Advanced Motion MIDI Glove Controller

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Victor Lalo

What's wrong here?

What about here?

First set:

- Looking down, but doing many actions
- Lose connection with your crowd
- Not very exciting to watch

Second set:

- Hands always up, not doing much
- Symbolize sound with movements and connect through showmanship
- More enticing, but also way too much of an act

What if we could combine the two?

- Allow the audience to see how your movement influences the sounds being made live
- Combine functionality with showmanship
- Logically start at hands, natural point of connection

Innovators:

Flying Lotus: Light Cube https://www.youtube.com/watch?v=R-u_7FcViBs
- Intense presentation, bringing a new dimension to his music. Regardless, it is strictly visual.

Jimmy Page: https://www.youtube.com/watch?v=sarm8rzdY3Y (bowing an electric guitar)
 https://youtu.be/uiLKT5rPHBA?t=1m45s (feedback theremin)
- Extreme showman of the 70's. Found new ways to show off playing guitar and making sounds in general

Matt Bellamy: https://youtu.be/aulbMkOLqKg?t=45s
- Another example of guitar reworking

Glitch Mob: The Blade https://youtu.be/L7SoQWTFJ_k?t=22s
- Great visualization for what they are doing. While grand and showy, the interface is simple.
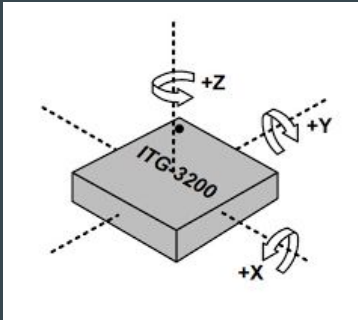
Ultimate Goal:

- To achieve an intuitive and effortless transition of hand movement into sound.
- As close and quick from subconscious mind into expected output of music/ sound.

How do we capture hand movements?

1) Gyroscopic motion.
2) Big changes in position (in a specific direction)
3) Gesture/signal recognitions
4) Pressure sensing

What's on it?

Gestural:
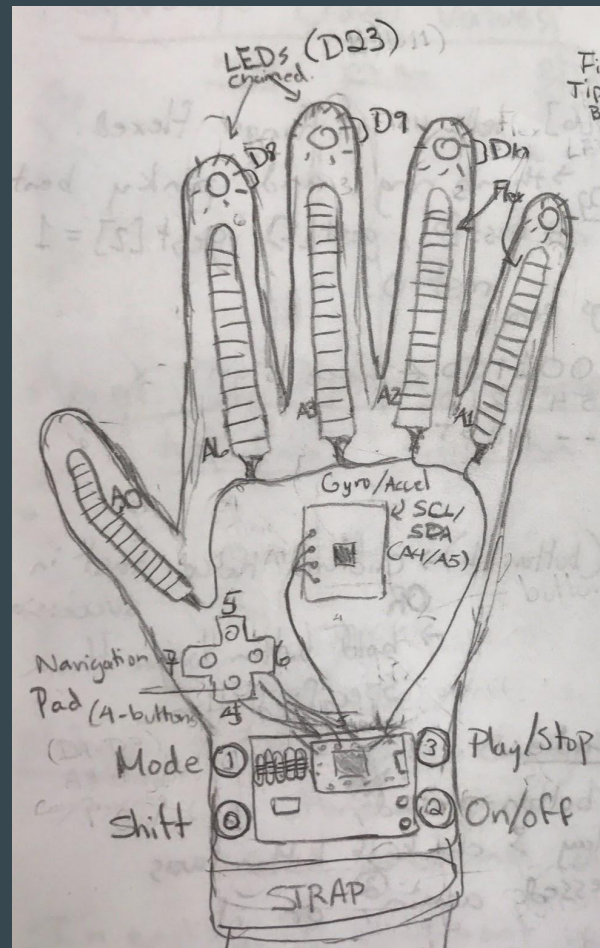- 5 flex sensors

Rotation and Motion:
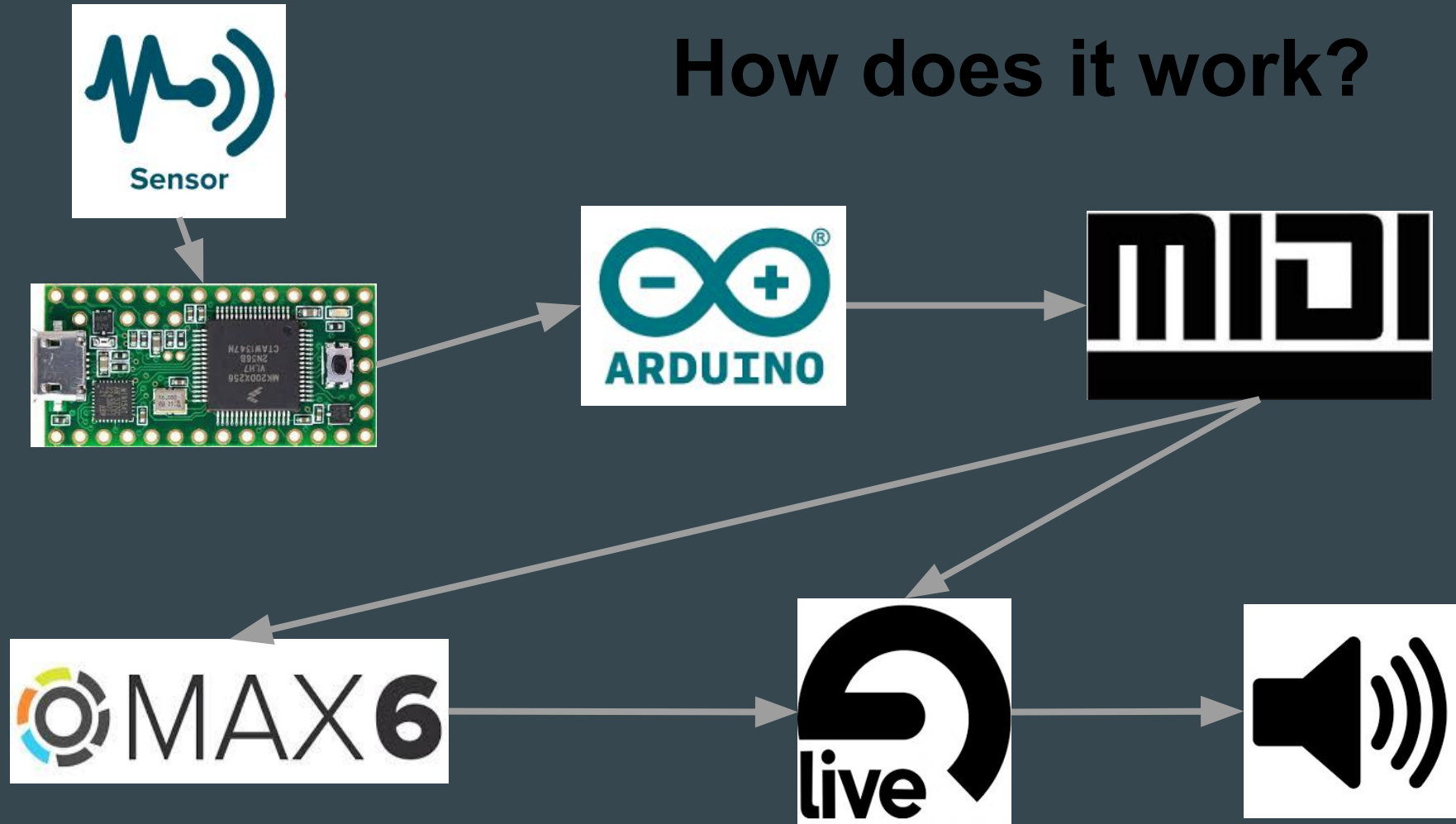- Gyroscope/ Accelerometer Chip (MPU6050)

Navigation:
- 4 directional buttons
- 4 functional buttons
- 3 finger tip buttons

Feedback:
- 2 LEDs
- 1 vibration motor

How does it work?

Current Applications

- X-Y Pad control
    - Modulate filters, pitch, volume. Any parameter within ableton
- Gesture recognition
    - Send commands by making different signs
- Big/Fast Movement Changes
    - Swipe, slam, push or pull to send commands
- Finger selection
    - Touch fingertips to thumb to send command
- Quick navigation
    - On board d-pad, shift, and mode buttons

Future Applications

- Adaptive learning of user's movements
- 3-D "cube"- controlling 3 parameters within a specified space
- LED response and visualizations
- Spatial recognition of user

** Extend to full body motion suit

** Make more fashionable

DEMO!