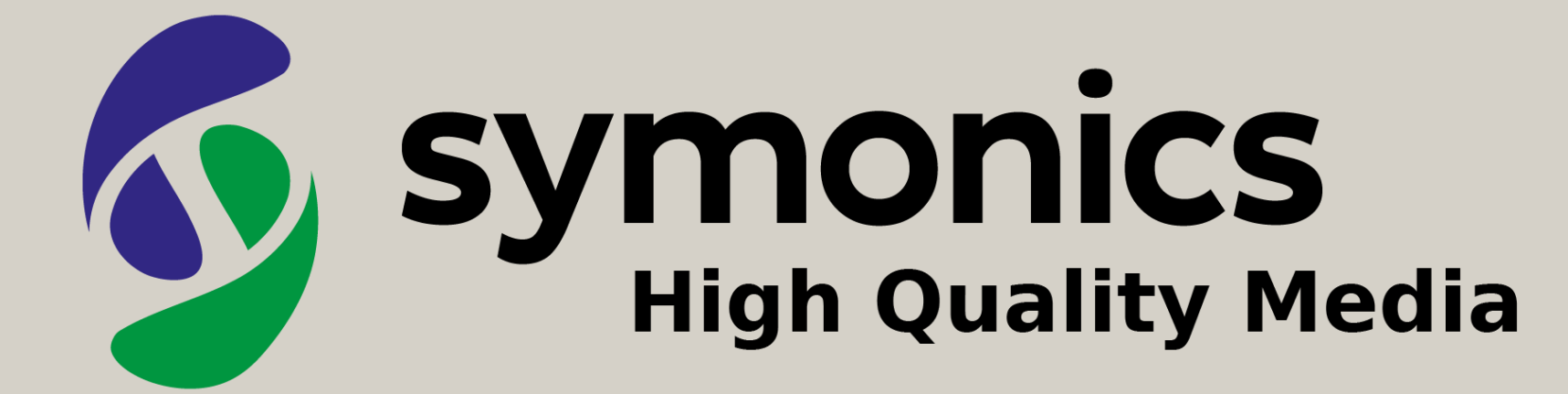




IMPLEMENTING SOUNDJACK FOR LOW-LATENCY DISTRIBUTED MUSIC MAKING AT A MEDIUM-SIZED SCHOOL OF MUSIC



Dana Zenobi | Butler University
Assistant Professor, Music (Voice) | dzenobi@butler.edu



PURPOSE: To provide distanced, high quality vocal instruction with real-time musical collaboration during the global pandemic.

PANDEMIC CHALLENGES

- Sharing air while singing not COVID-safe.
- Audio quality with phones and built-in computer reduces instructor ability to hear sung tones, especially treble voices.
- Masked singing obstructs instructor view of articulators and impacts singer's breathing.
- Large campus spaces needed for high-enrollment courses.
- Lag prevents real-time collaboration.

TOUCHSCREEN FASTMUSIC BOX BUILD



14 Units with built-in screen display

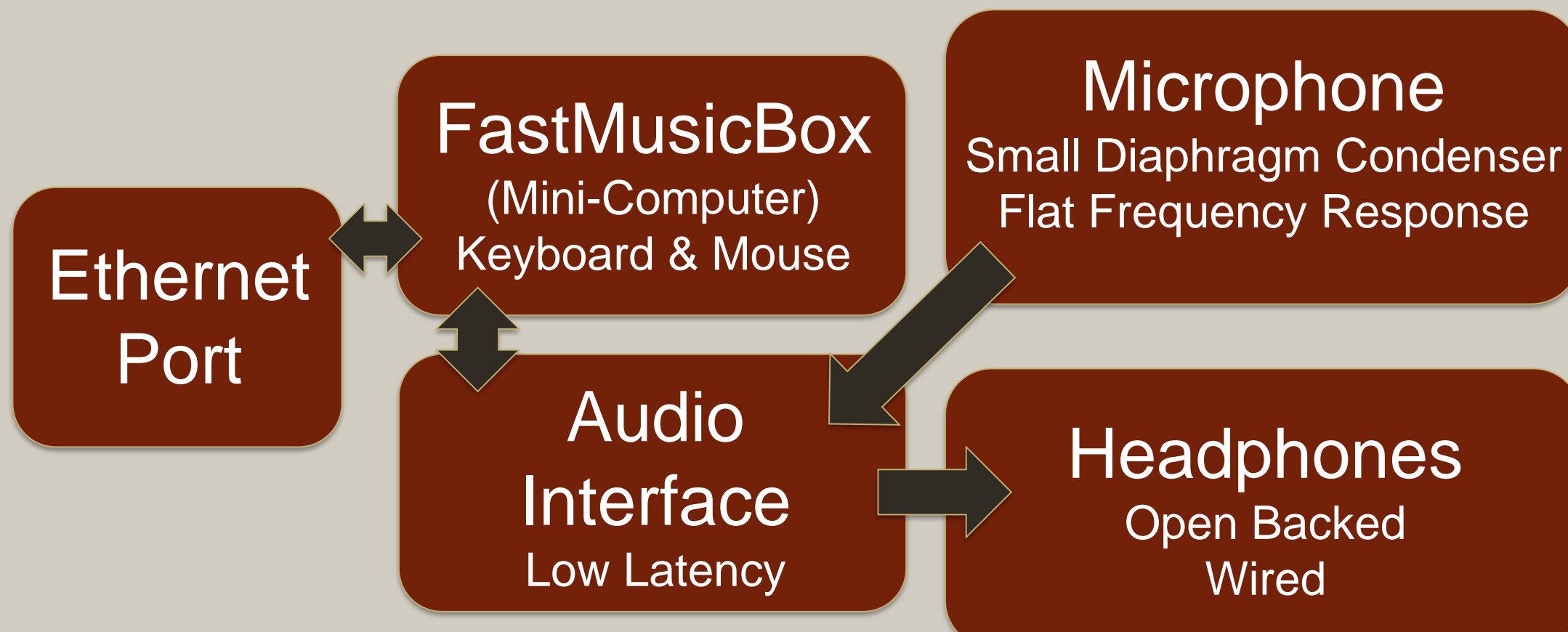


Most remained in one classroom. Some portable.

LEARNING OUTCOMES

- Safety not compromised by air sharing.
- High-quality technique instruction continued, pre-COVID pace of vocal progress maintained.
- Singers able to sing unmasked for lessons and rehearsals.
- Collaborative piano maintained in lessons & weekly coachings.
- Recorded tracks made while connected via Soundjack musical and individualized to singer.

AUDIO SIGNAL FLOW



Separate device (laptop, phone) used for video. Video element did have lag.

STUDENT FEEDBACK

"I'm glad I was able to have live accompaniment without masks."

"Soundjack was beneficial for quality sound production & to have the opportunity to sing while my pianist played with me. It was nice to have practice live with my pianist before the jury."

"It was definitely helpful to have Soundjack in lessons as opposed to just recordings."

POST-PANDEMIC USES

- Soundjack-enabled spaces maintained for use if one or more parties needs health precaution.
- Regional rehearsals, collaborations and master classes now possible without physical travel.
- Broadcasting regionally distributed performances.
- Add lagless video for conducting and small ensemble rehearsals.
- Audio equipment can be used for research and audition/competition recordings.

IMPLEMENTATION CHALLENGES

- Solution required funding for audio equipment and processors (FastMusic Box or Computer).
- Operating system for FastMusic Box mini-computers still in development. Questions about user support & third-party technology.
- Campus network did not allow wireless control of FastMusic Boxes.
- Connectivity challenges and software crashes continued throughout academic year at peak use times.
- Technology training and ongoing support required for student and faculty users.

HIGH AUDIO QUALITY REAL-TIME COLLABORATION

USE CASES

Lessons with Collab. Piano

Rehearsals

Opera Theater



50 Student Singers (Most on Campus)

4 Voice Faculty (Campus & Remote)

3 Staff Pianists (Remote)

6 Student Pianists (Campus)

REFERENCES

- Dr. Ian Howell: Soundjack User Guide: <https://www.ianhowellcountertenor.com/soundjack-comprehensive-user-guide>
- 2020 New England Conservatory Acoustic Vocal Pedagogy Program (Online Teaching Technology Module): Dr. Ian Howell, Dr. Joshua Glasner, Dr. Nicholas Perna: <https://necmusic.edu/acoustic-vocal-pedagogy-workshop>
- Dr. Alexander Carot – Soundjack: <https://www.soundjack.eu/>
- Christian Hoene – FastMusic Box: <https://symonics.com/product/fastmusic-box/>