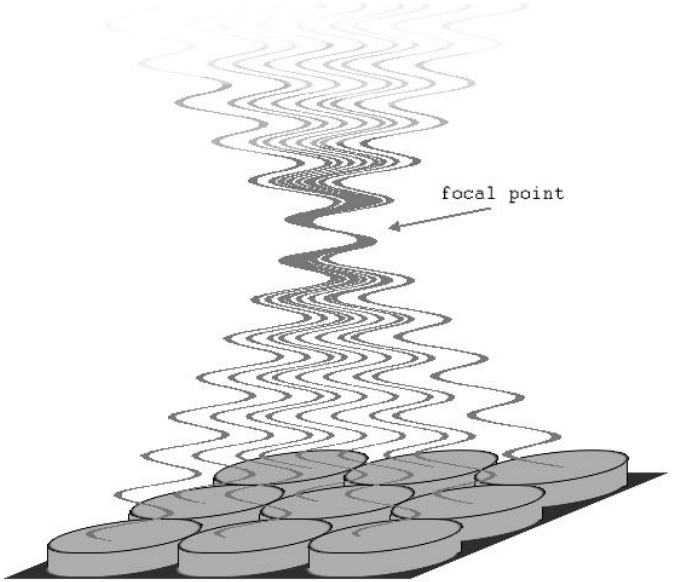
Ultrasonic Haptic Interface

6.101 Spring 2017

Chris Desnoyers and Sarah Pohorecky

How does it work?

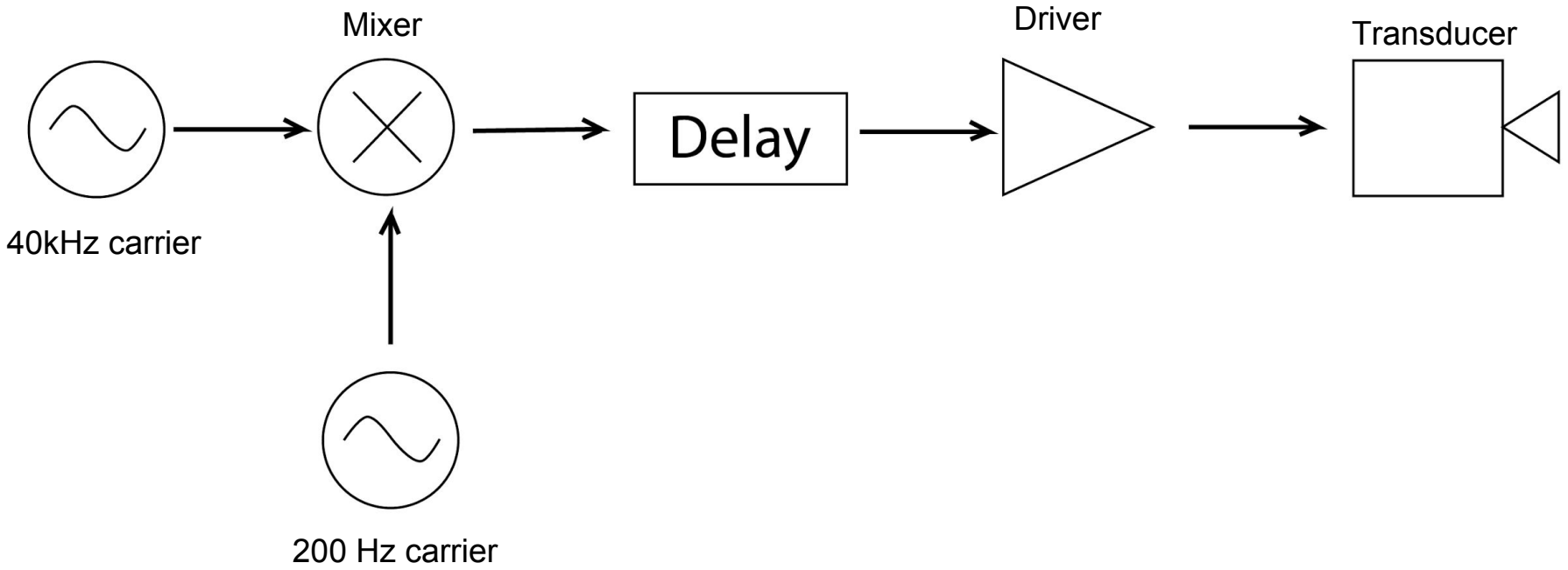
- Ultrasound: >20kHz
- Tactile vibrations: ~200Hz
- Modulate for transmission
- Transmit vibration
- Multiple transducers in phased array
  - Focus at a point above array
  - Only focal point vibrates
  - Move the focal point around (stretch goal)



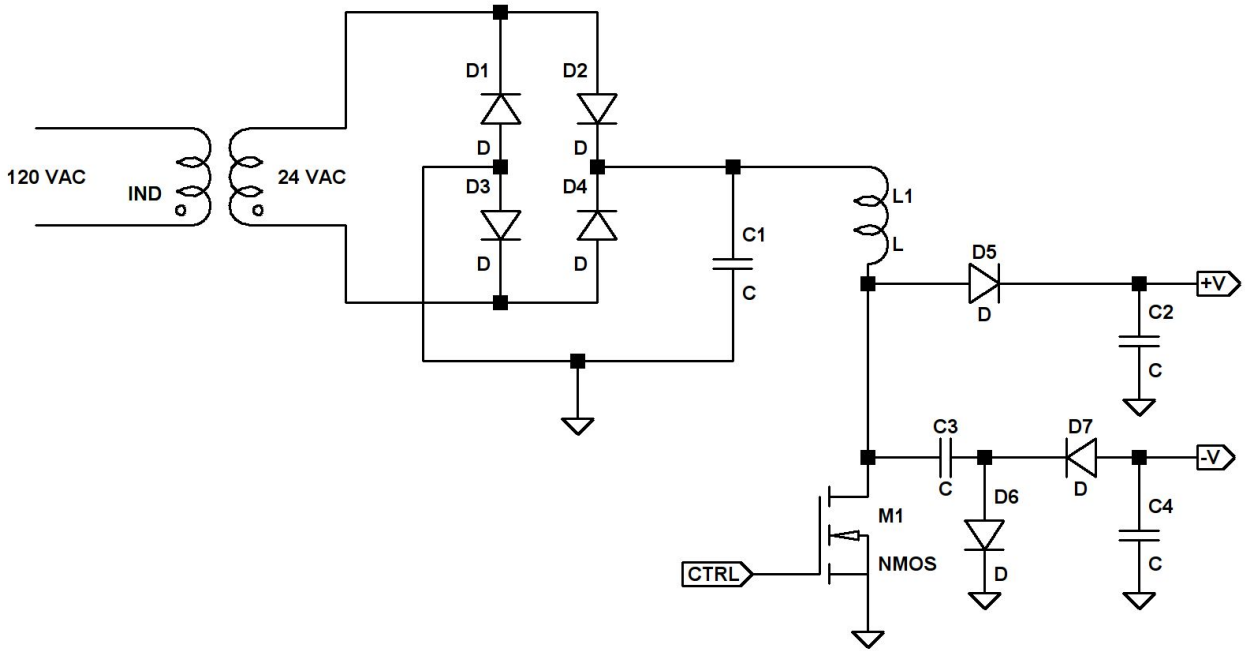
What is it for?

- ❏ Programmable tactile interface
- ❏ Use in addition to touchscreen
- ❏ Being developed for car dashboard controls

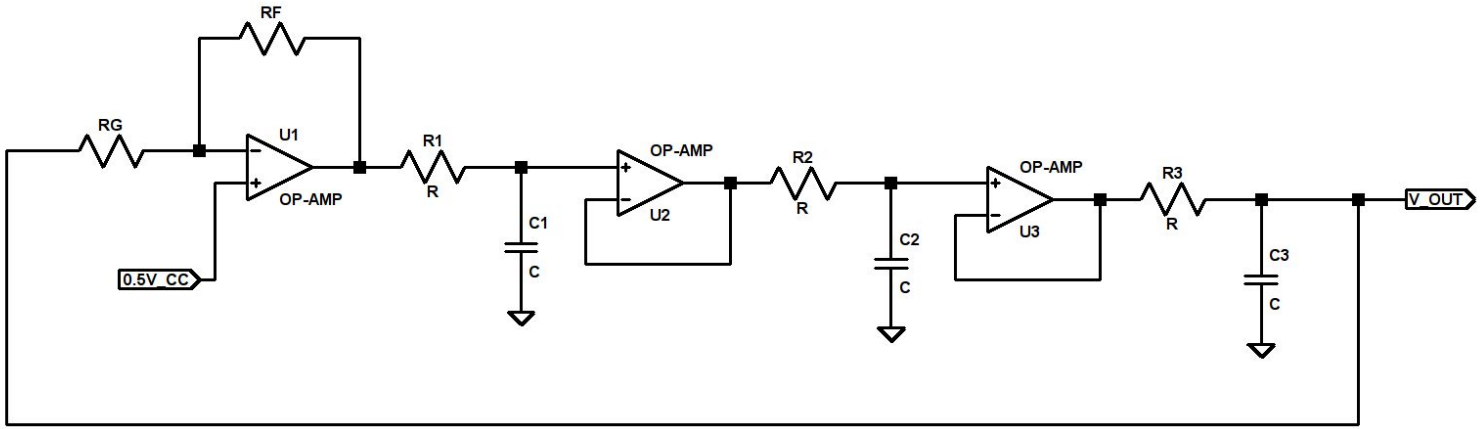
Block Diagram



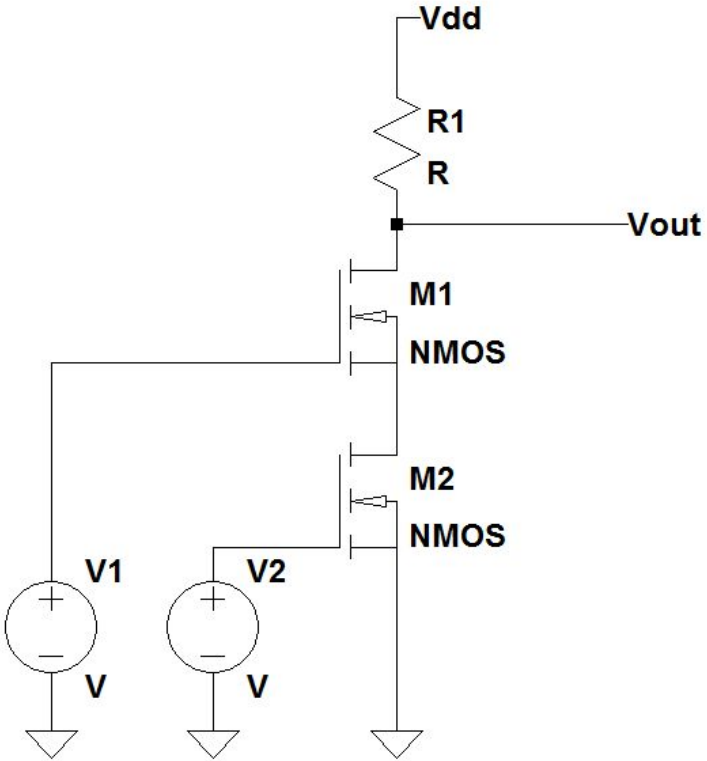
Power Supply



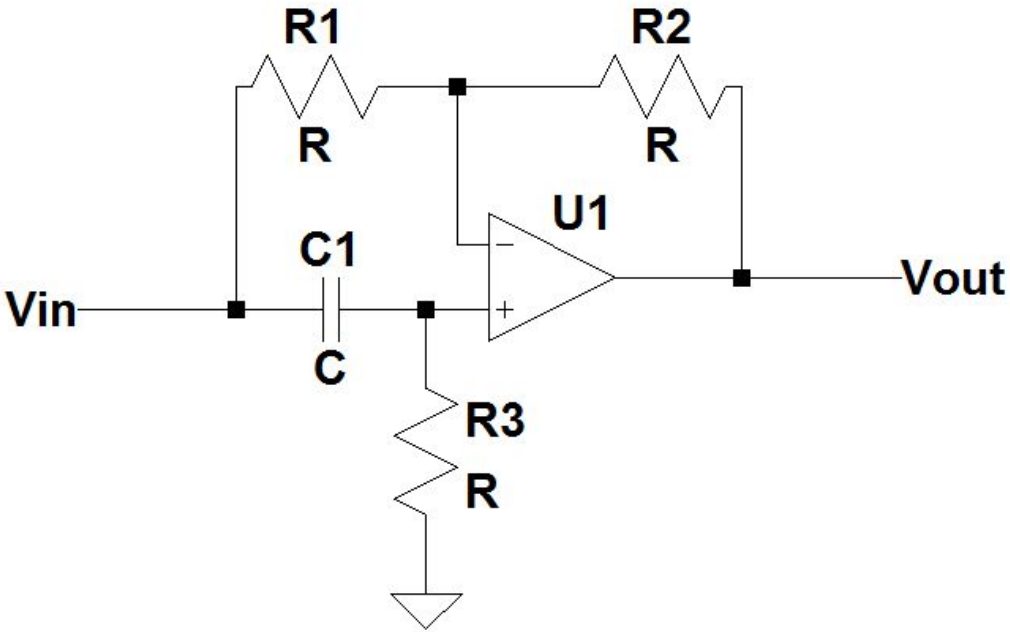
Oscillators



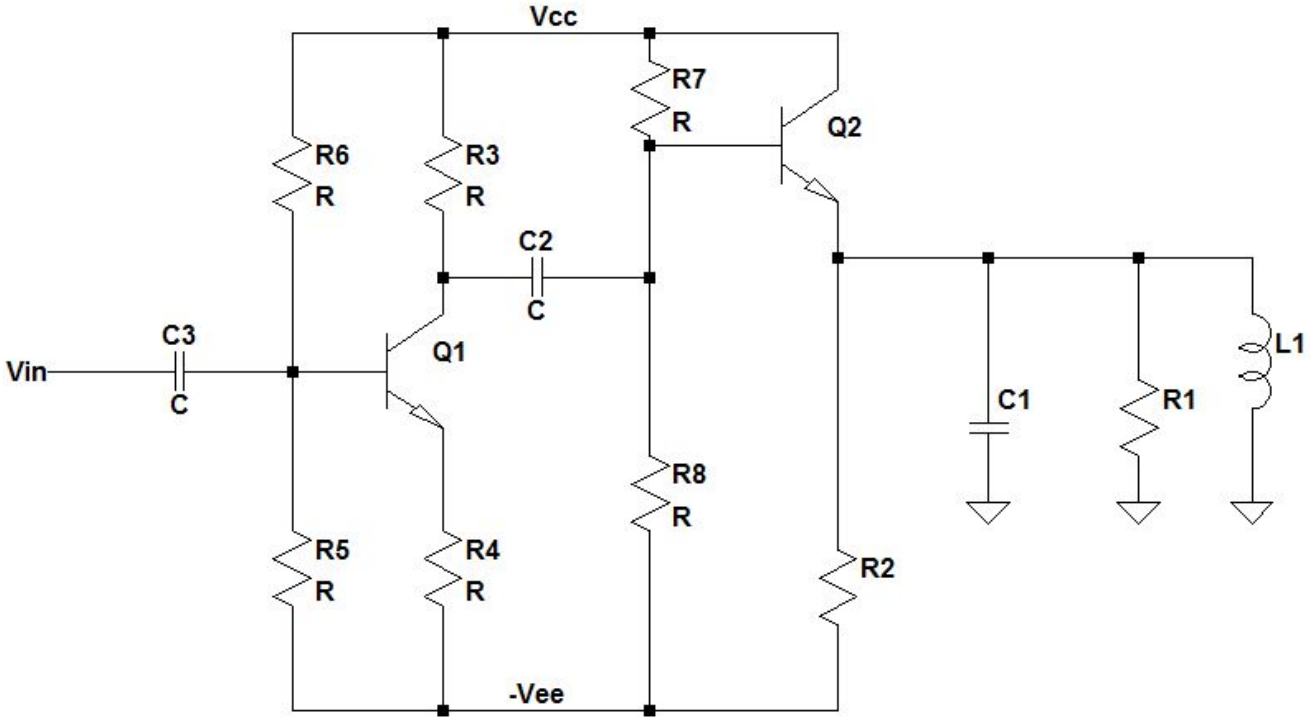
Mixer



Delay



Driver



Alternative Deliverables

Minimum:

- Microcontroller and DACs
- Power supply
- Drivers

Stretch:

- Move the focal point

Questions?