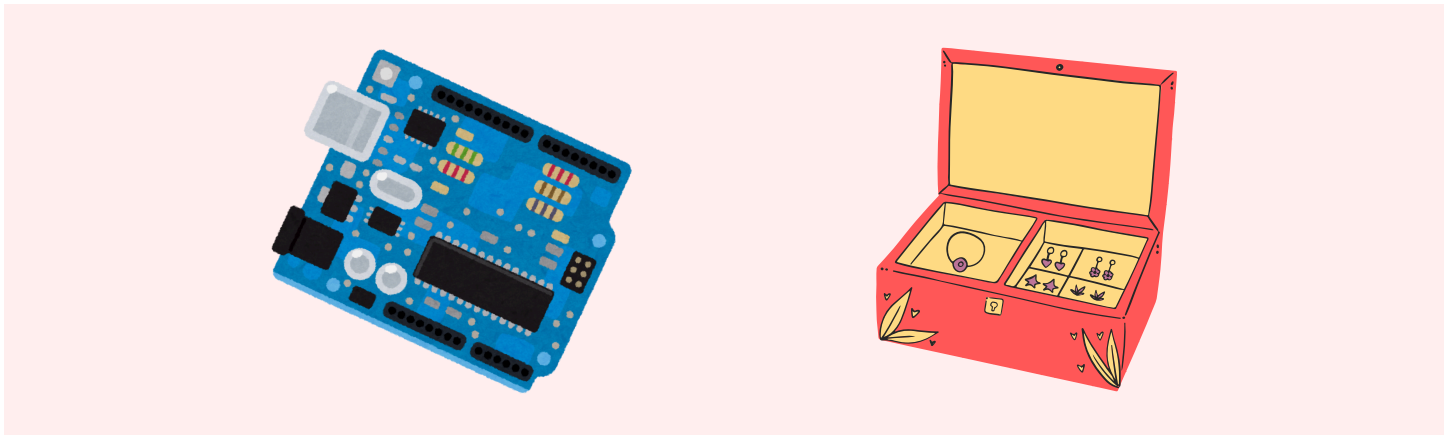


Music Playing Jewelry box

Abstract

For this assignment my partner and I decided to make a jewelry box that would be able to play music once the user opens up the lid. There are also LED lights that are displayed on the outside of the mirror that are also programmed to become dimmer and brighter to the user's liking. The jewelry box is made out of wood and contains three drawers that the user can open and close. The bottom drawers contain the arduino that powers the LED lights and the music. The rest of the wiring can be found behind the mirror on the lid behind a false wall that can be taken off and on.

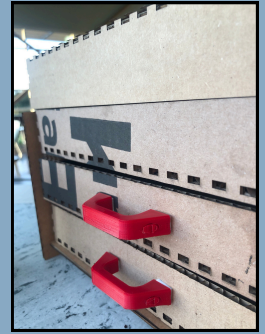


Design

The wooden jewelry box was made by cutting wood via the laser cutter. This was an incredibly difficult task because I needed to ensure that the measurements of the box were correct and in-line with the rest of the measurements. I also needed to make sure that the wood thickness correlated to the design. Because since I was using finger holes to wedge the wood walls into one another the thickness of the wood mattered. If the thickness of the wall was too thick then it would not have fit into the finger hole joints. If the thickness of the wood was too thin

then it would have easily slid right off. This process required hours of prototyping with cardboard and wood to guarantee the quality of our box was top notch.

We also incorporated a handful of 3D printed specimens onto our box to add to the decoration of the jewelry box. We added some 3D printed roses on the top of our box to add to the girly aesthetic of the jewelry box. We also 3D printed a character from the Sanrio (Hello Kitty) collection, which was a character named Cinnamoroll. We placed Cinnamoroll on the top and center of the lid. We also added some 3D printed handles to be attached to the drawers so the user can easily pull the drawers in and out.



Development

For the mechanics of this project an Arduino along with a potentiometer, DF Player, and a tilt sensor were used to program the box. The DF Player was used to play music on the box via a small micro chip that contained MP3 music. The Arduino activated the DF Player to start playing music once the user opened the lid of the jewelry box. The Arduino knew that the user was opening the lid of the box because there was a tilt sensor attached to the lid of the box which activated the DF Player to start playing the music. The LED lights along the edge of the mirror were able to become dimmer and brighter by the user turning a potentiometer that was attached to the Arduino.

