MATLAB Ukulele Tuner

Abstract
The idea for this project is to create a program in MATLAB that will act as a tuner for a ukulele instrument. When the program is run, a buzzer will sound the frequencies for the notes and a button will trigger each frequency. This is a simple project that can be used by anyone.

Introduction
The tuner is programmed using MATLAB and triggers a buzzer noise to tune the ukulele. The concept is relatively simple and easy to understand. People can use this for a quick and easy way to tune their ukulele and get accurate results.

Methods and Materials
For this project, MATLAB was used along with a breadboard, arduino, and a couple wires to connect a buzzer and button. I also used a ukulele to test the tuner.

The first part consisted of me wiring up a buzzer and push button. Then I went into MATLAB to write a code that would allow for a buzzer to ring four different frequencies, as well as each note being triggered by pushing a button. Once the user walked through all four frequencies and matched the sound of their ukulele to the sound of the buzzer, the program displays how the ukulele is now in tune.

Results
When comparing the ukulele sounds to a tuner on an iphone, the ukulele was in tune. Therefore this proves that the ukulele tuner is an accurate tuner and can be used to tune your ukulele!

Conclusion
Next I would like to record analytics on the average time it takes to tune a string.

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