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**Connecting the Optron Mini to FL Studio as a MIDI instrument**

**Category:** Technology, arts

**Overview:** Students will get introduced to the Optron Mini, as well as go through step-by-step instructions on how to connect the Optron mini to FL Studio as a midi instrument. Students will get experience hands on with using multiple programs in conjunction in order to achieve a specific goal.

**Suggested time:** 50-100 minutes

**Materials Needed:**

* Computer
* Optron Mini
* FL Studio trial software
* Max 8 software
* Optron software
* LoopMIDI software

**Activity:** play some simple music with synthesizers in FL Studio on the Optron Mini

* Watch introduction video on the Optron Mini
  + <https://media.oregonstate.edu/media/t/1_h569c7y2>
* Download FL Studio trial
  + <https://www.image-line.com/fl-studio-download/>
* Download Max 8
  + <https://cycling74.com/downloads>
* Download Optron software
  + [https:+//github.com/udellc/OptronMax](https://github.com/udellc/OptronMax)

1. Click green “code” box

2. Click download zip

3. Navigate file explorer to: This PC > Documents > Max 8 > Packages

4. Open downloaded zip folder

5. Open “OptronMax-main” folder

6. Move folder named “Optron” from zip folder to packages folder from previous step

* Download LoopMIDI software
  + <https://www.tobias-erichsen.de/software/loopmidi.html>
* Watch tutorial on how to connect everything together
  + <https://media.oregonstate.edu/media/t/1_l7ngsh1q>
* Now return to Max 8 and open the Optron Mini tab. Set number of frets to 3 (This will give you 2 digital frets and an open string for 3 notes total)

Graphical user interface, application

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* Next, go to FL Studio
* Click on channel rack

Graphical user interface, application

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* Add a channel

A screenshot of a computer

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* Choose plugin called “Sakura”. (Try other plugins if you would like. Sakura is just an easy one for this activity).

A picture containing text, indoor

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* Now try playing “Mary Had a Little Lamb” by using the colors from the Optron as reference to the following color-coded sheet music. Read left to right, one table at a time.

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* Good Job!
* Here is a video of me playing this song:
  + <https://media.oregonstate.edu/media/t/1_43soifof>
* Once you get the hang of it, try this next one.
* For the next song, go back to the Optron Mini window and change the number of digital frets to 6.

Graphical user interface, application

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* Try and see if you can tell what song this is after playing it:

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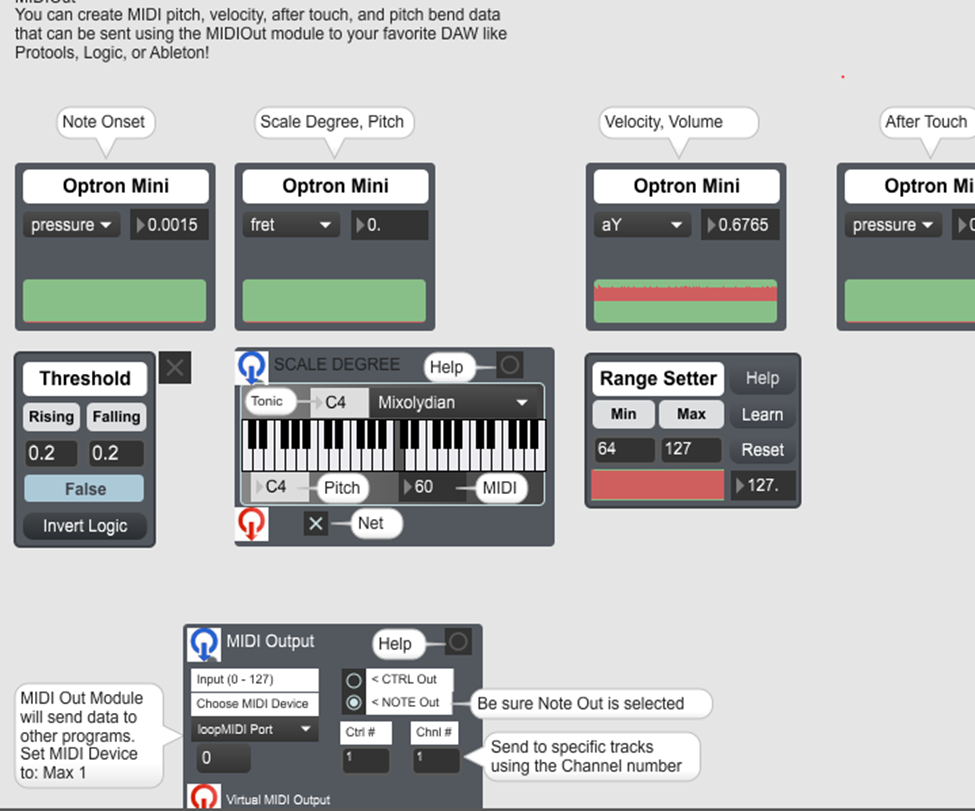
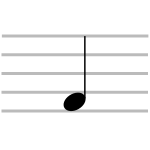
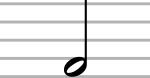
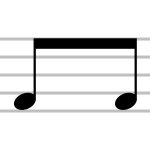
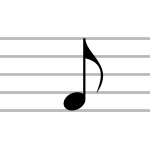
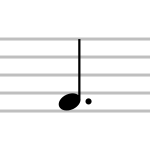
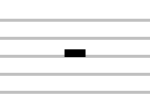
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* Here is a video of me playing the song:
  + <https://media.oregonstate.edu/media/t/1_vn4njcax>
* \*The song name will be found at the bottom of the last page
* **Question: what happens when you change the number of digital frets? Try setting it to 20. Try 50. What are your findings?**
* **Musical terminology**
  + **Scales:** A differing collection of some, but not all notes on a piano. Songs are written in a particular scale, which holds all of the notes that will make up the song. This influences how the song will sound and make the listener feel.
    - **There are various types of scales**. The most common are major (happy sound), minor (sad sound), or natural (in between sound). There are many more specific and particular types of scales, as well as scales used traditionally in different ethnic groups. (You will see some of these soon in the lesson).
  + **Octaves:** The range on a scale from one note up to the next same note at a higher frequency.
    - **The different types of octaves are** Ionian (from C to C), Dorian (D to D), Phrygian, (E to E), Lydian (F to F), Mixolydian (G to G), Aeolian (A to A) and Locrian (B to B).
  + **Tonic:** The note that a scale begins with. On the Optron Mini, this will be the “open string”
* Now that we understand what scales and octaves are, we can change them to our liking on Max 8!
  + From the “Hello World” window, open “External DAW MIDI Instrument Tutorial” window.
  + The red circled box will be where you can change the scale that you are playing on the Optron Mini (click it and a dropdown list will display showing you all of the different scales you can choose are).
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  + Just to the left of this, you can alter the octave you play by selecting the key that the open note on the Optron Mini will play (to adjust this one, click and drag).
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  + Try and set up your own scale and play around with it.
* Notation in sheet music: The next song you will try to play uses modified sheet music. In order to understand what you are looking at, I will lay down some general information for you.
* **Musical symbols**
  + **A quarter-note**
  + **a half-note (two quarter-notes)**
  + **an eighth-note (half of a quarter-note) The one to the right is when there are two in a row.**
  + **a dotted quarter-note (one and a half quarter-notes, or 3 eighth-notes)**
  +  **A 2 quarter-note long rest where you do not play anything**
  + **A eight-note lone rest where you do not play anything**
  + **This symbol is for piano players to release a pedal but disregard it when you see it later.**
* Next, we are going to bring the challenge up a notch.
* Change the number of digital frets to 9
* Open the “External DAW MIDI Instrument Tutorial” window
* By clicking and dragging your mouse down, change where it says “A4” to “C4”. This will change what the note is when you have no fingers on the digital fret board.

Graphical user interface

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* Click on the dropdown menu on Scale Degree where it says “Ionian (major)”, and select “Mixolydian”

Graphical user interface

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* Try to play “Las Mañanitas” with the color-coded sheet music provided. Take note that this song is in ¾ time instead of the usual 4/4 time, so each measure will have 6 eighth notes instead of 8.
* Here is the song:

Shape

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* **Question: How does changing the type of key you are in affect the notes you can play?**
* **Question: How does playing in certain keys make you feel?**
* Now try and make your own song with the Optron Mini. You can use the tables in word, or write it down some other way.

**Outcome goals:**

* **Basic imputing of values into a digital system**
* **Basic understanding of FL Studio**
* **General understanding of how to play Optron Mini**
* **Model how computer hardware and software work together as a system to accomplish tasks**

Works Cited:

<http://www.tubescore.net/2012/04/las-mananitas-sheet-music-for-violin.html>

Twinkle Twinkle Little Star