

Customizing the MIDI Bass Pedal Software

Disclaimer

This project is provided without any warranty, guarantee or other assurance. It is provided As-Is, and it is up to each person to determine suitability and whether their skill level is appropriate.

Customizing

All of these customizations have you make changes to the program in the Arduino software. After you make the changes, save the project. Then compile and load the new program into the controller, as described in Step 9 of the Instructable. Remember to set the RUN/PROG switch to PROG while loading new software, and to RUN when using it to send MIDI notes.

Double-Trigger

Depending on the technology used in the pedals you get, you may experience double triggering when you press a pedal quickly. If you get double triggering, you can avoid this by increasing the DEBOUNCE value. The default value is 1500. Increasing this value will also cause the pedal to release more slowly when you release a pedal.

Slow Release

The bass pedals I used had significant double-trigger problems when I stomped hard on them. The springs would bounce a bit. For this reason I made the DEBOUNCE value high, which causes a note to release more slowly when you release a pedal. It does not affect how quickly a note starts. You can lessen the slow release by reducing the DEBOUNCE value from the default 1500.

Wrong Octave

If you want the bass pedals to generate notes an octave higher, take the line that reads:

```
int keyOffset = 0;
```

and change it to read:

```
int keyOffset = 12;
```

If you want it two octaves higher, change it to 24. If you want it an octave lower, change it to -12.

Wrong Velocity

The bass pedals, by default, send a MIDI velocity of 100. MIDI velocities go from 1-127. If you want the pedals to generate the maximum velocity, for instance, change the line that reads:

```
int keyVelocity = 100;
```

and change it to read:

```
int keyVelocity = 127;
```

Different Pins or More Notes

If you use different pins to connect the switches to, or need to add more notes than the 13 that my bass pedals us, take a look at the mapping table, which is this block of text:

```
struct key keys[] =
{
  { 22, 25, 0, 0 }, // Db red
  { 24, 26, 0, 0 }, // D red
  { 26, 27, 0, 0 }, // Eb orange
  { 28, 28, 0, 0 }, // E orange
  { 30, 29, 0, 0 }, // F yellow
  { 32, 30, 0, 0 }, // Gb green
  { 34, 31, 0, 0 }, // G green
  { 36, 32, 0, 0 }, // Ab blue
  { 38, 33, 0, 0 }, // A blue
  { 40, 34, 0, 0 }, // Bb violet
  { 42, 35, 0, 0 }, // B violet
  { 44, 36, 0, 0 }, // C brown
  { 48, 24, 0, 0 }, // C brown
  { 0, 0, 0, 0 } // end of list marker
};
```

There is one line for each pedal switch. The first number is the Mega 2560's digital pin number the switch is connected to. The second number is the MIDI note number that pedal should generate. The line with four zeros always needs to be the last one (the program uses it to tell when it gets to the end of the list), so if you add more, add them above that line. What comes after the “//” on each line is ignored, so you can put anything you like there.