GLARE MODULE
A GESTURE CONTROLLABLE SOUND INTERFACE

INTERFACE

GLARE is a speculative interface which explores what lies behind the boundaries of the usual input devices. I noticed that most music production interfaces require a deep understanding of the subject which presents a considerable hurdle on the average user.

Because music is for many very intuitive and emotional - profoundly satisfying and an excellent means of emotional self-reflection - the making of it should be as accessible as possible. GLARE not only aims to provide a new controller for musicians, but also to put the creation of music into the lives of individuals as a practice of leisure and self-realization.

Dancing is usually a way to deal with music after the process of production it has ended and can be understood as a direct and very personal translation of music. Provided the necessary interfaces are available, making music could and should be as simple as dancing to it.

GLARE module is controlled only by gestures and works in a very intuitive way. The movements controlling the auditive content can resemble the motion of dancing.

REQUIRED PARTS
PARTS FOR ASSEMBLY

1 × GLARE circuit board
1 × Teensy 3.1 OR Teensy LC
  (Only tested with the LC)
4 × ADS1115 16 Bit I2C ADC
16 × Light dependent resistors
33 × Mono audio jack 3.5mm model
   PJ301M-12
16 × Mono audio Jack Plug 3.5mm
  15mm version if available
1 × Tactile Push Button 6x6mm
1 × Toggle switch ON-OFF 2 pin
16 × 500 mm 2 poled cable
16 × 500 mm shrinking tube ø5.4mm
16 × 500 mm × 2.5 mm insulated
  metal wire
16 × 10KΩ Resistor
2 × 1KΩ Resistor
73 × Female Headers (optional)
73 × Male Headers (optional)
  Insulating Tape
  Solder

PARTS FOR OPERATION

1 × Mono audio cable 3.5mm (to
  connect audio output)

16 × Mono audio cable 3.5mm
  (optional - to connect devices
  to the control voltage output
  matrix)

ASSEMBLY MANUAL

For the sake of brevity from now on the ADS1115 will be called ADC, the Teensy LC board will be called Teensy, the GLARE circuit board will be called PCB and control voltage will be called CV.

The screen-printed side of the PCB must face upwards.

If you want to be able to detach the main parts you should solder male and female headers to the PCB and parts. You can also chose to solder the parts directly onto the PCB.

1. Carefully detach the GLARE PCB from the main PCB
2. Solder 33 male headers to the 3 lines of holes on the Teensy
3. Solder 10 male headers to the line of holes on each ADC
4. Solder the legs of the 1Ø 10KΩ resistors to the PCB at the labeled positions
5. Solder the legs of the 2 1KΩ resistors to the PCB at the labeled positions
6. Solder the legs of the Tactile Push Button to the PCB at the labeled position
7. Solder 33 female headers to the 3 lines of holes surroun-

ding the Teensy 3.1/LC label on the PCB
8. Solder 10 female headers to each of the 4 lines of holes on the right side of the ADC
9. Solder the legs of the Toggle switch to the PCB at the labeled position
10. Solder the legs of the 33 Mono audio Jacks to the PCB at the labeled positions
11. For the sensors connect one LDR to 1 cable as well and tape that to one wire
12. Solder the audio jack to the cable and make sure the wire is also inside of it.
13. Cover the cable and wire with shrinking tube

OPERATIONAL MANUAL
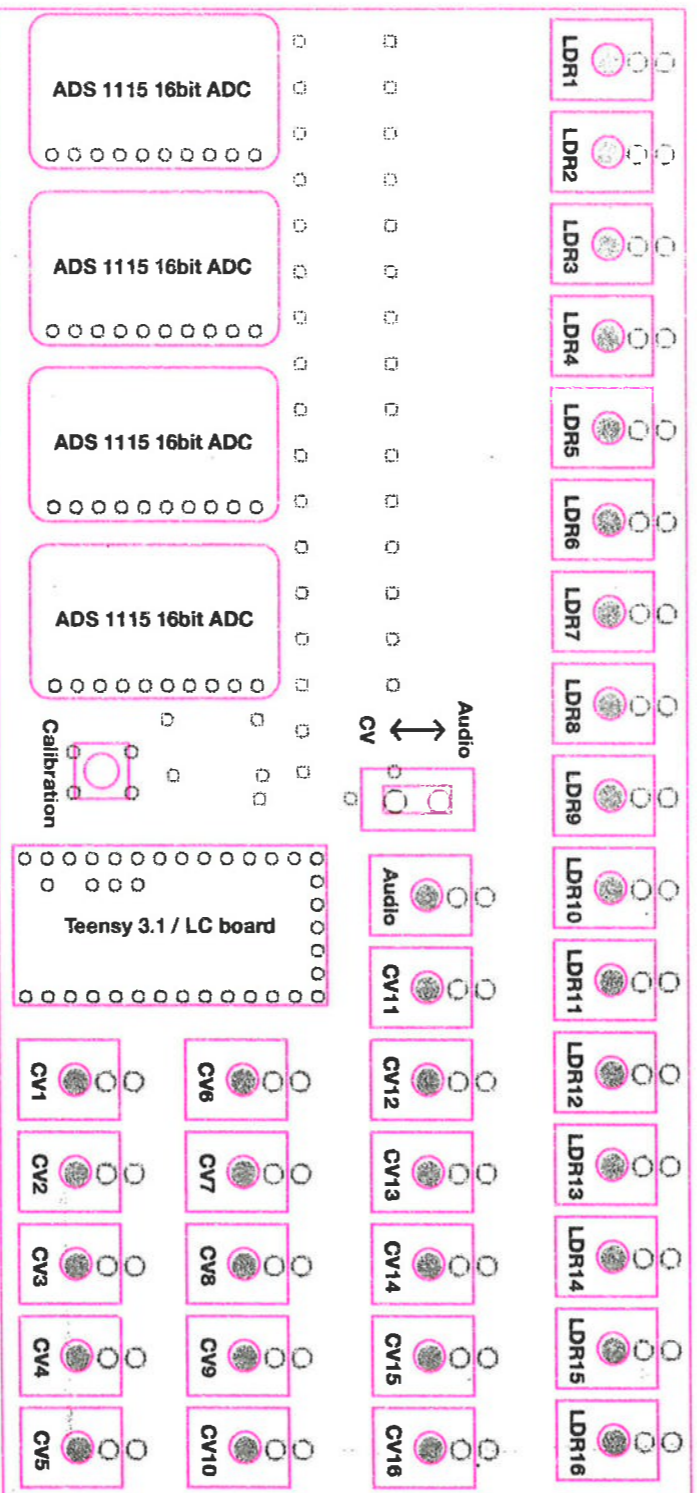### BASIC OPERATION (AUDIO)

1. Make sure the device is disconnected from power
2. Plug the 16 Sensors into the upper row of 3.5mm audio jacks
3. Arrange the heads of the sensors according to your preference
4. Glare works best if the sensors are aimed at a single light source. You can of course experiment with different light setups
5. Power the device on (the sensors will automati-

cally calibrate to the light they are exposed to so make sure they are not obscured)
6. Make sure the toggle switch is in the audio playback position
7. Connect the Audio output plug to an audio playback device
8. After a few seconds the device will start outputting audio whenever you cast a shadow on one or more of the sensors. The volume of the audio signal will increase equivalently to the density of the shadow
9. To recalibrate hold down the pushbutton for 1 sec

ADVANCED OPERATION (CV)

1. Follow steps 1 - 5 of the basic operation manual
2. Make sure the toggle switch is in the CV output position
3. Connect all devices you want to control to the CV outputs
4. After a few seconds the device will start outputting CV whenever you cast a shadow on the sensors to the according CV output
5. To recalibrate the LDRs hold down the pushbutton for 2 seconds