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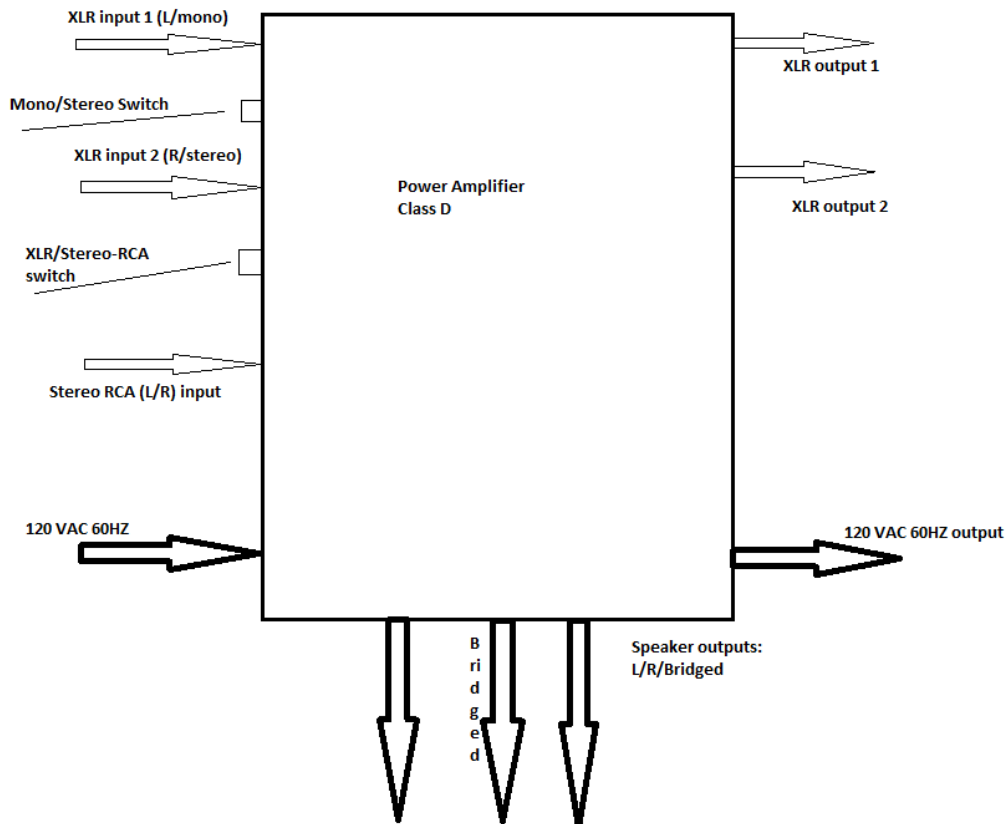
HW1 Initial Idea

EE 322

Description:

The device I am interested in is essentially a power amplifier extension for audio systems. It is a small portable unit with XLR connections, 2 RCA inputs, and 3 speaker outputs driven by class D amplification. It is a product targeted primarily towards professional audio applications but can also be used by amateurs to extend the power and performance of basic consumer grade systems without having to purchase the more traditional Class A/B power amplifiers which are less efficient, produce more heat and are large and heavy due to the transformers that are necessary. I think this device would fix many of these problems and fill a specific niche in this market.

Sketch:



#### Technical Description:

Power output to speakers: 2x1000Wrms@2ohms, 2x620Wrms@4ohms, 2x385Wrms@8ohms, 1x2000Wrms@4ohms bridged, 1x1240Wrms@8ohms bridged

Frequency Response: 20hz-20khz, +0dB, -1dB

Weight <8lbs

Amplifier Type: Class D power amplifier, SS preamp for RCA inputs

#### Inputs:

- 1) 120VAC 60hz
- 2) 2x XLR (stereo/2xmono) 20k balanced connectors (+,-,ground)
- 3) 2x RCA connectors (L/R), Stereo Only, Line Level Signal 0.316Vrms

#### Outputs:

- 1) 120VAC 60hz (for chaining with another unit in professional applications)
- 2) 2x XLR (stereo/mono) balanced connectors for chaining signal with other units
- 3) 3 speaker outputs: 2xmono/L-R OR mono bridged

#### Other Features:

- 1) Mono/Stereo switch:
  - a) Stereo: Use both XLR inputs to run device as a 2 channel/Stereo power amplifier
  - b) Mono: Use XLR input 1 for mono operation to both speaker outputs.
- 2) XLR/Stereo-RCA switch
  - a) XLR: Unit operates using only XLR inputs/outputs
  - b) Stereo-RCA: unit operates using only RCA inputs in stereo mode
- 3) Power switch (Toggle), Protective Fuse

Impact of product: For most applications, power amps are large, heavy and inefficient devices which require large heat sinks and large transformers. This device on the other hand is based on Class D audio amplification which allows it to be small, portable, energy efficient and financially feasible. With minor adjustments, this unit becomes a versatile device bridging the professional and consumer markets. It has professional XLR inputs and outputs and 120VAC inputs and outputs which would allow several of these devices to be chained together (as is common) providing more than enough power to drive everything but the largest systems. The ability to chain these units and place them in convenient locations makes for a flexible and practical device. For consumer use, a single unit can be used along with standard RCA plugs to drive virtually any sound system an individual may own to full capacity with low power consumption and a small device footprint/weight.