COS10004-COMPUTER SYSTEM

Due date:17/10/2022

Assignment 1 - Music Player

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Introduction

This report is explainer of logic circuit of UI of a music player. This circuit has 5 main flowing buttons:

Introduction

● On / Off

● Play / Pause

● Volume Increase / Decrease

● Next / Previous Track

This circuits using the flowing idea that lecture give and components such as gates, Led hex displays, buttons, splitters and flip flops in order to produce the desired output.

Circuit Description and Design Outline

When you switch off the music player using the buttons at the top of the logic circuit, all the LED lights in the circuit turn off as well. They are also linked to the HEX digits display, which is turned off while the player is in the Off state.

Additionally, there are also two distinct Play and Pause buttons with two unique Play and Pause

LEDs:

● When the PLAY button is set to on, the system enters the PLAY state:

- The Play LED is turned on

- The Pause LED is turned off.

● When the PAUSE button is set to on, the system enters the PAUSED state:

- The Play LED is turned off

- The Pause LED is turned on.

● When the Play button is set to off

- The Pause button has no effect on the system state.

The Volume + and Volume - buttons allow you to adjust the volume of the music player. These buttons use a 3-bit adder to produce the increased/decreased volume.

When the user presses the Volume + button, the volume LED will shift from 1 to 8. When the volume is set to 8, a NAND gate adjacent to the Volume + button ensures that nothing happens when the user presses it (maximum volume).

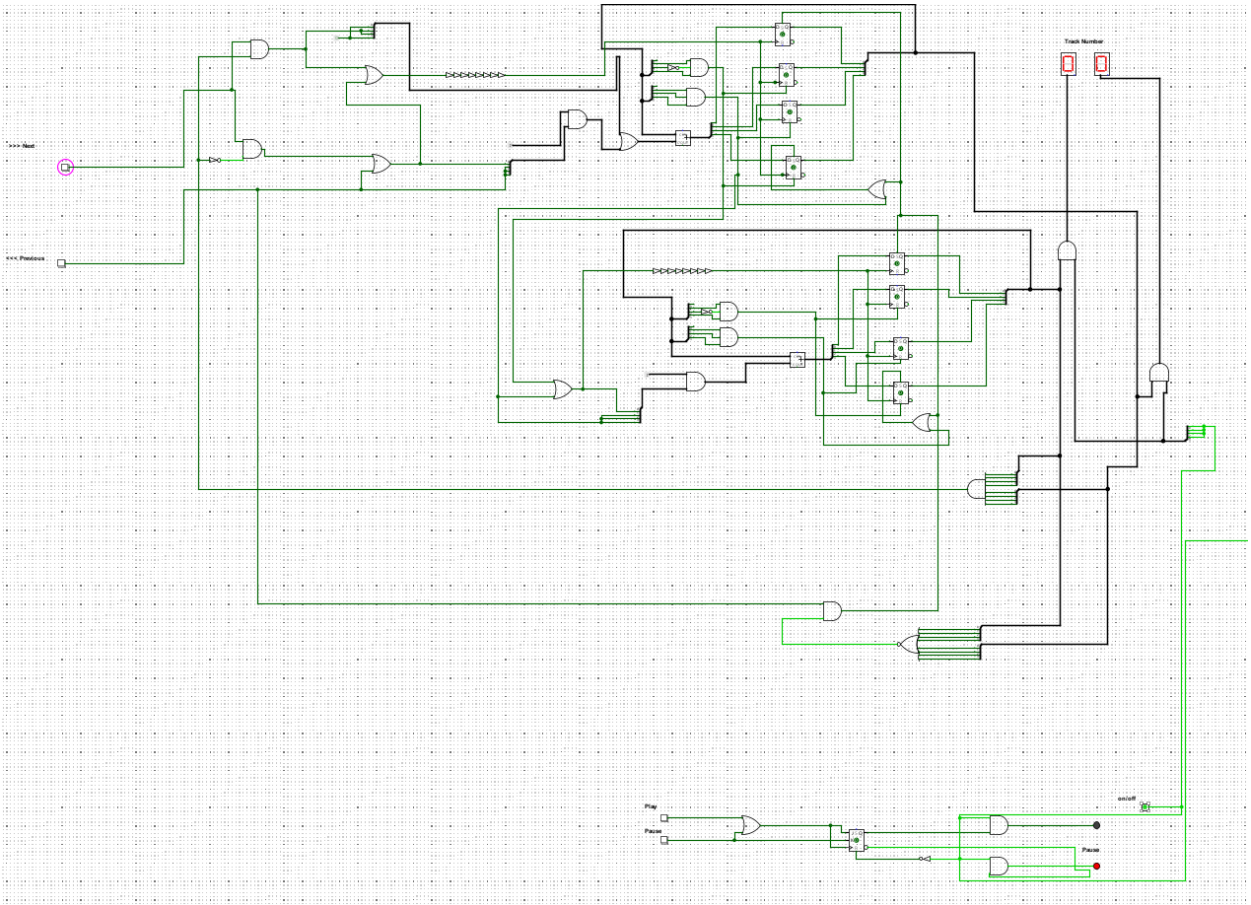
When the Volume - button is pressed, the volume LEDs may change from 8 to 1. When the user presses the Volume - button after all of the LEDs have been turned out, an OR gate ensures that nothing happens.

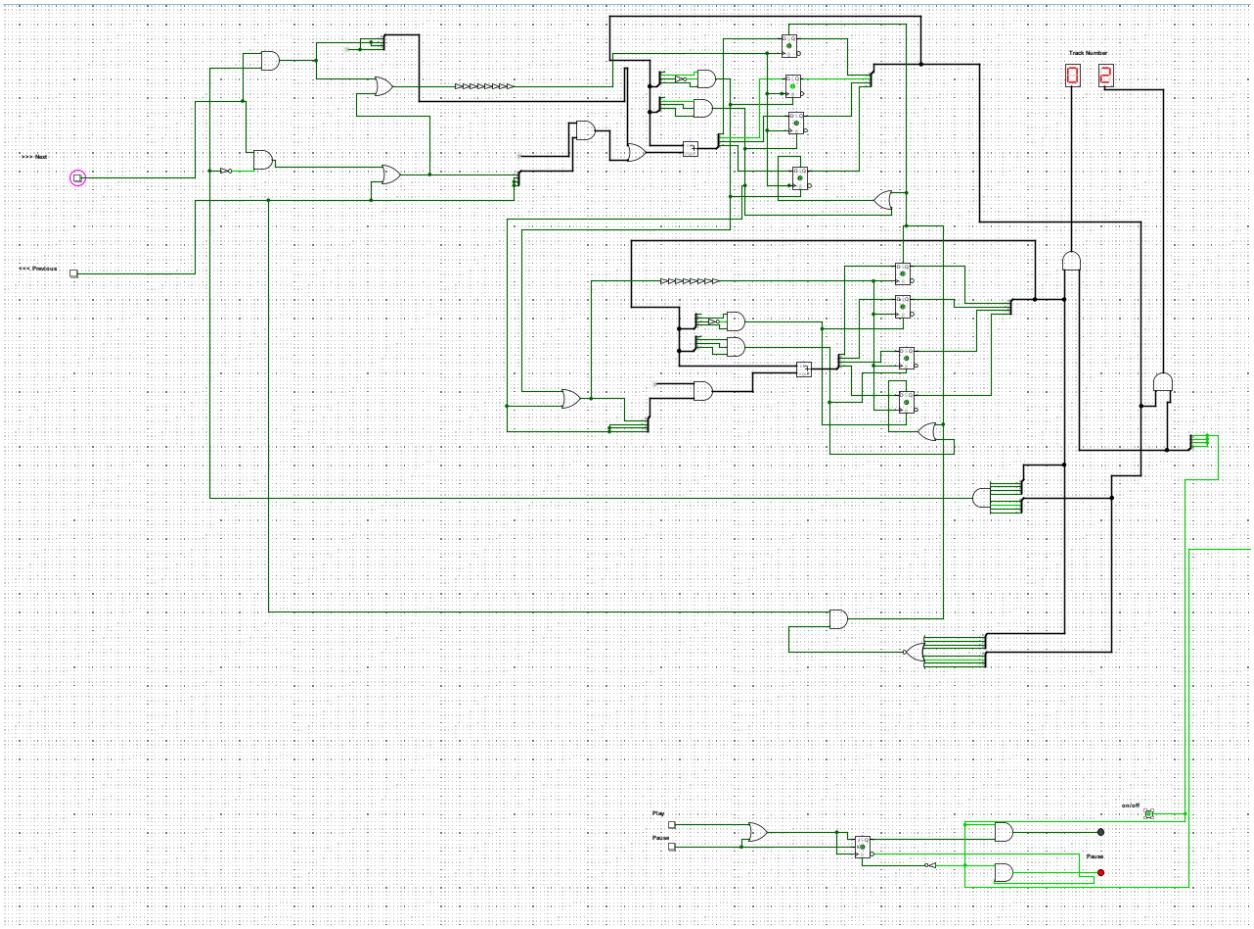
ANDONE and ANDTWO are the two AND buttons located next to the Volume buttons. ANDONE ensures that if the volume is not 8, clicking Volume + sends 1 and increases the volume by 1 while also adding 001 to the volume, turning on the next output LED, whereas ANDTWO ensures that if the volume is not one, it transmits 1 and decreases the volume by 1 while also adding 111 to the volume, turning off one output LED.
The Next and Previous track buttons, which are the last two buttons, are used to switch between the tracks on the hex display.

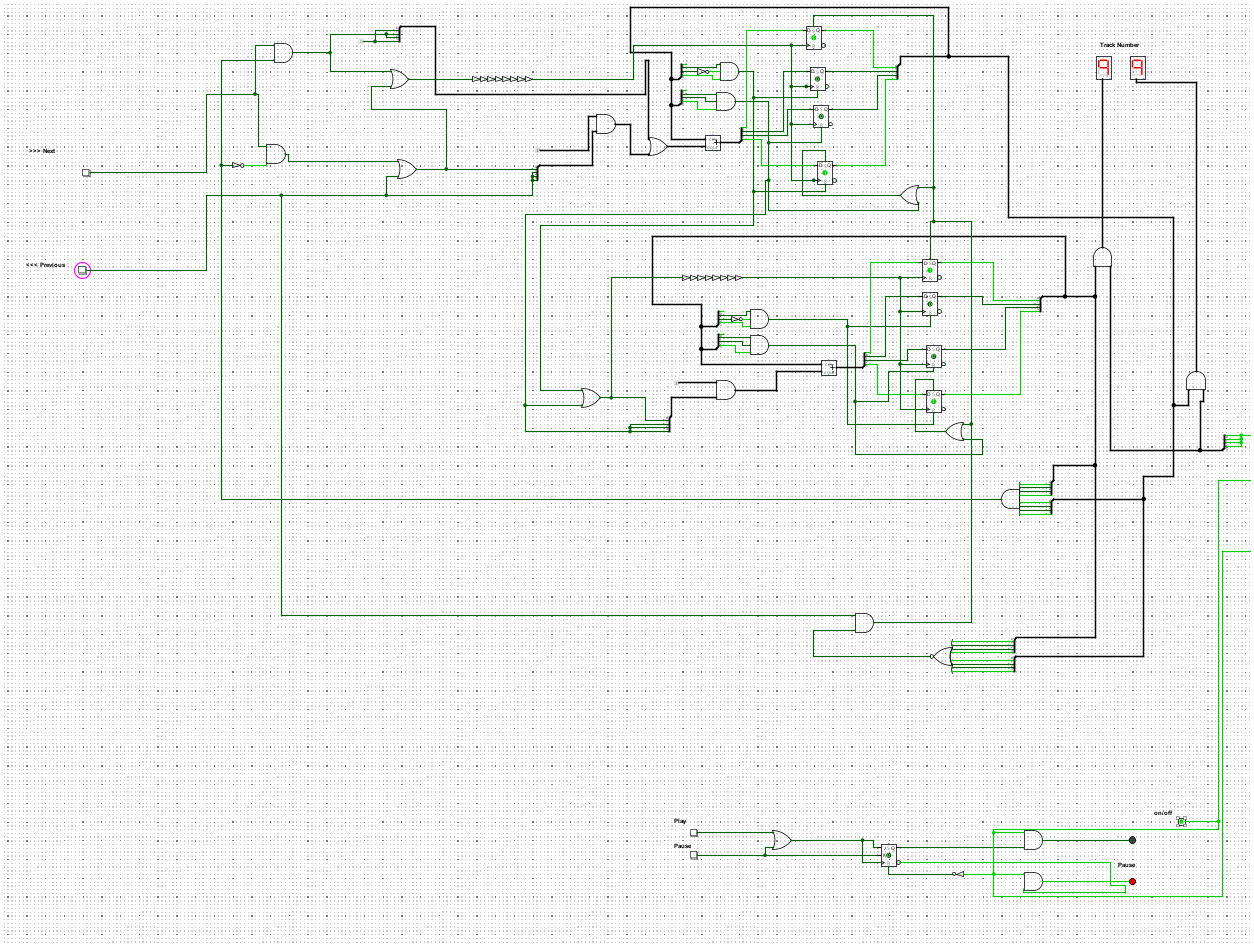
This section of the circuit also includes two four-bit adders. When the next track is clicked, one input for each adder will be like the input for each HEX display, and the other input for each adder will be 0001 for the previous track and 1111 for the subsequent track.

Screenshots

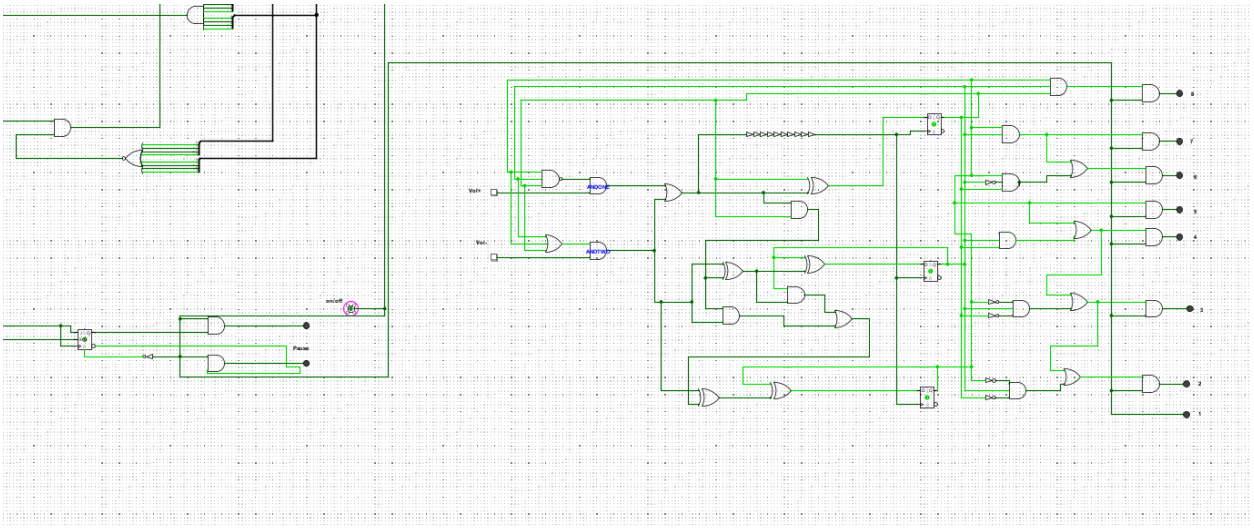
The next/previous system and on/off button

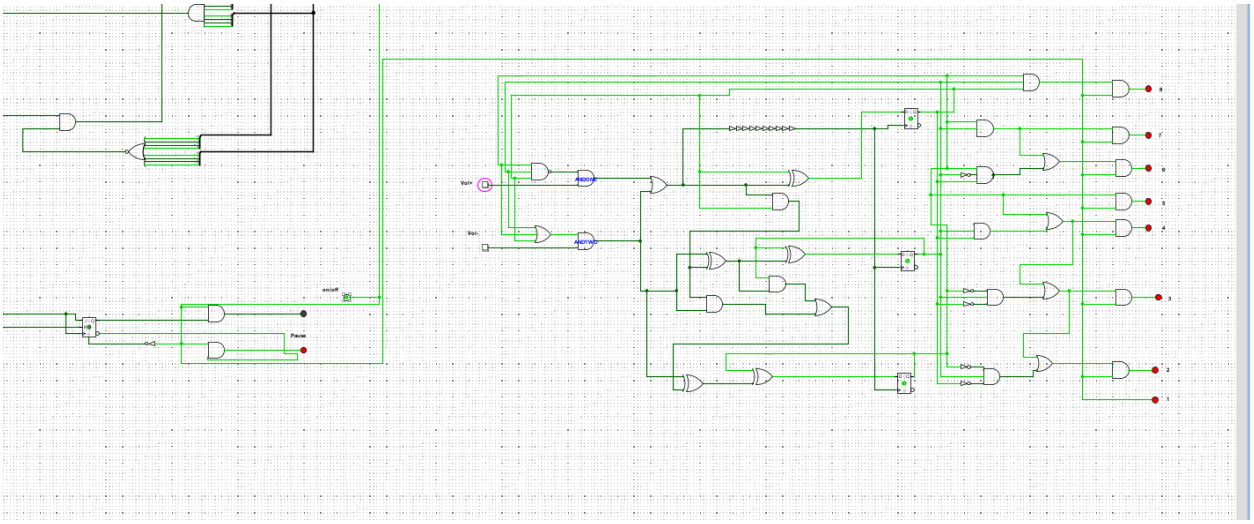


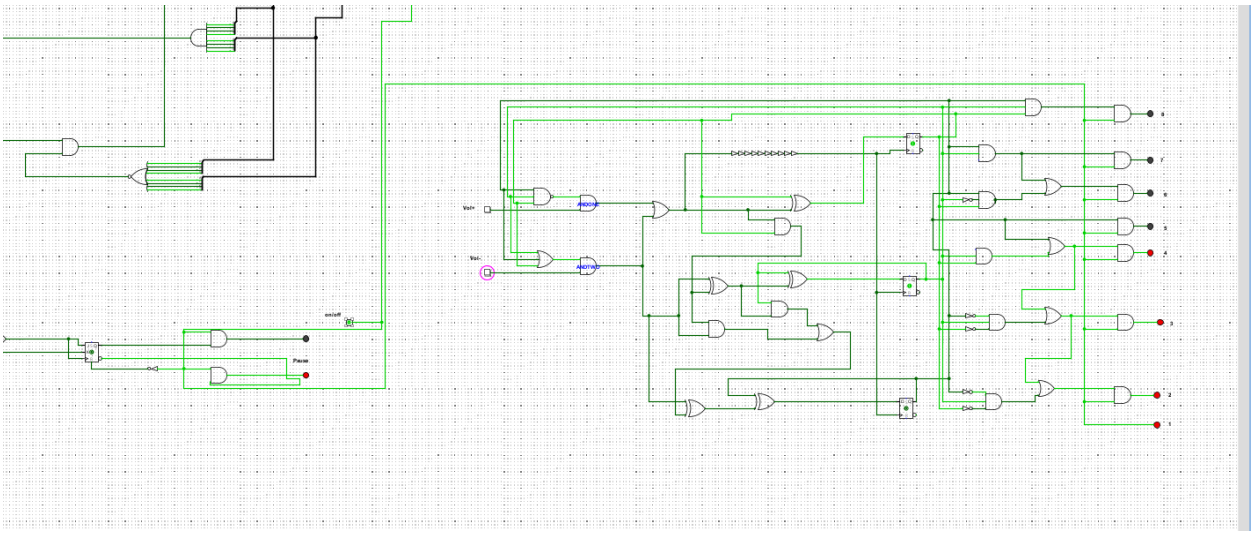

Track Number
0
2
>>> Next
<<< Previous
Play
Pause
on/off
Pause


>>> Next
<<< Previous
Track Number
Play
Pause
on/off
Pause

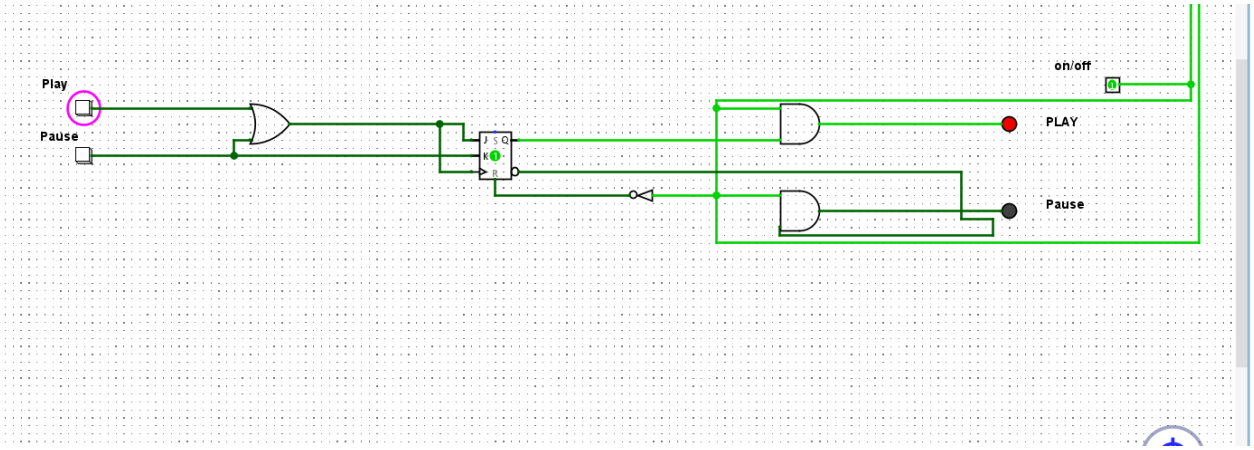
The volume+/-

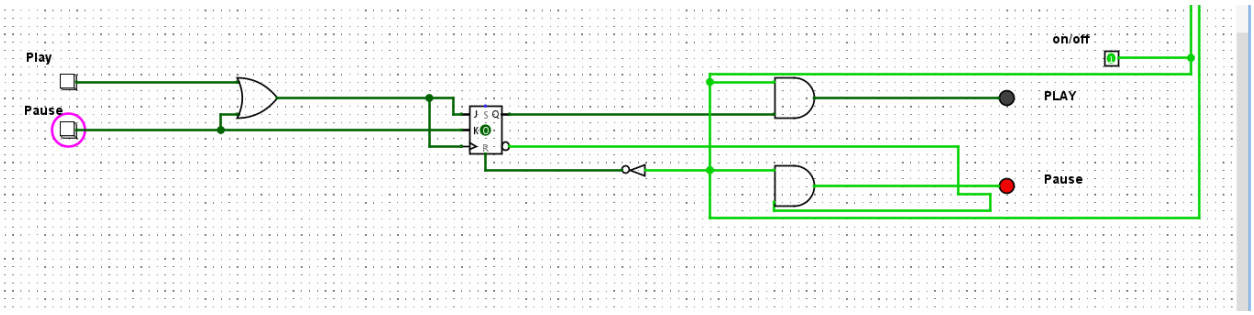

on/off
Pause
Vol+
Vol-
6
7
8
5
4
3
2
1





PLAY/PAUSE




Play
Pause
J S Q
K
R
on/off
PLAY
Pause