Force-feedback (rotary) audio browsing

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A subset of not so new interfaces for musical expression have been traditionally employed in an artistic and scientific field related to and generative of computer music: physical/tangible controls for media browsing. Cyclic representations of time might have been the motivation for the use of rotary control for temporal media (audio and video). Rotary controls have been widely used by experts in audio edition and video montage even before their systems were computerized, with passive proprioceptive and kinesthetic feedback (on hands) limited by the physical controls during their design and fabrication. Why are there no cost-effective commercial devices for force-feedback rotary control widely available now for digital systems, with user-definable mappings, besides the upcoming Microsoft Surface Dial? Can we just make one from off-the-shelf and repurposed components?

This talk will start with a short overview of past personal projects on tangible-to-force-feedback media browsing. The core of the talk is to provide a log reporting hands-on attempts in replicating interaction techniques for force-feedback audio browsing from seminal papers, towards a "hello world" tutorial, using a recent low-cost opensource and openhardware servo motor project (MechaDuino) and a fork of a visual programming environment dedicated for audio/control dataflow (PurrData out of PureData) that had already been used for prototyping force-feedback and music applications.