Px1m0d:
A haptic midi interface

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Abstract

Px1m0d is a freely programmable interface that communicates via midi-protocol. It is based on an open source diy midi-controller project. In short, it is a midi-keyboard with 64 keys; each key is a lamp and can be unplugged and plugged in another key-socket, in four different directions.

Keywords

Instrument, haptic, programmable, midi

1 The Interface

1.1 Concept

Fig 1. Board with 64 pluggable lamps

Px1m0d's (from pixel-modulator) concept was created without any special purpose in mind. The motivation was to create a low-resolution display matrix out of lamps found in a rubbish dump. The additional interface functions were added in order to make it a haptic experience, a possibility to manipulate a pixel, which is usually behind the screen and out of reach for physical handling.

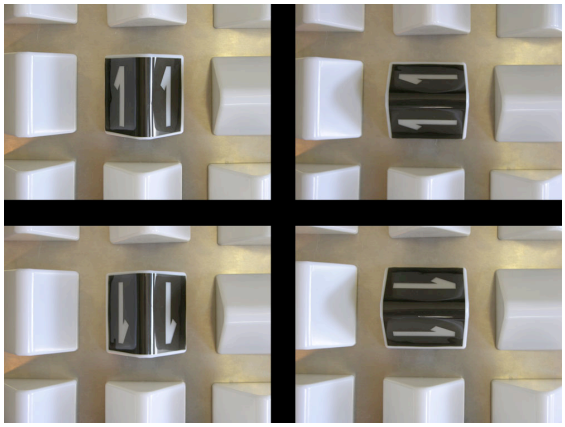

Fig 2. Four different lamp directions.

1.2 Design

Board

The board of px1m0d has 64 specially designed sockets that can hold the lamps. Each socket is made out of 4 card-sockets and a fruit-juice bottle lid as a pushbutton. An aluminium sheet protects the sockets. The board is attached to a pneumatic foot of a technical drawing table. It is adjustable in height and angle.

Lamp

The lamps have 2 PCB's sticking out that correspond to the sockets. Each lamp has a potentiometer for identification. The lamp cover can mount individual light-masks.

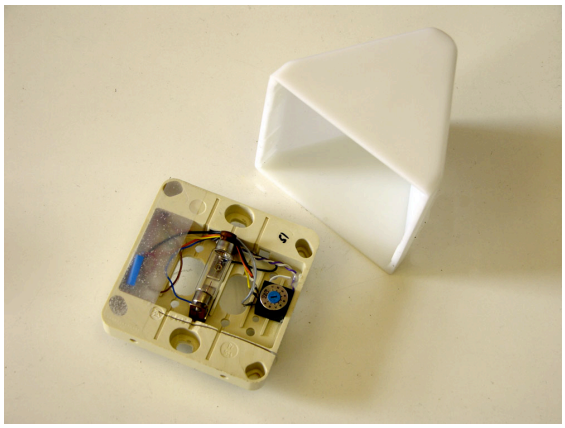

Fig 3. Lamp with poti and cover.

Hardware

The electronic circuitry is based on Thorsten Kloses midibox project [1]. It can be programmed in c and is modular expandable. Px1m0d has a midi-usb interface built in, so it can be easily plugged into a computer and programmed by it.

2 Applications

Since px1m0d construction has just been completed and it was not built for a defined purpose, no application exists for it yet. However, because of its design and nature of interaction it is perfectly suitable for different kinds of performances and can be programmed to work as an instrument to play or control output of different nature. Especially because of its use of the midi – protocol it can communicate with a wide variety of audio- and visual-tools. Its programmable micro controller allows easy adjusting to the needs of different uses. Placed in a horizontal manner it can be used by more than one user and function as a play-table.

Fig 4. Px1M0d as light-installation

3 Conclusion

There are other programmable haptic interfaces that show similar or even more powerful functionality. Px1m0d is certainly limited in its ability to give high-resolution feedback. However, it uses a unique object as interface element with an unusual range of manipulation possibilities and it certainly can be imagined as an instrument for a live music or video performance.

4 References

[1] http://www.ucapps.de