CITIZEN MUSICIAN

OUR BODIES OUR MUSIC

Old Main 171

2pm-3:30pm Friday 6/20/14

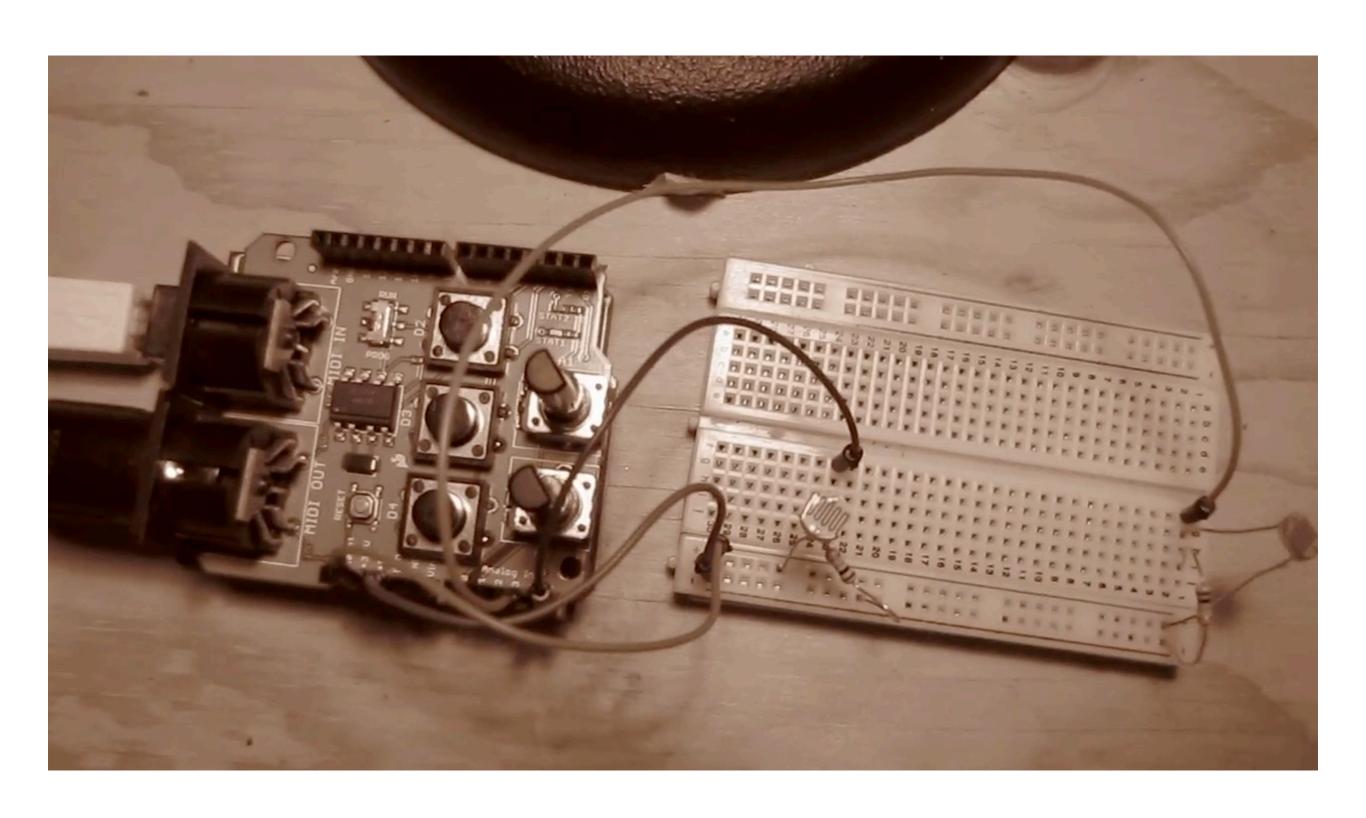
https://talk.alliedmedia.org/node/14275

#bodymusic

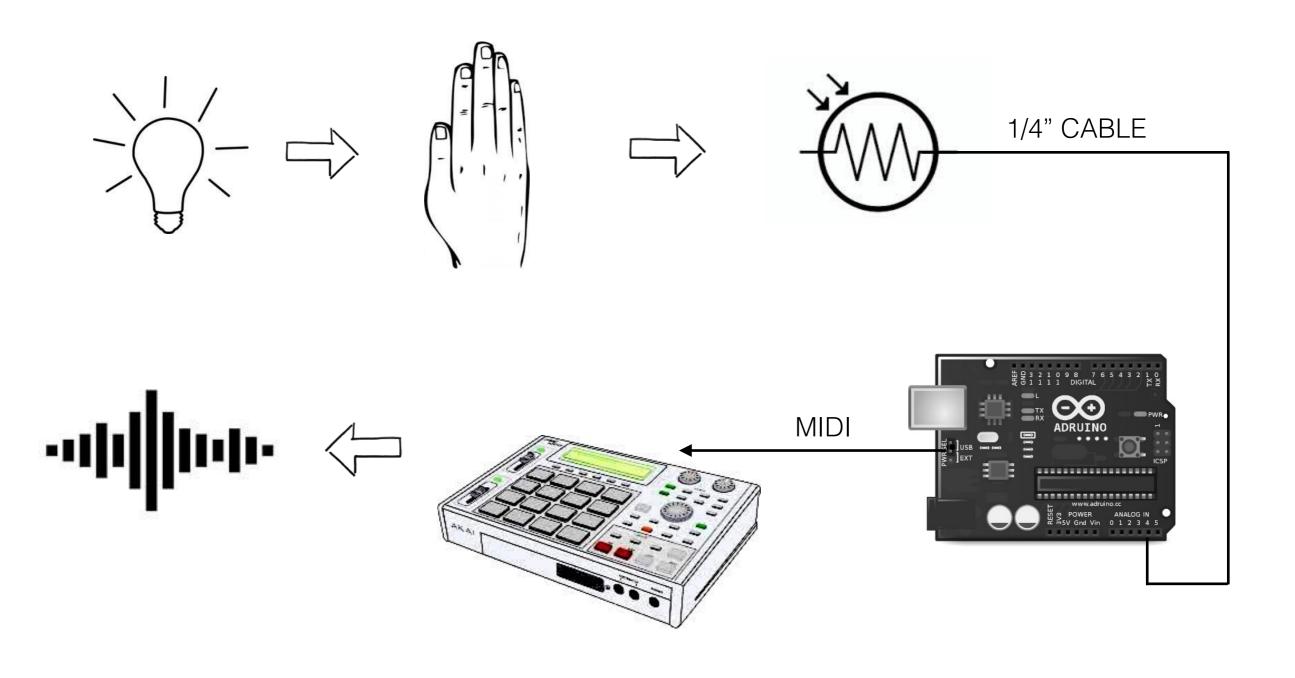
Why this project?

- Lower the barriers to musical participation
- Leverage the space-transformative quality of music to create atmospheres of openness and connection
- Repurpose common objects to get into "second look" mode
- Stretch ideas of traditional song-writing (thinking through modular/crowdsourced composition)

What does it do?



how does it work?



what's involved?

- PHOTO-RESISTORS
- MASON JARS/LIDS
- JACK PLUG/CABLES (aka TS connector or 1/4" mono cables)
- ARDUINO (micro controller)
- MIDI PROTOCOL
- (++
- SAMPLER (MPC 1000)

Workshop Materials:

• 1 photo resistor



• 1 mason jar



• 1 lid



1 audio jack



• 1 foot hook up wire



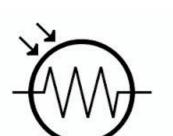
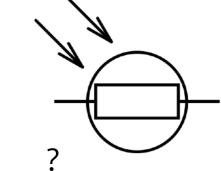


PHOTO-RESISTOR



LDR (Light Dependent Resistor)

 Resistor that decreases in resistance based on amount of light reaching its surface

- cheap, low-power, durable
- Not very precise, but great for general readings (Used in toys gadgets etc.)

Why the Jars?

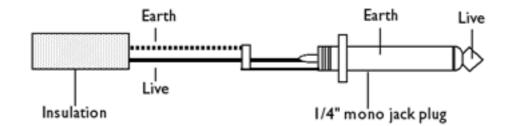
- highly available/cheap material
- good transparent case for the photo-resistor
- conveniently removable lid for wiring
- free-standing
- good size for picking up
- · look cool plugged in



Why the

1/4" jacks & cables?

(A·K·A jack plug/mono cable/guitar cable/ unbalanced TS connector)

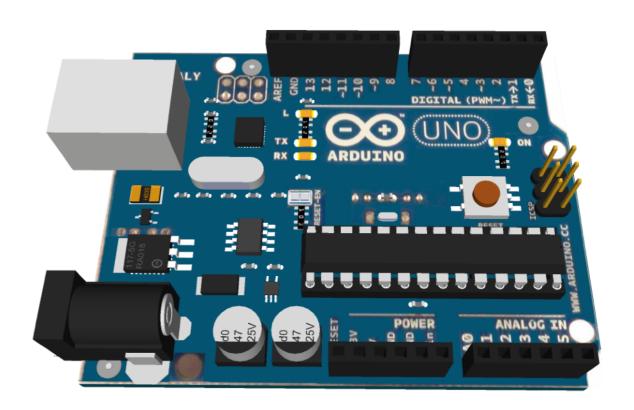


- simple (only two connections)
- available
- versatile/reusable
- musical (jam vibe)

what is an ARDUINO?



- Affordable micro controller
- Bridge between physical and computer worlds
- Open Source development environment
- Large and helpful community





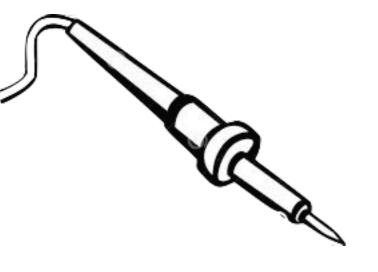
- 80's protocol that allows computers and instruments to communicate with each other
- Doesn't, by itself, create sound, but instead describes the way sound should be created
- Utilizes event messages, specifying notation, pitch and velocity

what is an MPC? (Music Production Center)



- Famous AKAI sampler/sequencer (electronic instrument that plays sounds produced elsewhere)
- MIDI enabled
- Capable of storing and playing back large banks of sounds

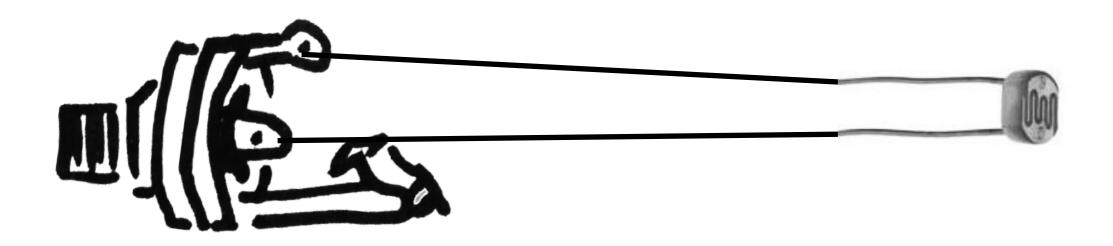
Briefly About Soldering...



- A *very* hot iron is very important
- Tin the tip before beginning (wipe off on a damp sponge)
- Solder follows the heat: heat up components with the iron tip before touching solder wire to the connection
- A little bit goes a long way
- Don't over do it
- Beware the un-shiny

STEP 1

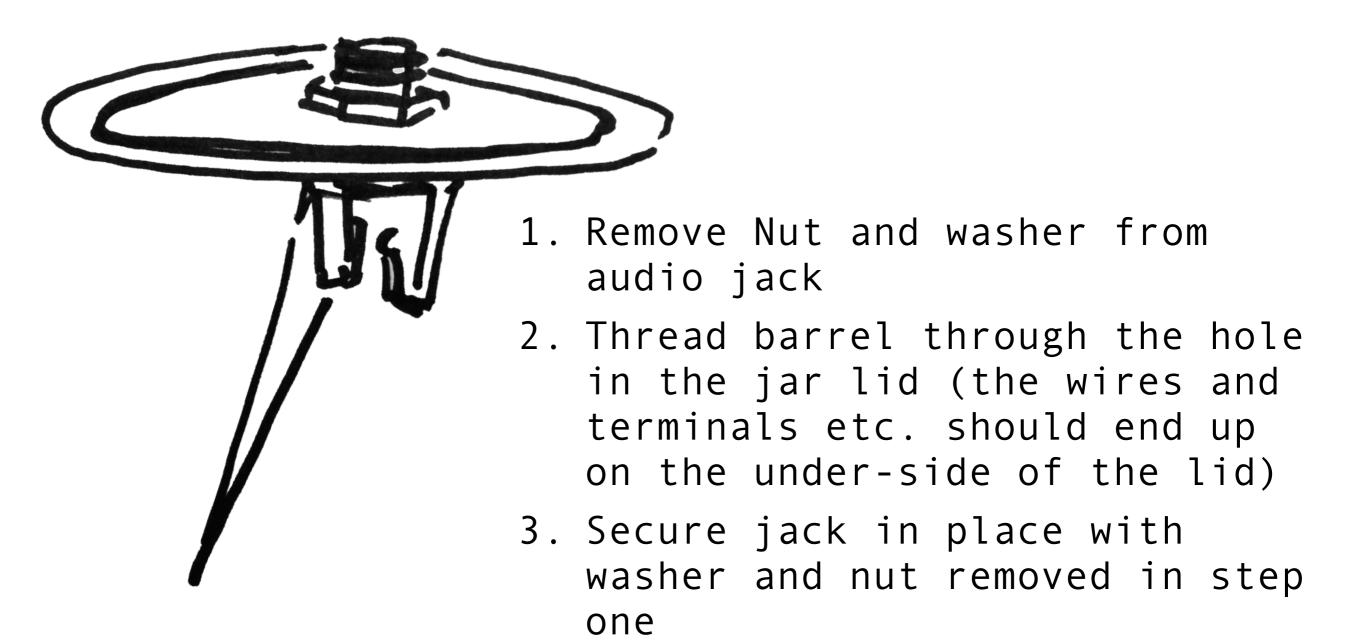
WIRE PHOTO-RESISTOR TO AUDIO JACK



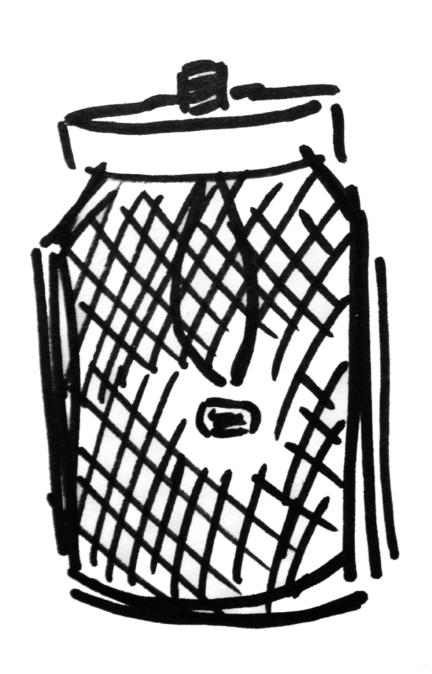
- 1. Cut 2 pieces of wire, each about 5" long
- 2. Strip about 1/2" of housing off all 4 ends
- 3. Use the wire to connect one leg of the photo resistor to one tab on the audio jack. If you would like, use solder to make the connections. Otherwise, twist the wires around each other and secure with electrical tape.
- 4. Repeat for other leg

STEP 2

THREAD AUDIO JACK THROUGH MASON JAR LID

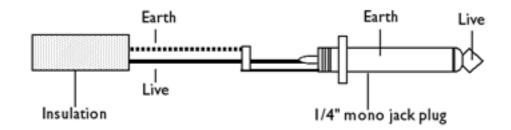


STEP 3 FIX THE PHOTO-RESISTOR IN PLACE



- Choose a spot inside the jar and tape the photo-resistor there, squiggly side up. Use plenty of tape to make it stay.
- 2. Close the lid, and make sure the photo-resistor is still where you wanted it
- 3. Use tape, stickers etc. to cover the outside of the jar, but leave a space so light can shine on the photo-resistor only

STEP 5 MAKE YOUR AUDIO CABLE (if soldering)



- 1. Cut cable to desired length.
- 2. Strip housing off of signal lines on each end (live)
- 3. Twist stranded wire (earth or ground)
- 4. Connect signal to tip connector, ground to ground connector.
- 5. Repeat on other end.
- 6. Do a continuity test with a multimeter!
 - A. Look for this sign on the dial
 - B. Hold one lead to one cable tip (signal), and one to the other— listen for the beep
 - C. Repeat for the sleeve (ground)

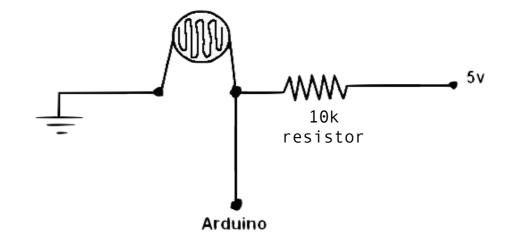
STEP 6

PLUG IN YOUR TRIGGER INTO THE ARDUINO PROJECT BOX



- 1. Plug your cable into your jar
- 2. Choose a number on the project box
- 3. Plug in
- 4. JAM!

WHAT HAVE WE DONE?



- Constructed DIY midi trigger
- Built and used an audio cable to complete the circuit pictured above
- Constructed a physical instrument, ready for human interaction

TAKING IT FURTHER

- Allow for live input possibilities (samples made on the fly, recording etc.)
- Control other parameters with MIDI (filter, effects, etc.)
- Whatever!

RESOURCES

- arduino.cc
- learn.adafruit.com
- pawprince.us/AMC.pdf (This presentation as PDF)
- pawprince.us/CitizenMusician.txt (Arduino code used for this project)

FIND ME

- kerbyferris@gmail.com
- soundcloud.com/pawprincemusic
- instagram: @pawprincemusic

THANK YOU!