Report

About

We have created a musical instrument which is basically around the principle of sound modulation of piezo buzzer using different voltages. Our project accepts the user input as notes and plays them in real time as the code is executed. We have the scope to add other notes if a user wants to define them. We will be taking the input from the serial monitor and will be processed by Arduino micro processor to direct the output as different notes being played as a musical tone. We have added an ultrasonic sensor module which is an add on to control the whole system using hand. It is used to turn the music ON/OFF. If a hand is present in the proximity area, the rhythmic sound will stop playing and will continue to play if removed.

Software Used for Simulation:- Tinkercad

Components used

- Arduino Uno
- Jumper cables
- Piezo buzzer
- LCD screen
- Breadboard
- Resistors
- Ultrasonic Sensor
- Potentiometers

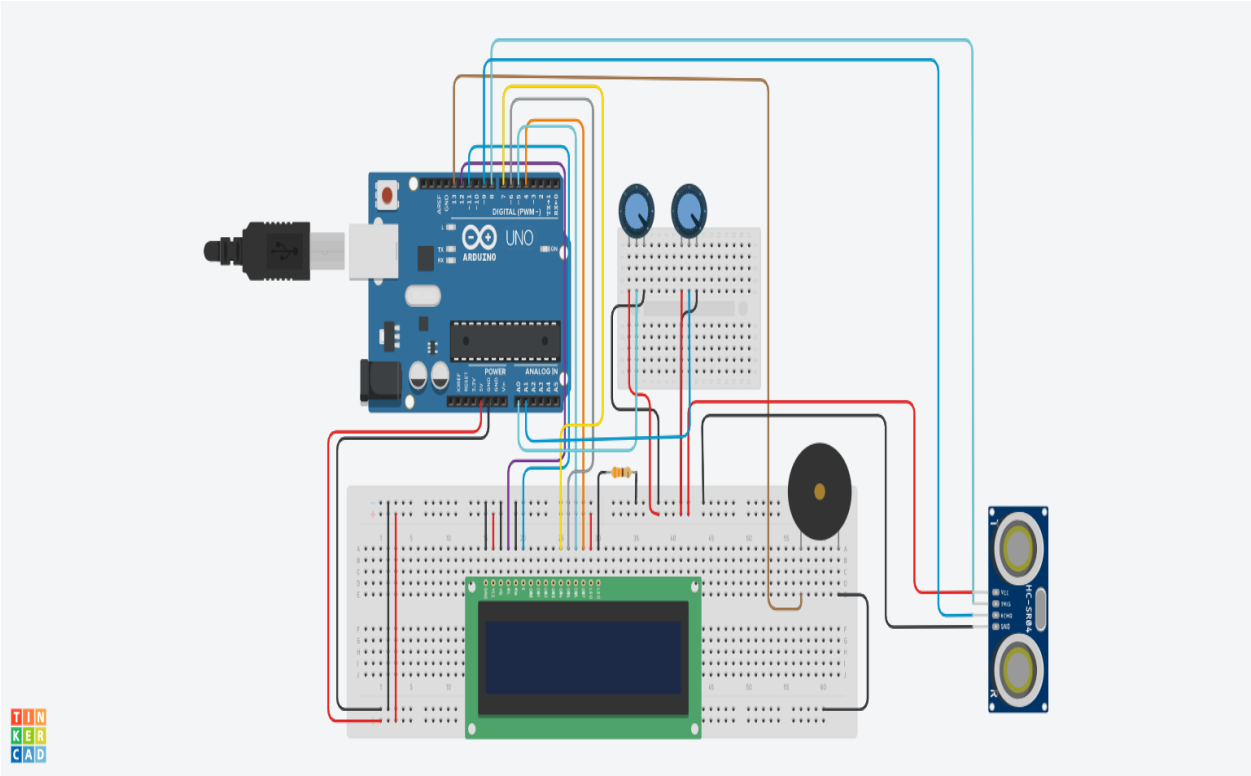
Working of the project

Serial monitor is used to enter the notes of music which is to be played using the project. LCD display is used to display the current string of notes played by the arduino. User uses the Serial monitor to give input

Working

1. User is required to input the notes using the serial monitor.
2. Arduino will process the notes to be played one by one to produce musical sound.
3. The desired sound or music will be produced.
4. Ultrasonic sensor is used to detect the user's presence if the user's hand is not in the device's proximity the device won't wait for any input from the user i.e. notes to be played.
5. The two potentiometers are used to change the frequency and pitch of the buzzer.

Circuit Design



How to use the Device?

1. Make sure you are not more than 30cms away from the device
2. Enter the note or a combinations of notes you want to play
3. If u want to give a time gap between two consecutive notes then just give a space between them while entering them in the serial monitor
4. If you want to adjust the frequency of the notes then use the first potentiometer
5. If you want to alter the pitch of the notes then use the second potentiometer

Team Members

- **Sakshi Naik**
- **Mrityunjay Shukla**
- **Hardik Choudhary**