for sound editing. Visit http://www.audacityteam.org and download a copy; there are some good Audacity tutorials available on YouTube as well.

If you have read "Part 7 – Why an Arduino Nano Instead of an Uno", you know that I prefer a Nano because the available Expansion Board (AMAZON ASIN: B07MGVC18K) makes it easier to connect jumper wires to the Arduino. I also discovered that I can take the same expansion board, cut it down the middle on a band saw, cut it again perpendicular to the first cut (making the cut at the ninth connection point), then placing the MP3 player chip into the two pieces to make an custom expansion board for the MP3 player, screw terminals and the whole nine yards! I hot glued the expansion board pieces onto a piece of styrene to make it easier to mount on a fascia board. One piece of 0.040" thick styrene should do the trick. This makes connecting the player to the Arduino and amplifier easier and more secure (and because the MP3 player doesn't need to use pins 9-15, we only need connection points for pins 1-8 and sometimes pin16). Neat!
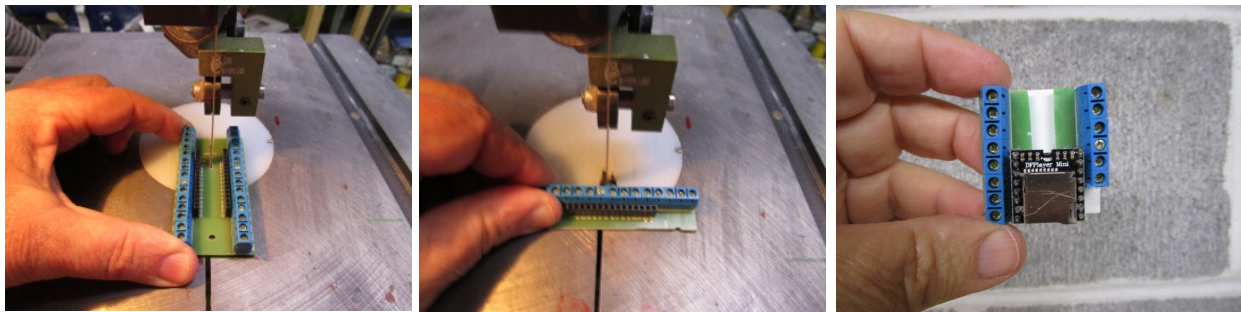
__But be careful!__ Power tools like band saws can be intimidating and dangerous if you are not experienced, especially when you saw through the metal pieces that make up pin 9, or any other metal part of the original expansion board. Always follow basic safety instructions and wear eye protection. If you feel uncomfortable making these cuts, then don't attempt them and find someone with a bit more experience to help; there is no shame in staying safe.

I use the other half of the remaining cutoff to build an expansion board for the amplifier. Just 11 pins are needed here, so I made the crosscut at the 12th pin. Again, "Safety First".

Now on to the wiring diagram. In this version I use a small amplifier between the MP3 player and the speakers, so I can change the volume without changing the software. Alternately, I could have eliminated the amplifier (and saved $4), but this would have required that I remove wires from pins 4 and 5 of the MP3 player, and then wire the speaker into pins 6 and 8 of the MP3 player. For my money, the amplifier is worth the extra cost. If you want to try it without the amplifier first, well it is a simple change later on to add an amplifier.

I have placed an Arduino sketch which plays the sound of a lumberjack felling a tree on GitHib at http://www.github.com/daackm, so visit the site and open the "Arduino-Animations-Tutorials", and copy the "Part 9" code. Open a new sketch in the IDE, delete all the original code, paste my code into the IDE and save the sketch to your PC.

I do need to emphasize the details about placing your files on the SD card. To play a sound file on the MP3 player I recommend, you need to reference each file by its numeric place on the card, not by its name; If you want to play the 3rd file, the line in the sketch would be "myDFPlayer.play(3);". Keeping track of which sound is in which file is tricky, and I suggest that you name your files starting with a number, such as "001Chopping Sound.mp3", or "002Falling Tree.mp3", and then copy the files to the SD card in order, one by one; if you want to update a sound file, you can't just replace it, you need to reload the entire set, one by one. And don't place more files on the card than you need for your current animation.

Also, take a look at the line "boolean play_state=digitalRead(8);". Notice that in the wiring diagrams we have a jumper running from pin 16 of the MP3 player to pin D8 of the Arduino. This "digitalRead" on Arduino pin 8 allows us to monitor whether the MP3 player is still playing a song, or has completed the task. In our demo we take a 10 second break after playing the sound file before we repeat the operation. If you look ahead at my Carousel project you will see in the code that I play multiple sound files with differing lengths, which I play in random order, so it is important to know when one song ends so I can start another tune at the appropriate time, and this is made possible by doing a digitalRead on pin 8 of the player.

I do owe a debt of thanks to Fernando Koyanagi and his video at https://www.instructables.com/id/MP3-Player-With-Arduino . His work was particularly helpful in getting my audio projects up and running.