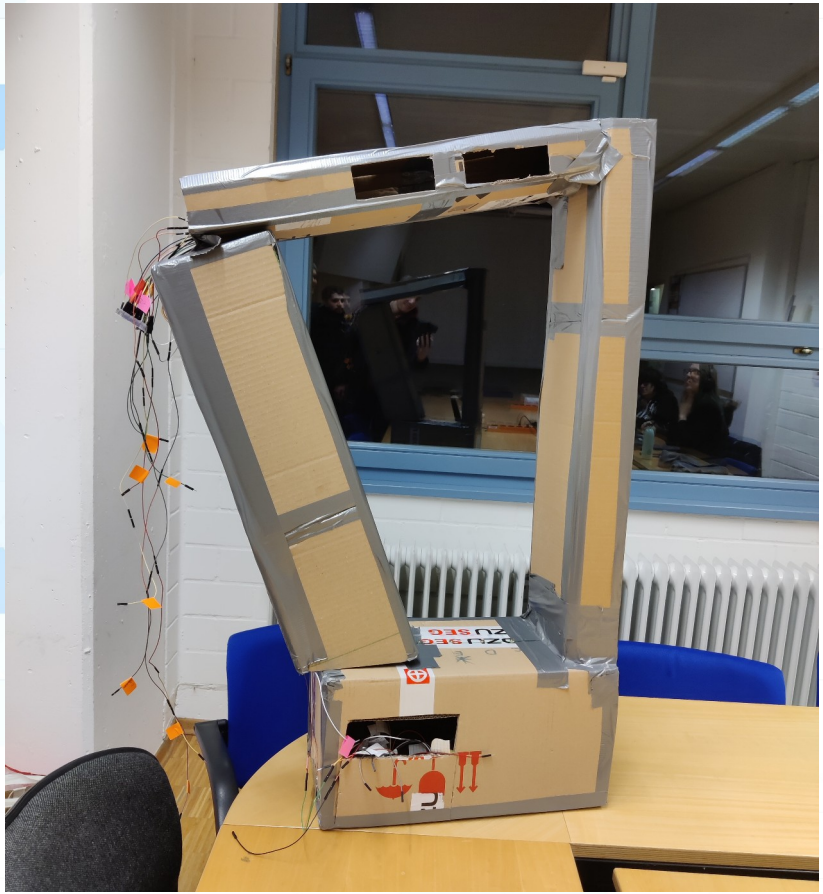
Updated Sketch/Prototype





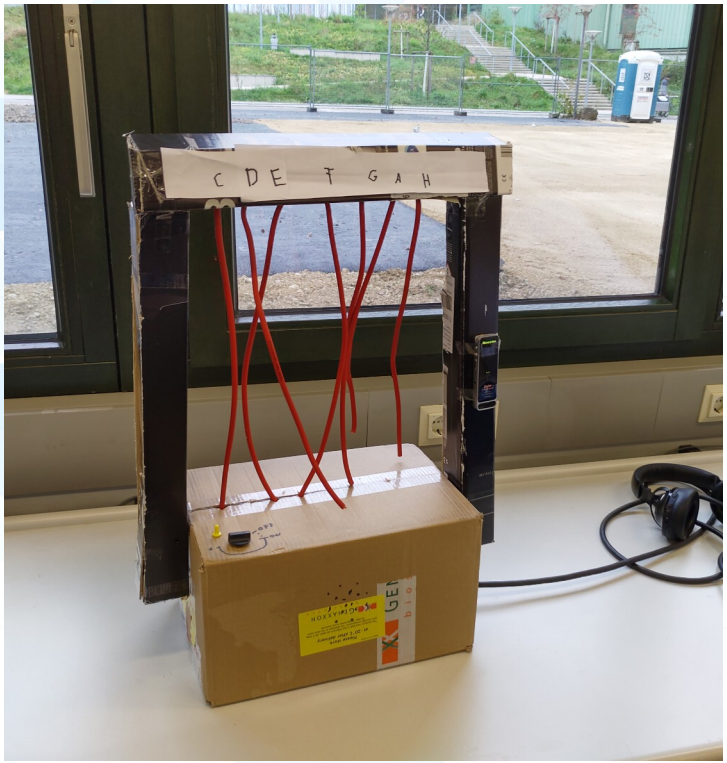
Final design





Informal Peer evaluation

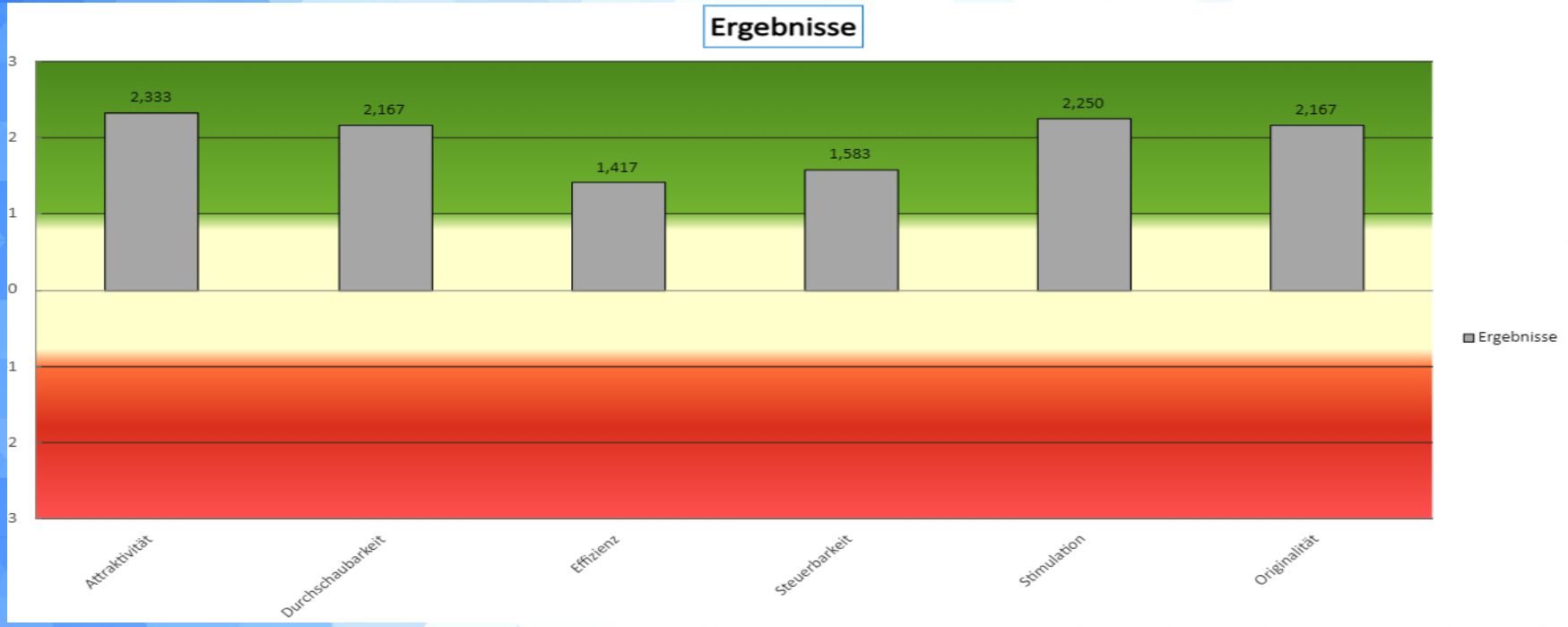
- Select different instruments for the harp to emulate
- You should be able to turn off the smoke machine



Final evaluation: Plan

- Think aloud study with 3 Users
- UEQ to evaluat User Experience
- Non standardized after test Questionnnaire

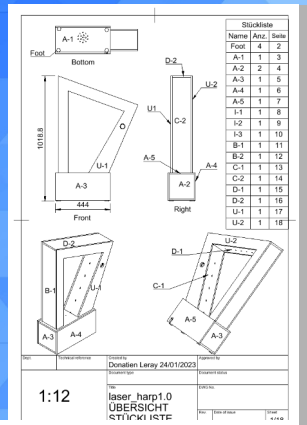
Final evaluation: Results

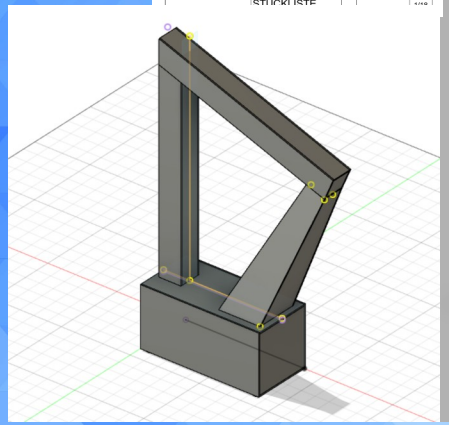


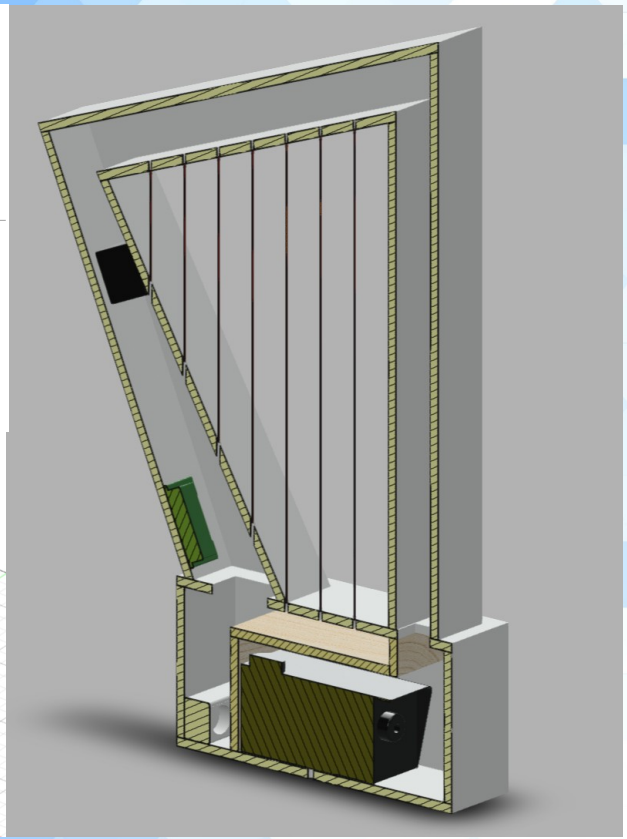
Final evaluation: Results

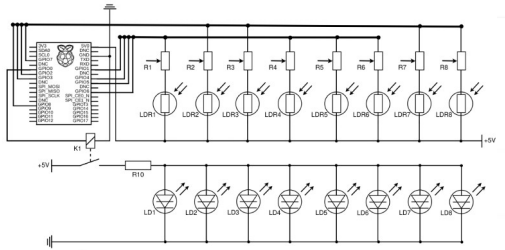
- Stable Frame necessary so lasers dont miss sensors
- Visual feedback important for interaction
- Area of lightsensors should be improved
- Maybe also a switch for lower halftones

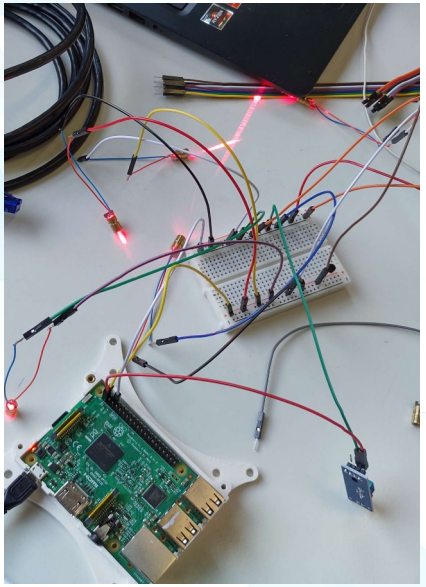
Building and Electronics

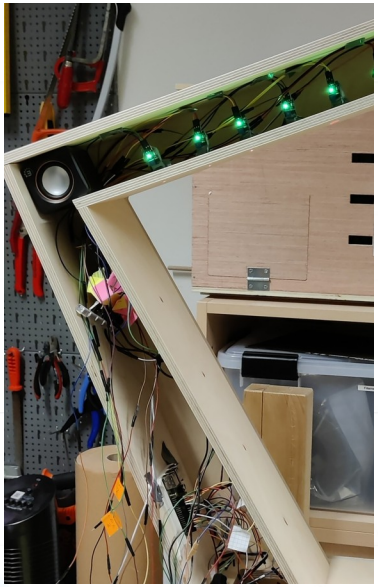












Group experience

- Synergy of complementary skills and interests
- Time management in a big group is challenging
- A lot of compromises and backup options.
- Good group dynamics through open communication and cooperation

What we learned

- Electronics
- Raspberry Pi Programming
- Things often don't go your way (Software but especially hardware)
- Always have backup plan
- Whatever can go wrong will go wrong!

Room for improvement

- Laser aiming is questionable
- No flat key
- Better smoke machine
- Sound (better quality, no white noise, multiple samples)

Final Product - Video