

Motion-based Synthesizer

🌟 Product Features (User-Facing Requirements)

Motion-Based Sound Control

- Pitch: Raise or lower your hand to change notes.
- Vibrato: Roll your wrist to add a light shimmer; a bigger lean gives a more dramatic shake.
- Silence: Shift your palm past a comfortable threshold, and the sound fades to zero.

Touch-Triggered Harmony

- Tap your thumb to your fingers to build chords:
 - Thumb-index: +4 semitones
 - Thumb-middle: +7 semitones
 - Thumb -ring: +12 semitones

🥁 Drum Mode

In Drum Mode, the system will trigger six different drum sounds based on directional accelerometer motion:

- +X → crash
- -X → kick
- +Y → tom
- - Y → ride
- +Z → snare
- - Z → hi-hat

🎵 Visual Music Interface

- Live note tracking on a musical staff so you always see what your hands are creating.
- Harmonies appear stacked just like real notation.
- Choose your base tone from a piano display if you want a different starting point.
- Easily switch between Drum and Standard mode
- Recording made simple: start, stop, loop, replay, save.