VOLTORB
SEPTEMBER
2021

Problem Statement

Mrs. Zelner is a music lover. Not a day in her life goes without music. Keyboard is her favorite instrument and she excels in playing it. Her grandson has come to visit her during vacations and the country has just announced lockdown due to Covid -19. Here is a situation where Mrs. Zelner has dropped the keyboard from upstairs, and the keyboard is now completely shattered. Her grandson is bored and he wants to listen to her play. Being her neighbour, why don't you give her a helping hand in this situation?

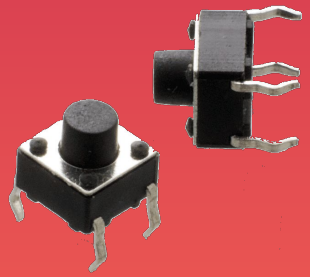
Instructions:

1. Help Mrs. Zelner by building a mini keyboard that satisfies her grandson.

2. Usage of Microcontroller is allowed.

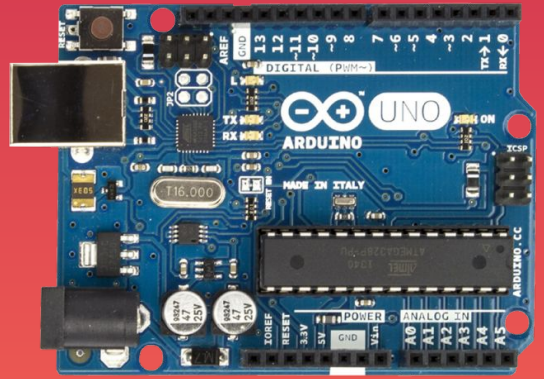
3. Creativity and additional features attracts more points.

MEET THE GANG



Push Buttons

Acts as key for each musical note



Microcontroller

We'll program this to behave like an electronic keyboard

Piezo Buzzer

This is our mini speaker that outputs tones

ARDUINO

tone(pin, frequency);

tone(pin, frequency, duration);

Generates a square wave of the specified frequency (and 50% duty cycle) on a pin. A duration can be specified, otherwise the wave continues until a call to noTone(). The pin can be connected to a piezo buzzer or other speaker to play tones.

FREQUENCY CHART

Sa	Re	Ga	Ma	Pa	Da	Ni
C	D	E	F	G	A	B
523 Hz	587 Hz	659 Hz	698 Hz	783 Hz	880 Hz	987 Hz

PROCEDURE

PUSH BUTTONS

Connect the Push Buttons to Arduino for each musical note.

ARDUINO

Use the tone() function to generate a musical note upon pressing of the respective push button.
For Example:
To play the note ‘Sa’:

tone(buzzerpin, 523);

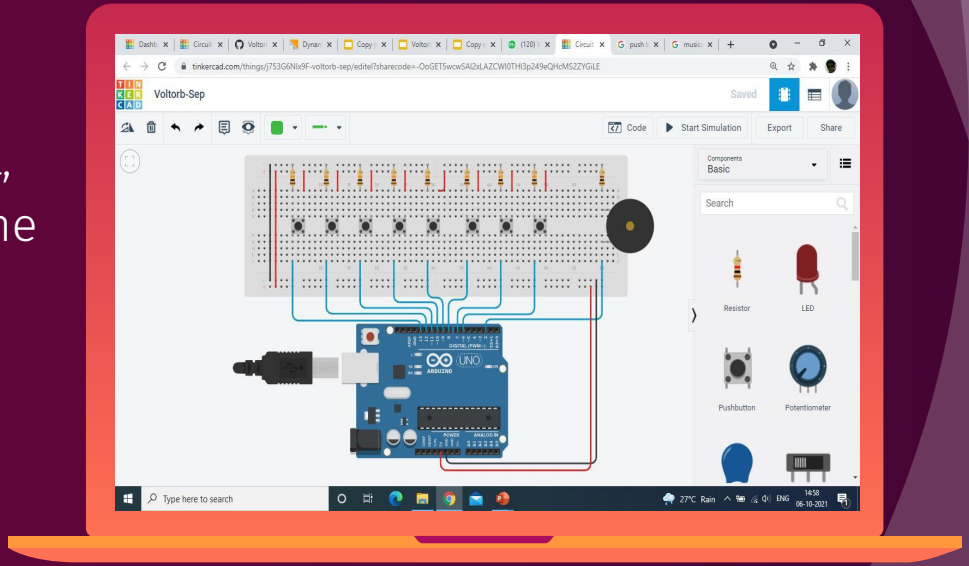
PIEZO BUZZER

The Piezo Buzzer should be connected to any one of the PWM Pins on Arduino.

A Digital Pin is also a PWM pin if it has (~) symbol next to the pin number.

Simulation

To simulate this project, you may use some of the Easy to Learn -User Friendly & Free to Use applications like Tinkercad.



THANK YOU

IEEE UVCE PES

Working Simulation:
https://drive.google.com/file/d/1eOXyqniHzJdNx15SzdP2tPXlABKhPDub/view?usp=sharing