AUDIOARC

An audio modulated plasma speaker with realtime system monitoring in a safe, consumer-friendly package
WHO WE ARE

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CONCEPT

- High-voltage source generates visible plasma arc
- Modulating current across arc causes plasma to expand and contract
- Surround air propagates these variations as compression waves, perceived as sound
MOTIVATION

• Unique, innovative, and visually appealing

• Effectively massless driver provides higher fidelity reproduction than typical speakers

• No commercially available plasma speakers currently on the market

• Will provide protection from accidental hazards associated with high-voltage arc
COMPETITIVE ANALYSIS

• Numerous websites and individuals have built unfinished plasma speakers

• Current prototypes not well packaged or protective from shock

• Available kits cost upwards of $400 and are too dangerous for average consumers
REQUIREMENTS

• Able to connect any audio source using standard 3.5mm mini-jack connector
• Active monitoring of temperature and current with control system
• Fully enclosed or actively protected arc without sacrificing acoustic fidelity
• Display audio statistics (volume, equalizer, etc.)
TECH SPECS

- Dual load-balanced 200V 30A MOSFETs with dual 12V protection zener diodes
- ATMEGA328 microcontroller
- SG3525AN modulator IC
- 24V 4.5A AC/DC power supply
- Optically isolated audio input
- Potentiometer-tunable flyback resonant driving frequency
- Serial OLED graphic display
ARCHITECTURE

Other components...

ATMEGA328 MCU

Temperature Sensors

Current Sensor

Serial Display

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*2x12 volt zener diodes are put in series to protect the mosfets*
RISK MITIGATION

• Prevent over voltage or temperature

• Use temperature and current sensors for monitoring

• Monitor amplitude and condition the input signal to regulate the volume and avoid problems
QUESTIONS?