E_GUITAR
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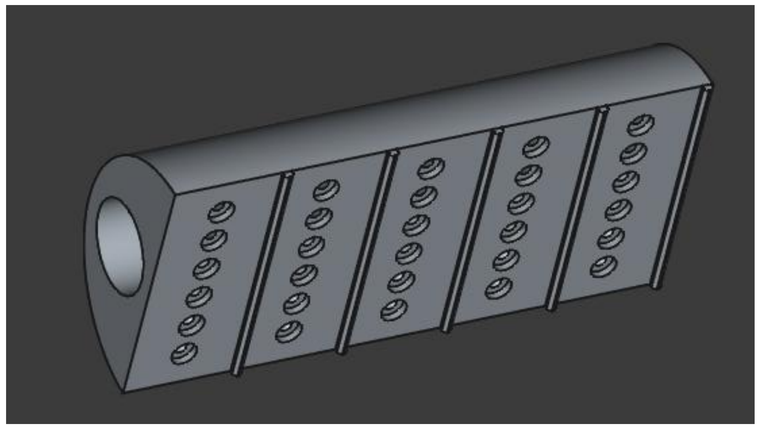
Abstract

The E_Guitar is a touch sensor-based guitar that has no strings and operates on capacitive touch sensing. This will be good for those who have limitations such as carpo-tunnel or arthritis. Many people wish to play the guitar but for many different reasons, cannot. This will be a solution for some of these people. The E_Guitar can also be enjoyed by those without limitations just for a fun new experience in guitar playing at an affordable cost.

Methods and Materials

3D Neck Model



E_Guitar With TouchSense Circuit

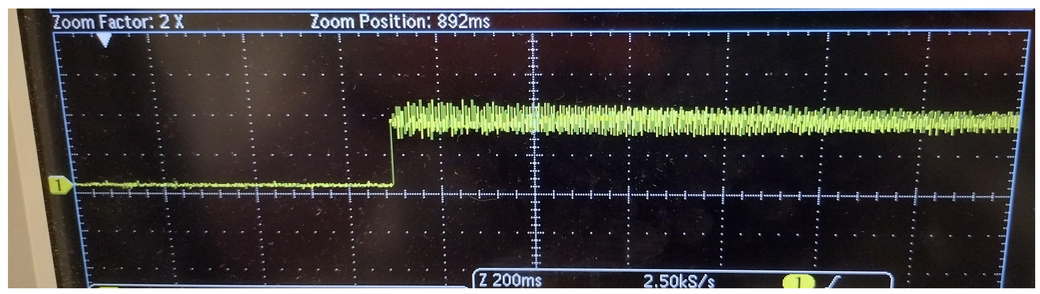
Background

There are many products available on the market that are similar to E_Guitar but none that offer a real-time guitar playing experience. Many products found, such as Guitar Hero, limit the user to playing a full chord with the touch of a button or producing a series of notes or even a full song just by touching a button. There are also products available that offer synthesized sounds with the touch of a button or sensor. E_Guitar will give the user a real guitar playing experience by matchiung fret positions and replacing the string with a touch sensor on each individual fret.

Results

The project was successful in generating different notes for the corresponding touch sensors on the neck of the guitar. .wav files were read from an SD card and generated through the digital to analog converter for each copper pad touched. For the scope of this class, only 5 frets were used. This allowed thirty different tones to be generated. An additional six notes were generated on the strum pad.

Tone Being Triggered By Touch Sensor



Future Direction

In the future, I would like to make a full-scale guitar with all 22 frets. This would also include an E_Capo, non-standard tuning with the push of a button, effects such as chorus, distortion and fuzz, Looping and recording capabilities, and an auxiliary output that is capable of plugging into an amp.

Acknowledgements

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