



Course name: Engineering Computer graphics (CS - 209)

Group: Com-19 A

Students: Aisuluu Arstanbaeva

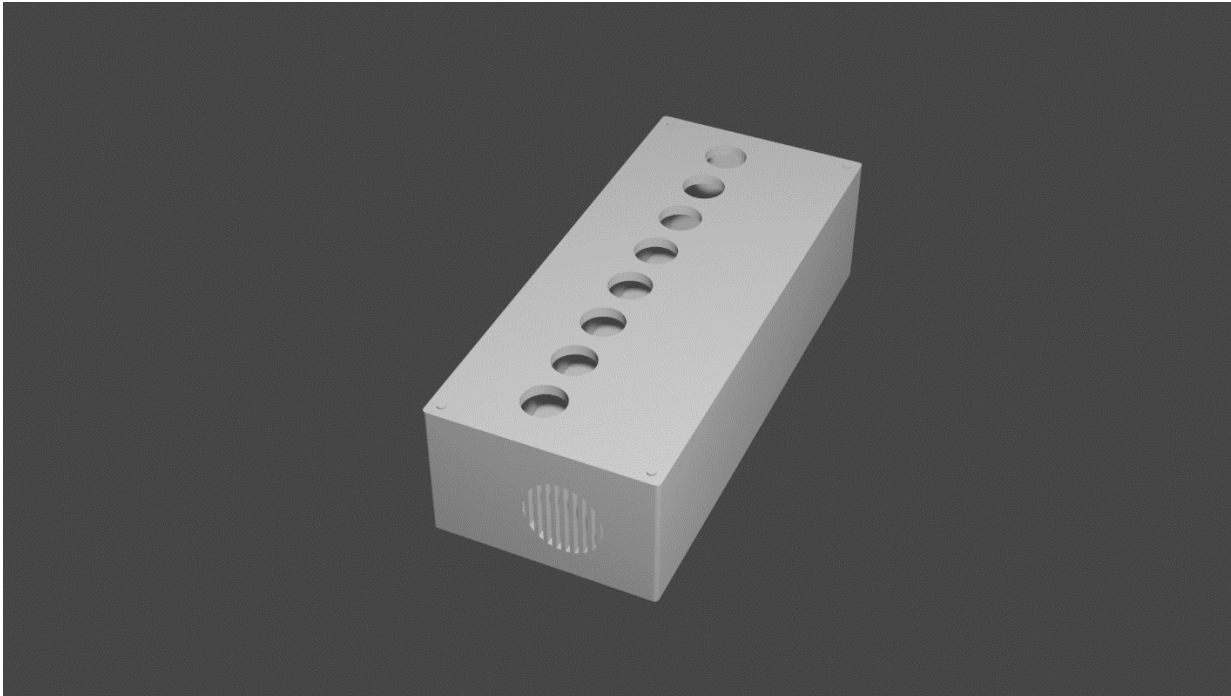
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Project Description

SoundBox2.0 is a name of our Project. It is some kind of automatic musical instrument represented as a box which produces musical notes ('do re mi fa sol la si'). We think it is very cool when you push some buttons and produce different notes that are making a certain sound. It happens because of some processes going inside the box. People cannot see what is going on from the inside while enjoying the sound on the output.



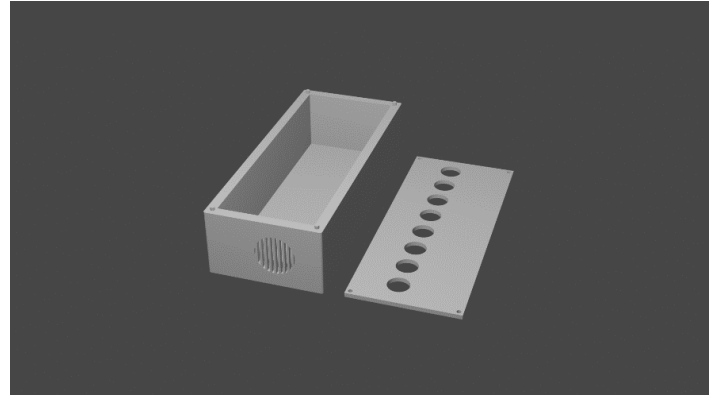
Detailed Instruction

Programs Used: OpenScad (The Box),

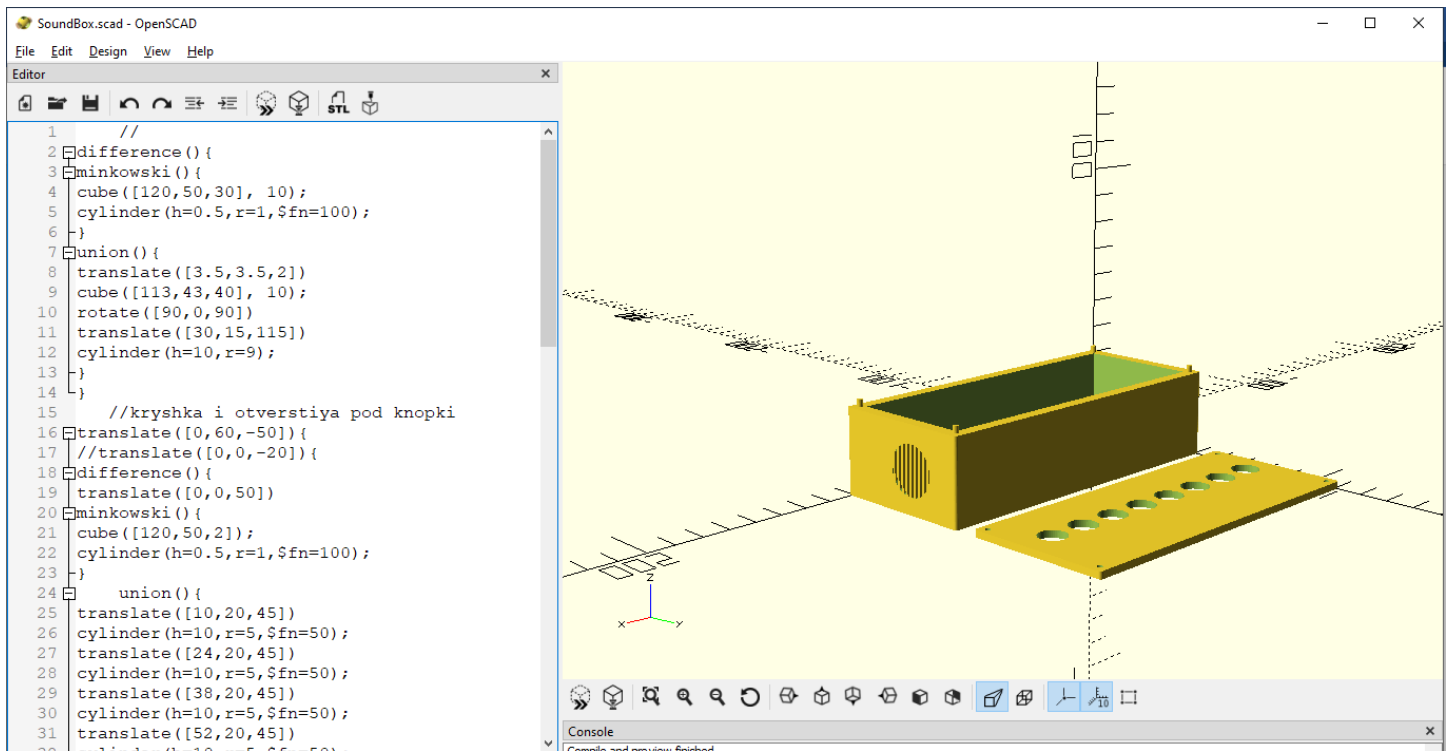
Tinkercad (Scheme),

Blender(Pictures)

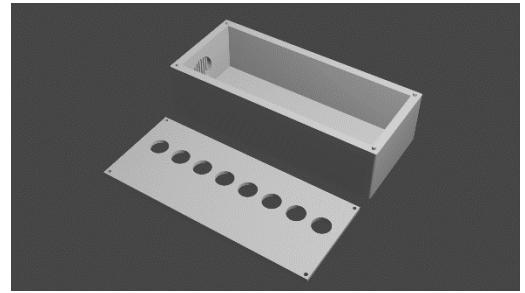
Name of the model: SoundBox2.0 (2.0 stands for current year)



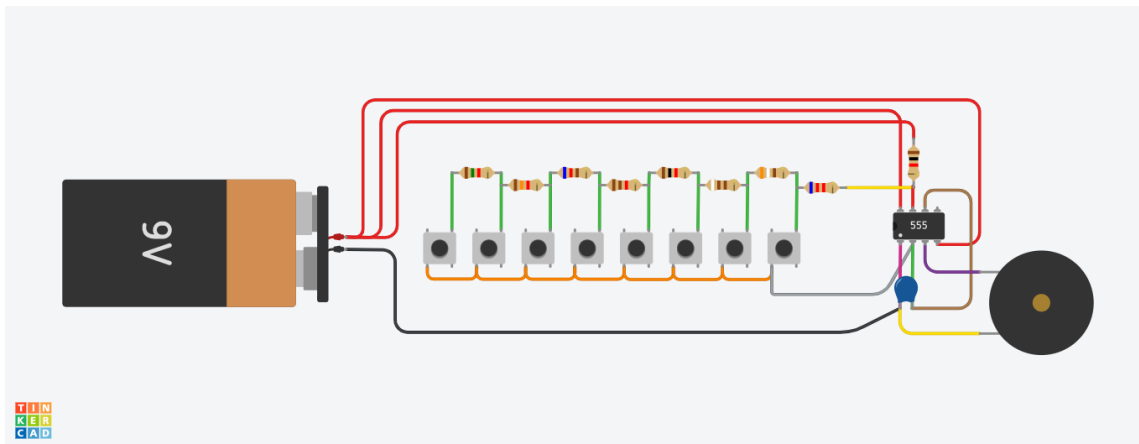
The Box for our product is modelled in OpenScad:



In order to make good quality pictures we imported the model created in OpenScad to Blender and took pictures of the SoundBox2.0 there.



In order to make it work and produce certain note we need a scheme. Therefore, we used Tinkercad to build the working scheme that looks like this:



As you can see, the scheme consists of the battery (9 V), 8 pushButtons, Timer, Resistors, Piezo Element. The Timer(555 microscheme) is used to work with siren. This is the way Piezo Element produces the sound. Contact from the buttons passes through resistors. Resistors have different resistance, so there is a difference in electric current which is power supplement for Piezo element, that is why the sound produced is different from each other. Resistor is needed to hold the electric current and to not make it burn out.

Components

Name	Quantity	Component
PIEZO1	1	Piezo Element
R8	1	1.5 k Ω Resistor
R10	1	1.3 k Ω Resistor
R11	1	620 Ω Resistor
R12	1	1.1 k Ω Resistor
R13 R17	2	1 k Ω Resistor
R14	1	910 Ω Resistor
R15	1	390 Ω Resistor
R16	1	6.2 k Ω Resistor
S9 S10 S11 S12 S13 S14 S15 S16	8	Push buttons
U2	1	Timer
C2	1	100 nF Capacitor
BAT2	1	Battery 9 V

SoundBox2.0 is a modern box that can be helpful for you if you would like to learn to play the piano or synthesizer, but not sure if you can do it. SoundBox2.0 is designated for beginners at the age of 6 – 10 years. It is easy to learn and not hard to use.

