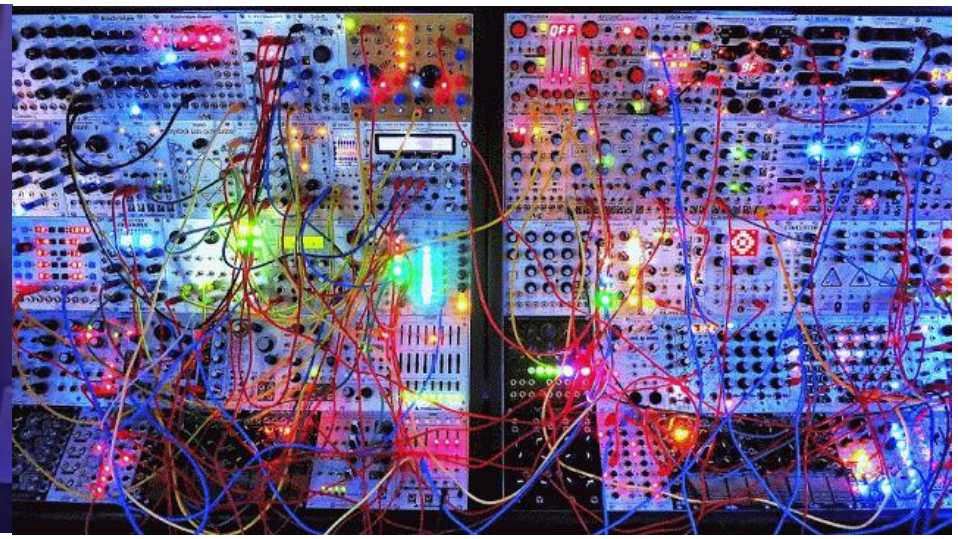
MUSC 4820/5820 Digital Music Techniques 001

Week 12: MIDI Controllers, Concepts of Input, Control, and Mapping for Digital Music Instrument



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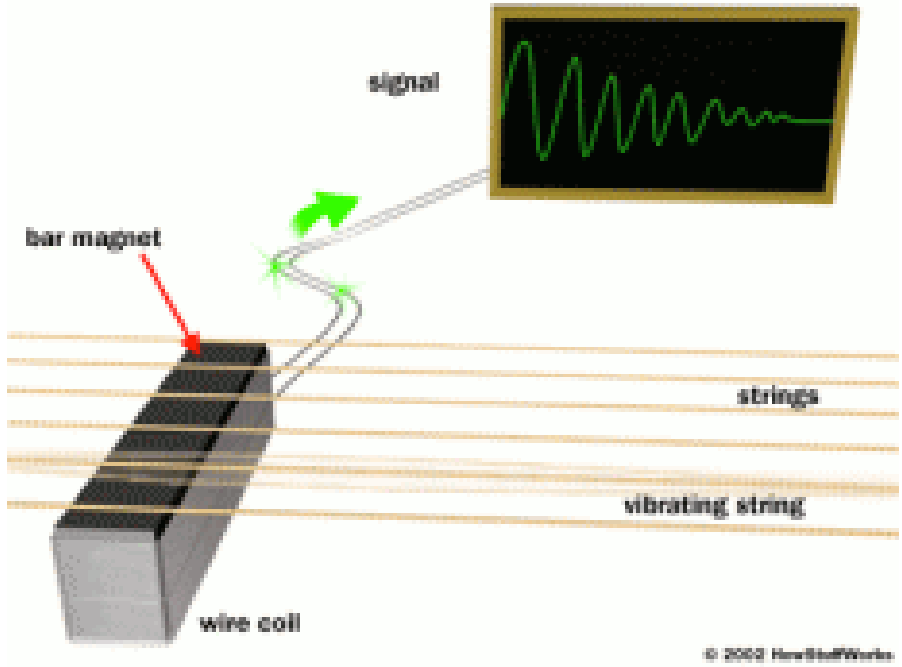
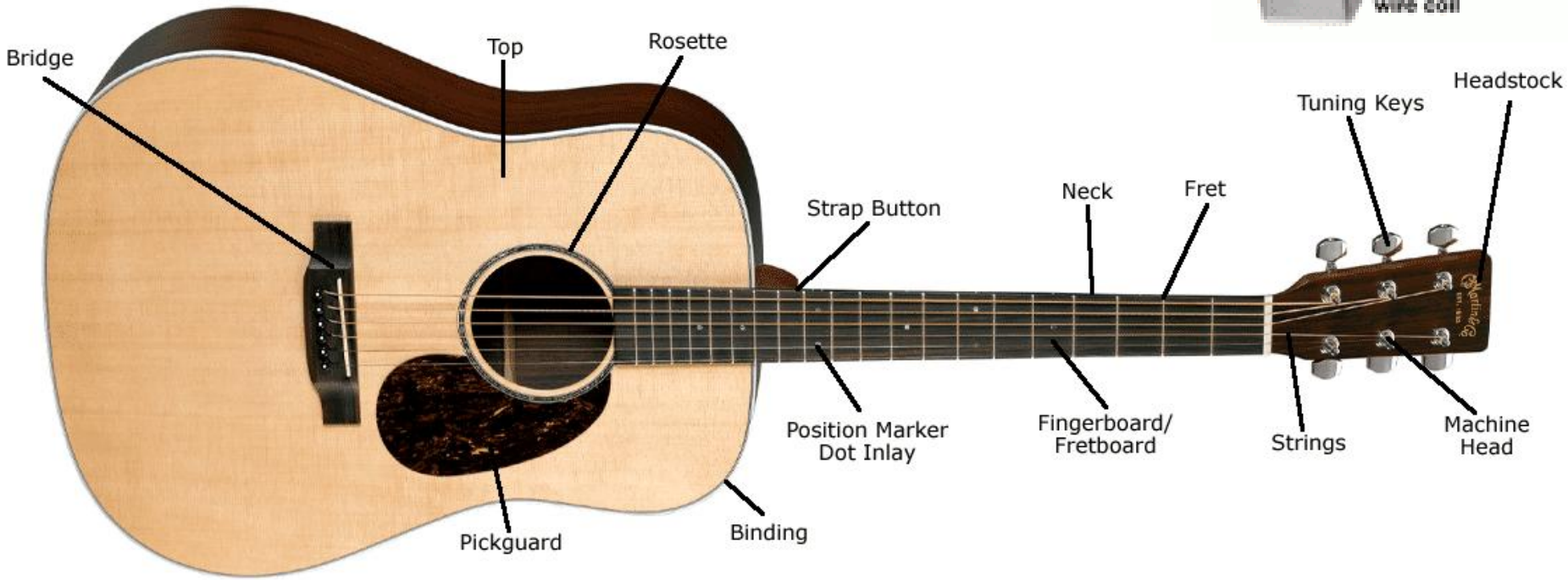
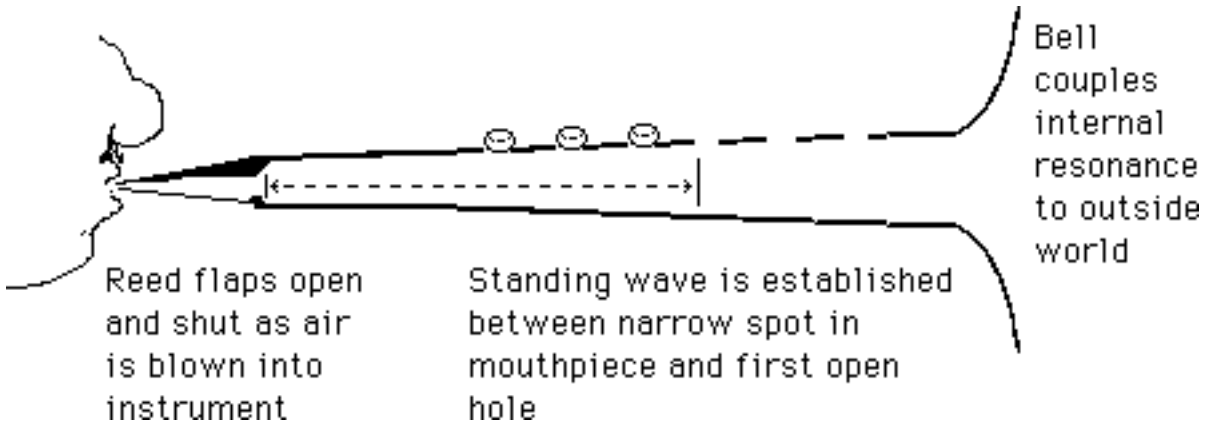
How does an acoustic instrument make sound?
Guitar?
Flute?
Piano?





Guess: Which part is Input, Control, and Mapping?



Digital Music Instrument (DMI)

Input: they are data~ not device~

- Continuous (Slider input)
- Discrete (Key/button/switch input)

Examples of Manual Input Devices

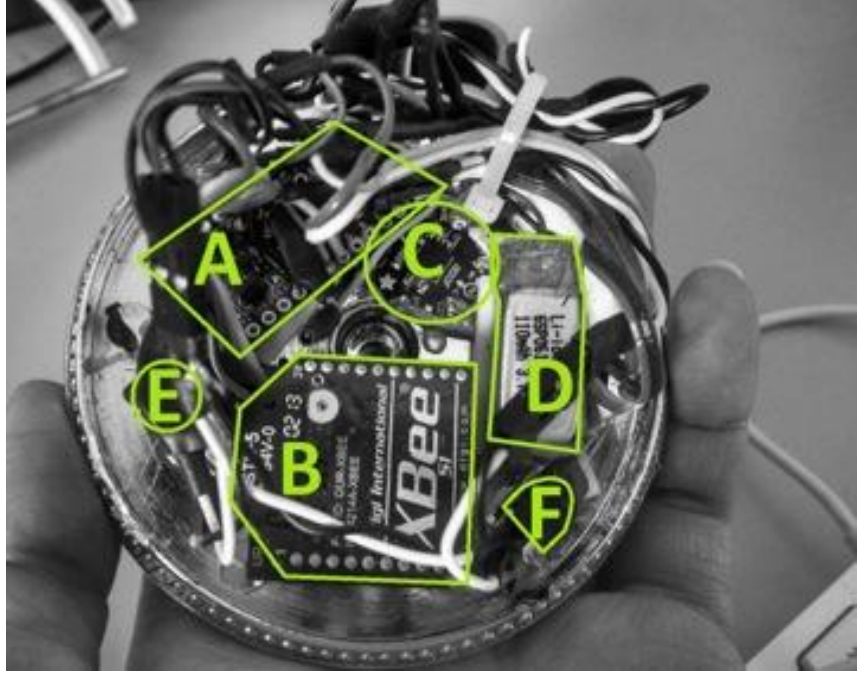
Keyboard	Numeric Keypad	Pointing Device	Remote Control
Joystick	Touch Screen	Scanner	Graphics Tablet
Microphone	Digital Camera	Webcams	Light Pens

Input Devices

Novel Digital Music Instrument and Controller Design

[Example 1]

[Example 2]



What is Control?

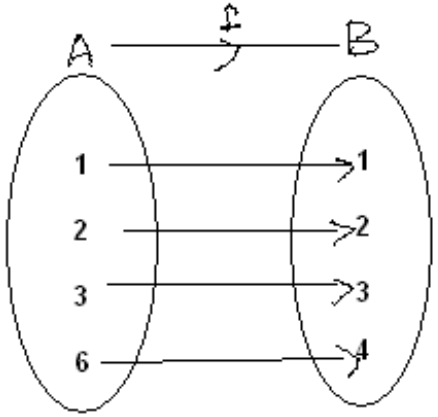
- It's a system, could be software architecture, or software + hardware system configuration. It's a mechanism.
- It's how you design the virtual "body" of your instrument.

Input data -> Sound Mapping Strategy

Magic of Gestural Input, Control, and Mapping

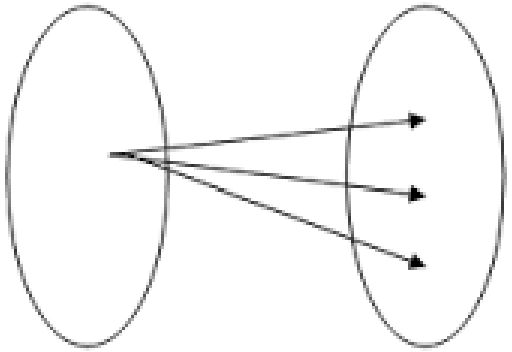
Embodied Sonic Meditation (2018)

One-to-One mapping



[Imogen Heap's Musical Gloves, 2012-2015]

One-to-Many mappings



Modular Synth and gestural MIDI controller

[Example 1]
[Example 2]

Latency must be less than 10-20 ms!!