

SONIC LINEAGE:

An Interactive Archive of the Top 10 Most Popular Sampled Songs

[Potential UI](#) | [\[Old\] Proof of Concept \(Working V.B.F\)](#) | [\[New\] Proof of Concept \(no sound\)](#)

1. PROJECT VISION

Sonic Lineage is a modular audio-visual installation designed to show the relationship between the **Top 10 most sampled songs in history** and their **Top 10 most famous uses**. The system manages a library of 100 tracks (500+ stems) and allows a user to live-mix them through a custom physical interface and a synchronized global clock. My goal is to host this as a live site where users can either plug in a Makey Makey or interact using standard keyboard inputs.

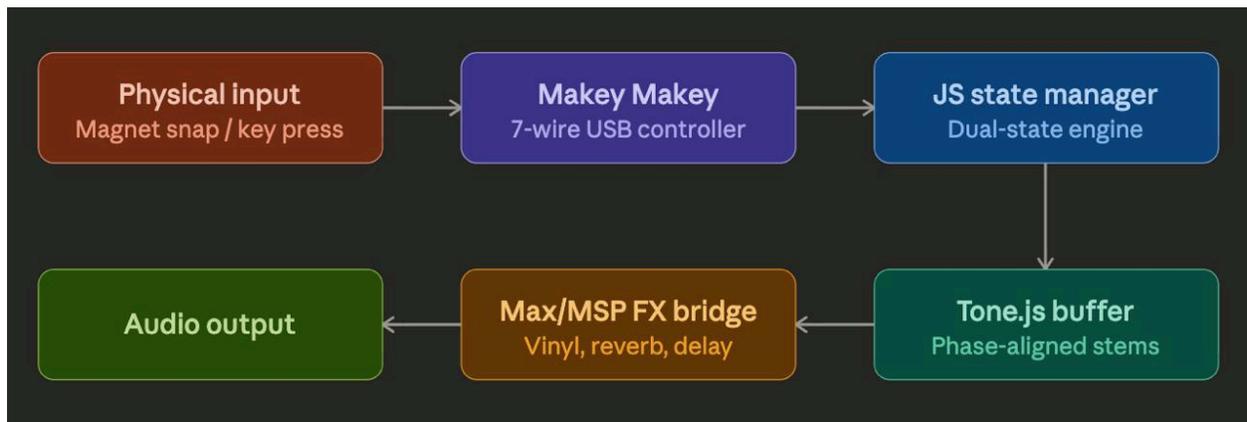


Figure A. Signal Flow

2. PRODUCTION WORKFLOW & ASSET MANAGEMENT

To manage a library of this scale:

- **WhoSampled:** Sampling/Remix history of 1.3millions songs are available (No API)
- **4K Downloader:** Audio is sourced here to ensure consistent sample rates
- **Moises AI:** Every track is processed into song layers: Drums, Bass, Vocals, Piano/Keys, Strings, or Wind (5 max tracks per song)
- **Code:** The project is in **VS Code**, using a hybrid **JavaScript (Tone.js)** and **Max/MSP** architecture.

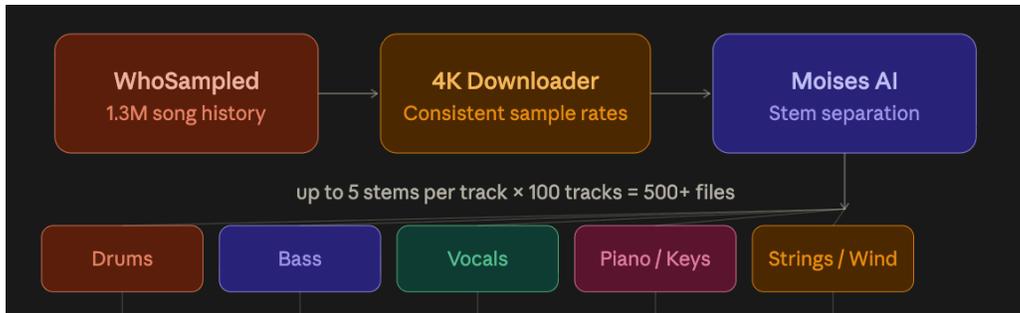


Figure B. Stem sourcing and separating workflow

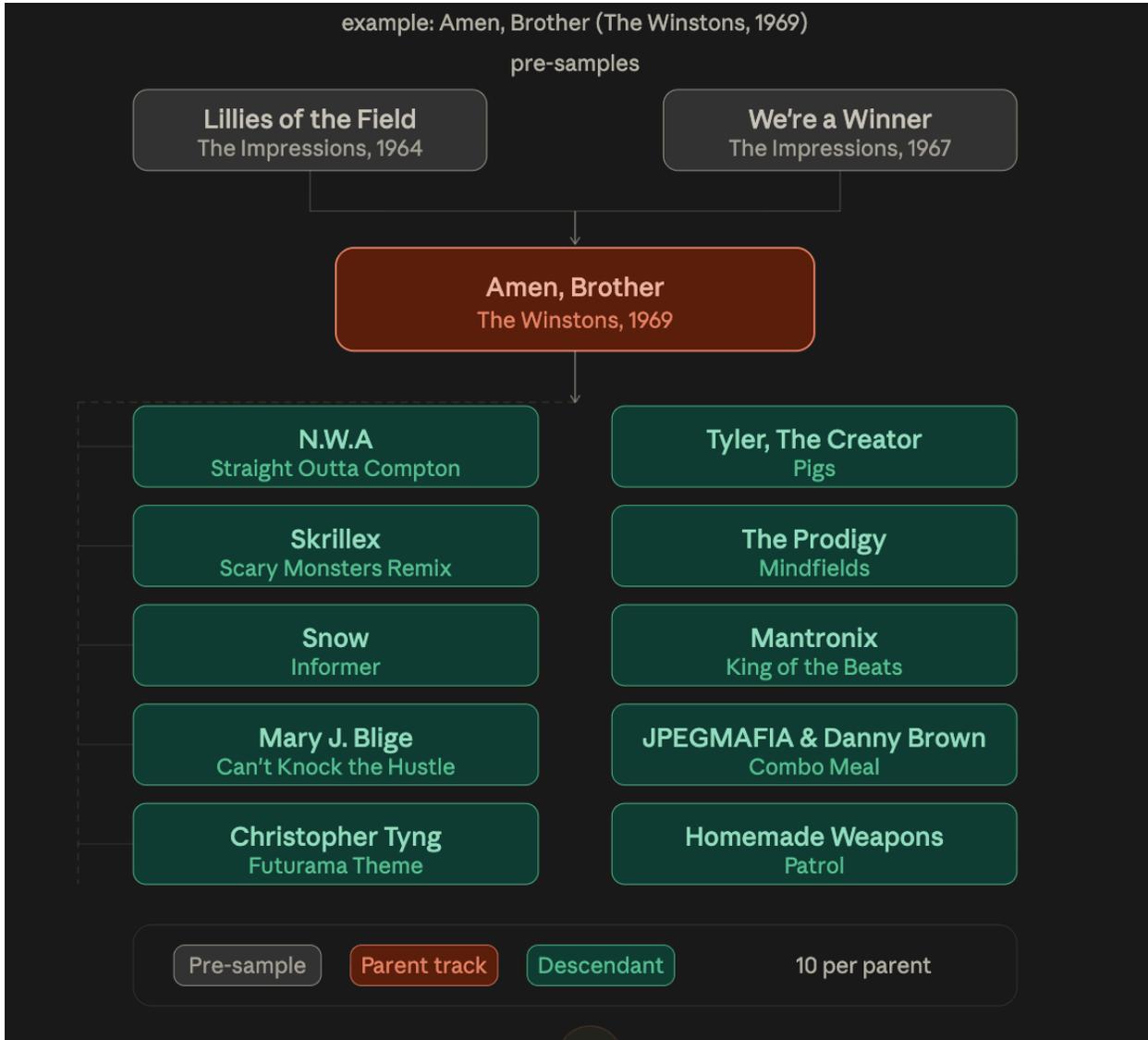


Figure C. Sample family tree

3. INTERFACE (3D Printing & Makey Makey)

The physical controller is a **Tangible User Interface (TUI)** that maps 7 primary Makey Makey inputs to a modular dashboard.

- **Magnetic Snap-System:** Custom 3D-printed enclosures house **conductive neodymium magnets**. Snapping a module onto the board completes a circuit, triggering the software to toggle a stem.
- **Menu-Driven Navigation:** To maximize the Makey Makey's 7-wire limit, the **Up/Down Arrows** cycle through software "modes" (Song Selection, FX Control, and History Metadata).

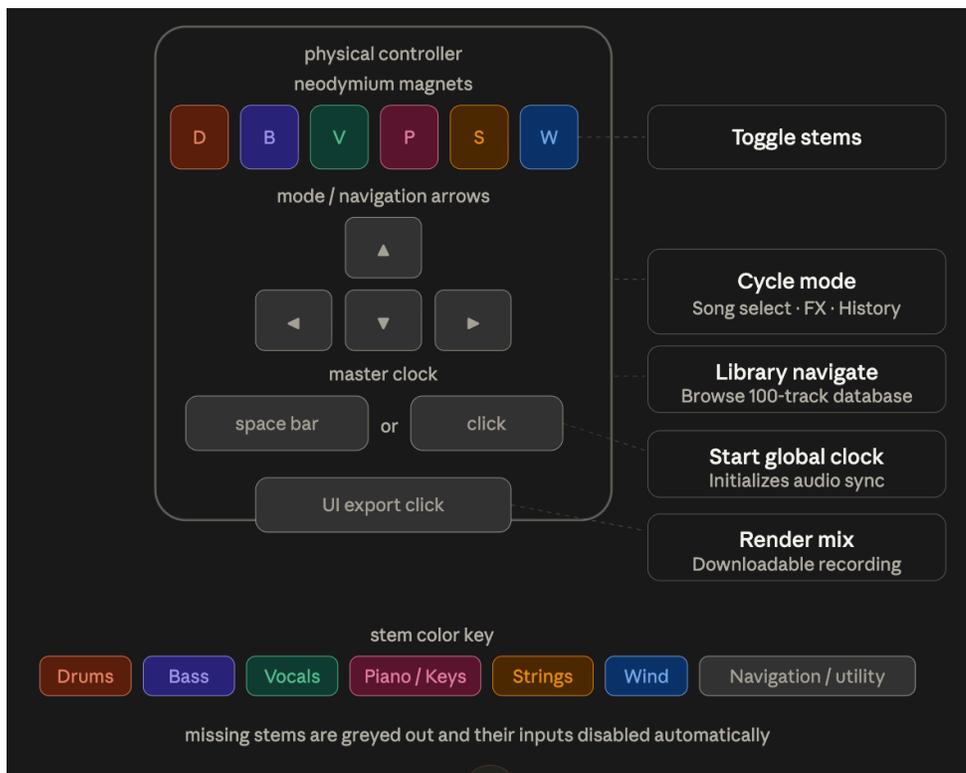


Figure D. Interface-to-sound mapping

4. STATE MANAGEMENT & LOGIC FLOW

The software utilizes a **Dual-State Engine** to ensure the music never stops, even when the user is "zoning out" to browse the lineage data.

- **The "Play" State (Audio Transport):** The audio engine runs on a high-priority thread linked to the **Tone.Transport** clock. This ensures every active stem remains phase-aligned and quantized to the beat.
- **The "Menu" State (Non-Blocking Navigation):** The Up/Down arrow keys control a separate logic loop. This allows the user to explore the history menus or prep the next song without interrupting the current audio stream.
- **The "Grey-Out" Check:** To ensure the interface is intuitive, the JS logic runs a validation gate: `IF (track.has_instrument == false) { button.opacity = 0.3; input.disable(); }`. This visually greys out missing stems and deactivates the corresponding Makey Makey input.

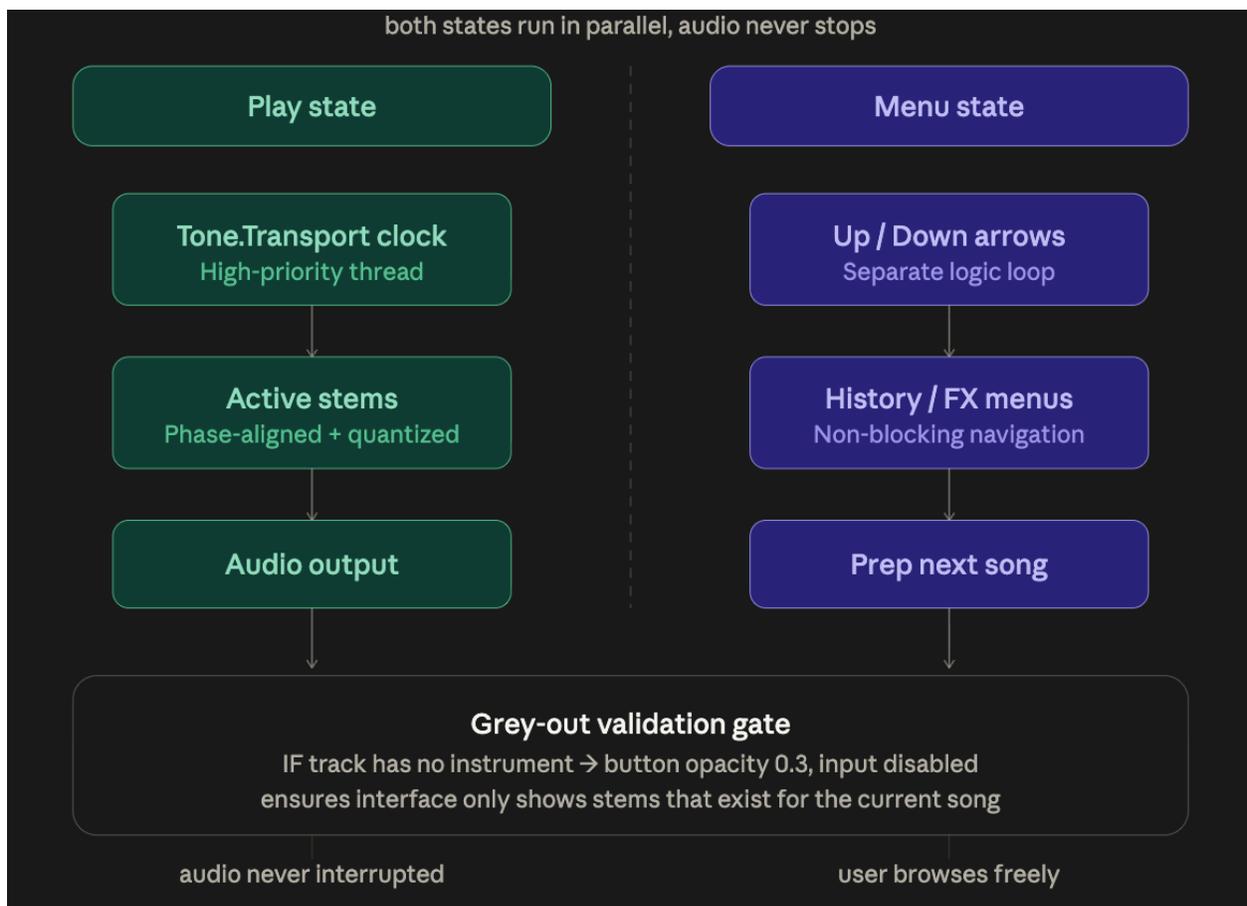


Figure E. Dual-state engine

5. FILE HIERARCHY

Folder Structure (Example for 500+ Files):

```
/ROOT_ASSETS
/001_Amen_Brother (Parent)
  /001a_Straight_Outta_Compton (Descendant)
    - drums.mp3, bass.mp3, vocals.mp3, fx.mp3
  /001b_Futurama_Theme (Descendant)
    - drums.mp3, horns.mp3, bass.mp3
  ... (10 Descendants)
```

6. MAX/MSP AUDIO PROCESSING

The audio signal is routed to **Max/MSP** for real-time signal processing, including:

- **Vinyl Degradation:** Bit-crushing and noise generation for historical texture.
- **Resonant Filtering:** High-pass and Low-pass "sweeps" for performance.
- **Temporal FX:** Tape Delay and Reverb synced to the Master Clock.

7. PROJECT TIMELINE & PRODUCTION MILESTONES

Week 7 (Current): Logic & Acquisition	<ul style="list-style-type: none">● Finalize JS "Dual-State" logic and folder architecture in VS Code.● Begin daily batch downloads (10 tracks/day) via 4KDownloader.● Focus: Implementing "Randomness" in Max for vinyl crackle and texture.
SPRING BREAK: Mass Processing	<ul style="list-style-type: none">● Complete all 100 track downloads.● Run mass-batch stem separation through Moises AI.● Populate the /ROOT_ASSETS directory and test dynamic path loading.
Week 9: Integration & Work Day	<ul style="list-style-type: none">● 3D print conductive magnetic enclosures.● Hardware-software "Handshake" (Makey Makey to Tone.js).
Week 10: Presentation	<ul style="list-style-type: none">● Demonstrate stable 100-track library navigation and stem toggling.

Week 11 - 12: Feature Upgrades	<ul style="list-style-type: none"> Implement Tap Tempo & Time Quantization (Week 12 syllabus) to allow real-time BPM adjustment of the historical stems.
Week 13 - 14: Polishing & Presentation Mode	<ul style="list-style-type: none"> Refine Boolean Logic for the "Grey-out" validation gates. Finalize Max/MSP "Presentation Mode" for a clean performance UI.
Week 15 / Finals: Final Project Delivery	<ul style="list-style-type: none"> Full launch of the live site and magnetic dashboard performance.

8. PROJECT SAMPLES + JeterIMM350 Samples

Main Song & The Songs It Sampled	Sampling Artist Selection	Sampling Track Title
1. Amen, Brother	N.W.A	Straight Outta Compton
The Winstons (1969)	Tyler, The Creator	Pigs
<i>Samples:</i>	Skrillex	Scary Monsters and Nice Sprites (Remix)
- <i>Theme From Lillies of the Field (Amen)</i>	Homemade Weapons	Patrol
(The Impressions, 1964)	Christopher Tyng	Futurama Theme
- <i>We're a Winner</i>	Snow	Informer
(The Impressions, 1967)	The Prodigy	Mindfields
	Mantronix	King of the Beats
	Mary J. Blige	Can't Knock the Hustle (Remix)
	JPEGMAFIA & Danny Brown	Combo Meal
2. Think (About It)	Rob Base & DJ E-Z Rock	It Takes Two
Lyn Collins (1972)	Snoop Dogg	Ain't No Fun
<i>Samples:</i>	Kanye West	So Appalled

- <i>Think</i>	Kanye West	Lost in the World
(The 5 Royales, 1957)	Bomfunk MC's	Freestyler
	Beyoncé	CHURCH GIRL
	NewJeans	ETA
	Le Sserafim	Eve, Psyche & the Bluebeard's Wife
	J Dilla	Ash Rockin
	Porter Robinson	Musician
3. Change the Beat (Female Version)	Eric B. & Rakim	Paid in Full
Beside (1982)	Macklemore & Ryan Lewis	Thrift Shop
<i>Remix of:</i>	Beyoncé	AMERICA HAS a PROBLEM
- <i>Change the Beat (Male Version)</i>	Slick Rick	Hey Young World
(Fab 5 Freddy, 1982)	Britney Spears	I'm a Slave 4 U
	Eminem	So Far...
	Drake feat. Justin Bieber	Right Here
	Herbie Hancock	Rockit
	Pretty Lights	Finally Moving
	\$uicideboy\$	Napoleon
4. Funky Drummer	Dr. Dre	Let Me Ride
James Brown (1970)	Public Enemy	Fight the Power
<i>Original Instrumental Performance</i>	James L. Venable	Powerpuff Girls Theme
<i>Drums by Clyde Stubblefield</i>	Lupe Fiasco	The Cool

	LL Cool J	Mama Said Knock You Out
	Mos Def	Mathematics
	DJ Premier	Premier's X-Ecution
	Run-DMC	Run's House
	Sublime	Scarlet Begonias
	George Michael	Freedom! '90
5. La Di Da Di	The Notorious B.I.G.	Hypnotize
Doug E. Fresh & Slick Rick (1985)	André 3000 feat. Beyoncé	Party
<i>Samples:</i>	Miley Cyrus	We Can't Stop
- <i>Sukiyaki</i> (A Taste of Honey, 1980)	Slick Rick feat. Mos Def	Auditorium
- <i>The Magic Mirror</i> (Snow White, 1937)	Vengaboys	We Like to Party!
- <i>8 Million Stories</i> (Kurtis Blow, 1984)	Naughty by Nature	O.P.P.
	Lana Del Rey	Doin' Time
	Beastie Boys	Hold It Now, Hit It
	Ini Kamoze	Here Comes the Hotstepper
	Robbie Williams	Rock DJ
6. Bring the Noise	Kanye West	Everything I Am
Public Enemy (1987)	Simon Harris	Bass (How Low Can You Go)
<i>Samples:</i>	Ludacris	How Low
- <i>It's My Thing</i> (Marva Whitney, 1969)	Eminem	I'm Back
- <i>Fire & Fury</i> (Malcolm X Speech, 1965)	Portrait	Here We Go Again!

- <i>Funky Drummer</i> (James Brown, 1970)	Rakim	Guess Who's Back
- <i>Get Off Your Ass and Jam</i> (Funkadelic, 1975)	Bob Marley	Concrete Jungle (1999)
- <i>Fantastic Freaks at the Dixie</i> (1983)	Public Enemy	Black Steel in the Hour of Chaos
- <i>The Assembly Line</i> (Commodores, 1974)	De La Soul	Plug Tunin'
- <i>...and 4 more tracks</i>	EPMD	Crossover
7. Funky President (People It's Bad)	Kanye West, Big Sean, Jay-Z	Clique
James Brown (1974)	Childish Gambino	3005
<i>Original Instrumental Performance</i>	Rick Ross feat. Kanye West	Live Fast, Die Young
	DJ Jazzy Jeff & Fresh Prince	Summertime
	Nightcrawlers	Push the Feeling On
	Naughty by Nature	Hip Hop Hooray
	Travis Scott	HYAENA
	Ghostface Killah	Mighty Healthy
	Enigma	Sadness
	Rakim	Eric B. Is President
8. Here We Go (Live at the Funhouse)	BTS	호르몬 전쟁 (War of Hormone)
Run-DMC (1985)	Cypress Hill	Throw Your Set in the Air
<i>Samples:</i>	Isaiah Rashad	Headshots (4r Da Locals)
- <i>The Big Beat</i> (Billy Squier, 1980)	Sensate Focus	Untitled (X Side)

- <i>Hand, Hand, Fingers, Thumb</i> (1969)	Will Sparks	Ah Yeah!
- <i>Hollis Crew (Krush Groove 2)</i> (1984)	J Dilla	One Eleven
- <i>AJ Scratch</i> (Kurtis Blow, 1984)	Hardhouse	Check This Out
- <i>Jam-Master Jay</i> (Run-DMC, 1983)	Alchemist & Bronson	Mike Vick
	Nero	Crush on You (Remix)
	The Product G&B	Maria Maria
9. Hot Pants (Bonus Beats)	Big Daddy Kane	Raw
Bobby Byrd (1987)	Spice Girls	Wannabe
<i>Remix of:</i>	Madonna	Frozen
- <i>Hot Pants - I'm Coming, I'm Coming...</i>	Twenty One Pilots	Lane Boy
(Bobby Byrd, 1972)	Marky Mark	Good Vibrations
	Rammstein	Sehnsucht
	Shakira	Estoy Aquí
	The Stone Roses	Fools Gold
	Black Box	Everybody Everybody
	Meat Beat Manifesto	Radio Babylon
10. Synthetic Substitution	Wu-Tang Clan	Bring Da Ruckus
Melvin Bliss (1973)	Kanye West feat. Ghostface	No Face
<i>Original Instrumental Performance</i>	Kanye West & Pusha T	New God Flow
	Naughty by Nature	O.P.P.
	Public Enemy	Don't Believe the Hype

	Ultramagnetic MC's	Ego Tripping
	Fabulous	You Be Killin' 'Em
	Joey Valence & Brae	Punk Tactics
	Moby	Extreme Ways
	Method Man	All I Need