Visualizing Telematic Music Performance

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Background

Telematic Music: Music performed live and simultaneously across disparate geographic location over the internet

Playing a duet live and face-to-face [1]

Challenges:

- Delay in video transmission
- Limitations in capturing visual cues
- Video transmission is only 2D

Playing a duet via video transmission [2]

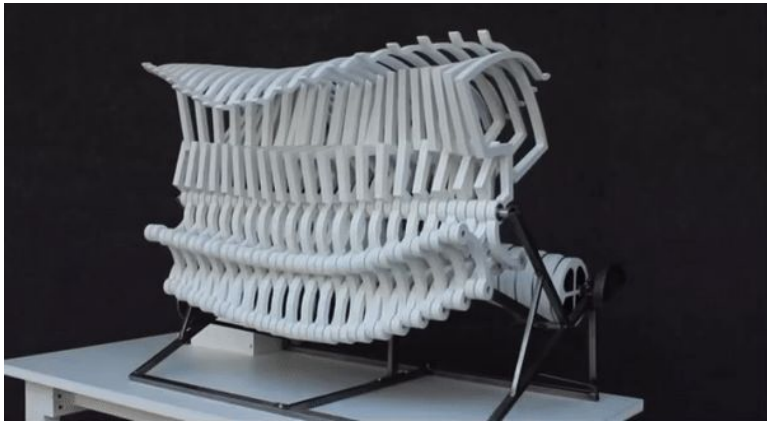
Project Objective

Project Goal

Create a mechatronic display that captures the actions and gestures of a musician, while also communicating the ambiance of the music to an audience.

Key Objectives

- Communicates important cues
- Expressive
- Not an anthropomorphic robot

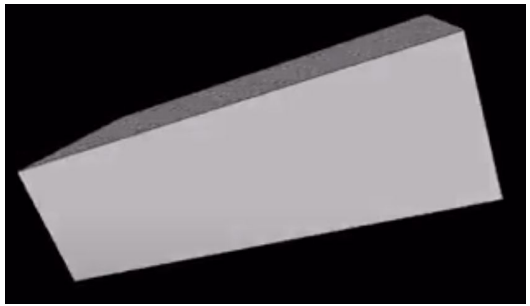


Mechanical sculpture (Bussola) made by Jennifer Townley [3]

Motion Captured (MOCAP) Team

Contributions

- Create 2D abstract visuals
- Collect data via Qualisys
- Filter MOCAP data via Max



Bounding Box a 2D visual that places three data points in space and draws a box around them

Motion capturing suit to track specific points on the musician

Approach: Rapid Prototyping

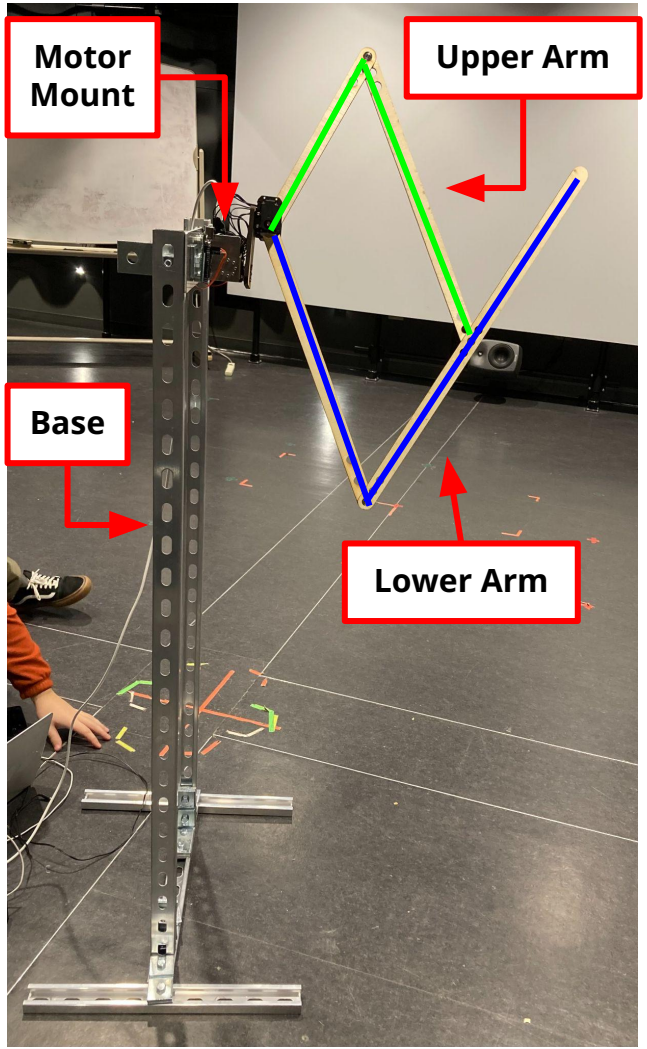
Dowel Arm

- Inspired by a violinist’s arm
- Two motors
- Only 2D movement

Final Design

Box on a Stick

- Next iteration of Dowel Arm
- Three motors
- 3D movement



Final Design

Key Features

- Expressive and has unintentional movement
- Not a direct relation to the musician’s arm
- Learning curve for musicians

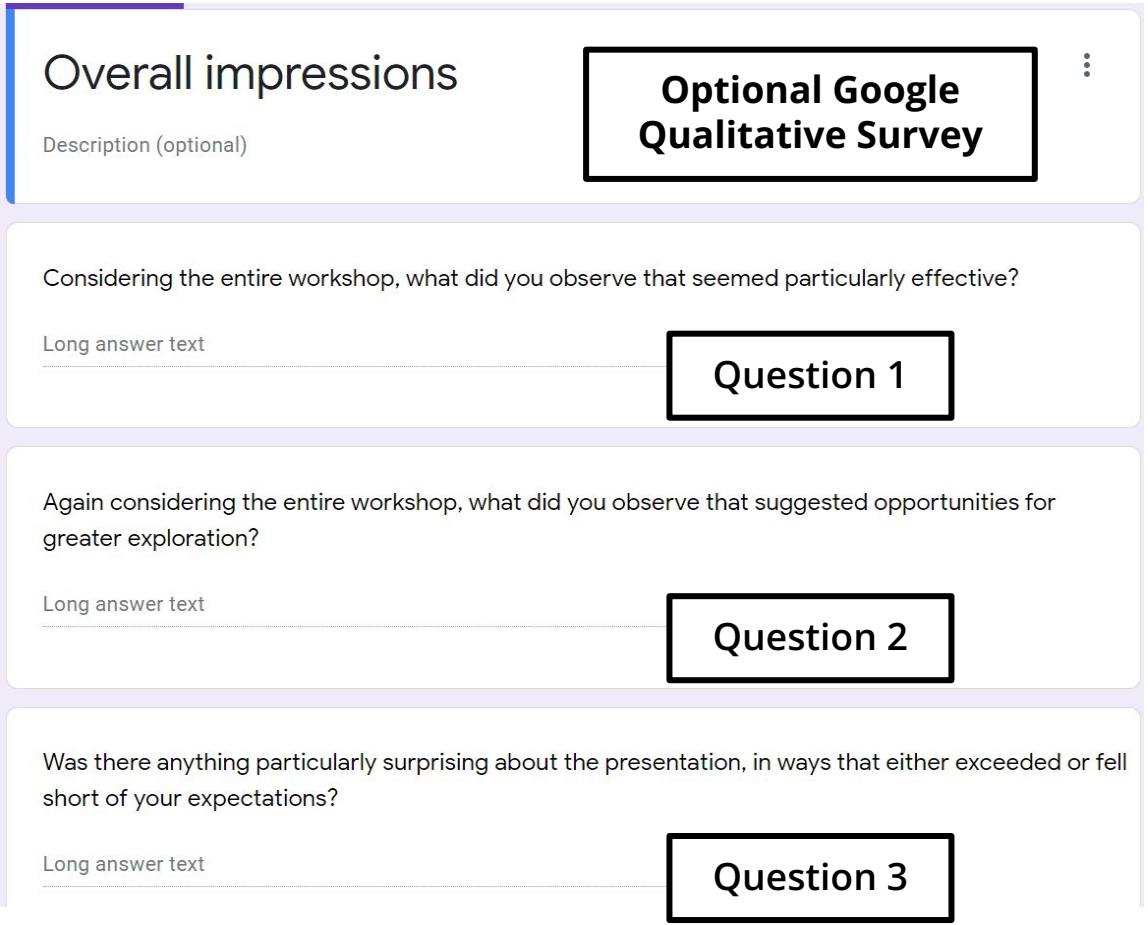
Video

Sonata for Two Violins, Op 56 by Sergei Prokofiev

Results

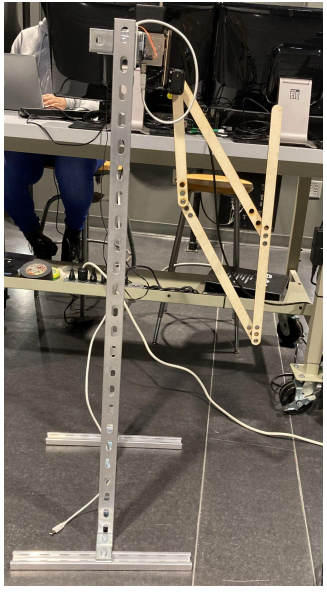
Main Takeaways

- Nearly 20 non-team members in the audience
- Only 3 survey responses
- Discussions and questions between performances



Conclusion

- Not a final design
- Incorporate feedback from Workshop



Next Steps

- Iterate upon Box on a Stick
- Lessen the rattling
- Communicate smaller motions
- Capture data in different ways

Long Term Goals

- Responsive mechatronic
- Explore a non box-like shape
- Universal mechatronic

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Students

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Others

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Questions?