Digital Project - Piezo Drums - Phase 2 Report

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Introduction

The project is about making a basic piezo based drum kit using piezo sensors and Arduino. The drum kit will consist of bass drum, snare drum, hi-hat, crash plate, floor tom, high tom and mid tom.

System Overview

The piezo sensors will be waiting for a hit to be detected. As soon as they are hit, the voltage across them will change and will detected by the Arduino, which in turn will play the corresponding sound through PC (Using Ardrumo)
A block diagram of the system for only 1 piezo sensor is given in Fig. 1. A similar circuit can be built for 8 piezo sensors
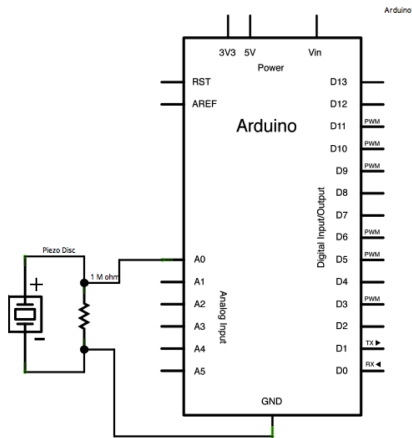

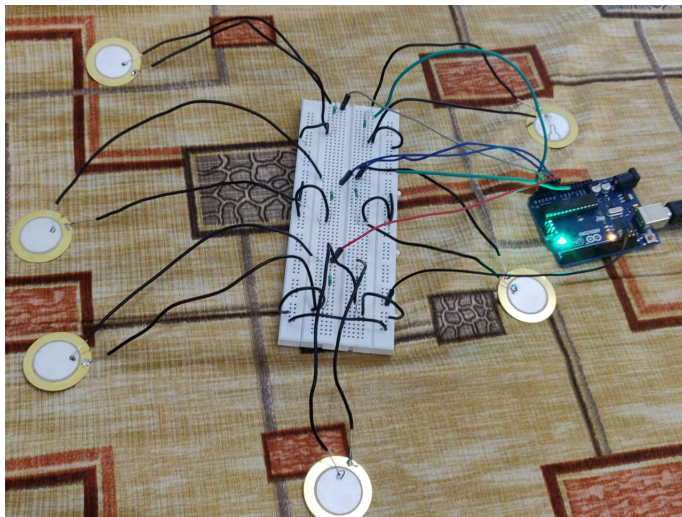Fig. 1: Peizo Sensor to Arduino Circuit.

Fig. 2: Snapshot of the circuit.

Implementation Details

Through the Analog inputs of Arduino we will detect when a piezo sensor is hit and convert the analog input to MIDI output using the HairlessMIDI and loopMIDI. We can play the sound corresponding to that piezo sensor through any music app.

Phase 1 Result

All of the phase 1 goals are completed. We have designed a circuit diagram and the Arduino Code.
With the help of Ardrumo, we will play the sounds.

Phase 2 Result

All of the phase 2 goals are completed. We have a working model which can play the basic drum beats. Although there is an issue of latency in our model.

Conclusion

With the help of Piezo sensors and Arduino, we have created a basic drum kit.

References

[1] HairlessMIDI

[2] loopMIDI