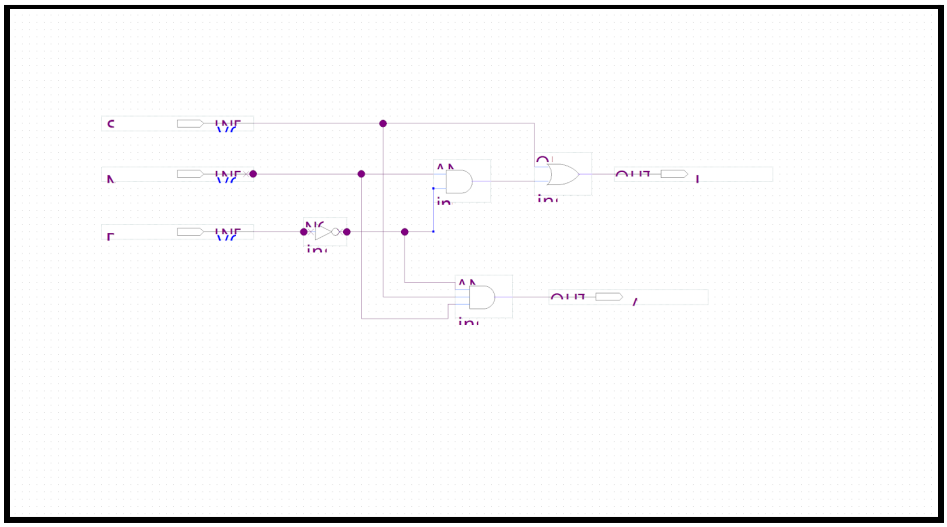
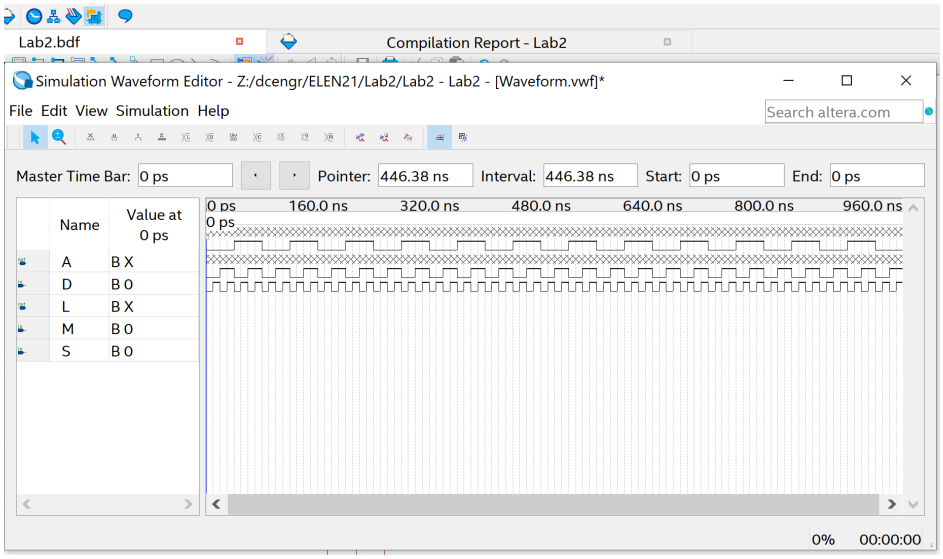
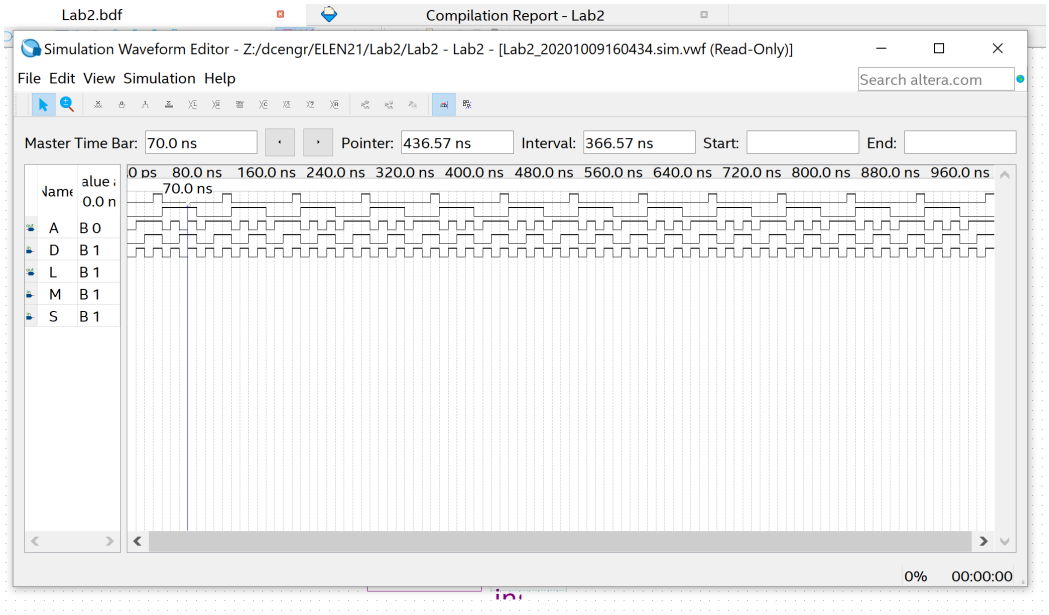
Jason Vu
10/9/2020

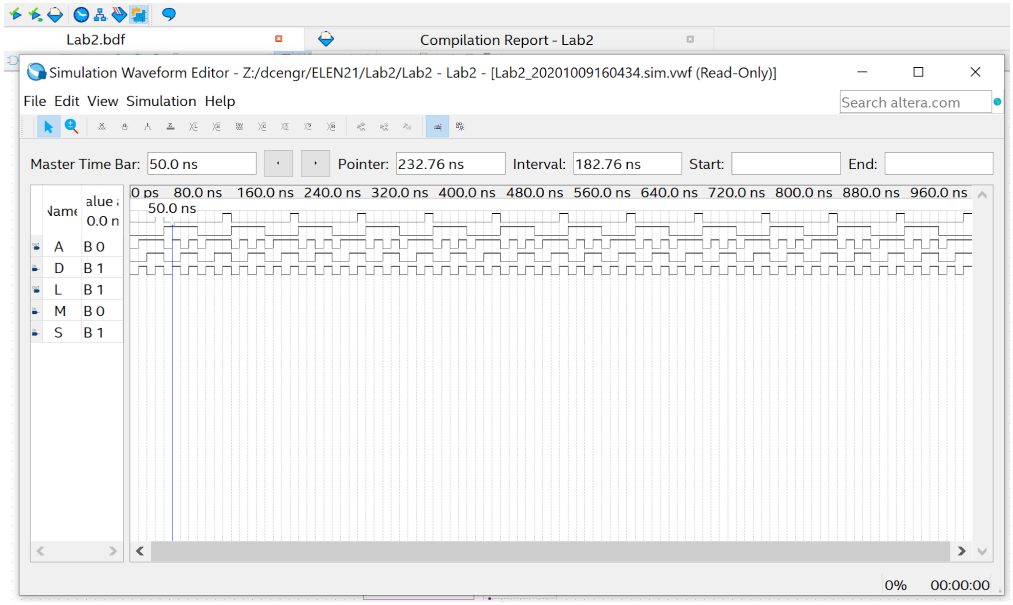
COEN 21 - Lab 2

For the project, we designed a circuit in Quartus. To design this, we had to learn the ins and outs of Quartus and use logic gates to express our circuit design. The schematic is included in the screenshot. The questions that the TA asked was simply if the circuit worked and why. He also asked us about the wavelength and how it affected the alarm every 8 cycles in the waveform






Lab2.bdf
Compilation Report - Lab2
Simulation Waveform Editor - Z:/dcengr/ELEN21/Lab2/Lab2 - Lab2 - [Lab2_20201009160434.sim.vwf (Read-Only)]
File Edit View Simulation Help
Search altera.com
Master Time Bar: 70.0 ns
Pointer: 436.57 ns
Interval: 366.57 ns
Start:
End:
0 ps 80.0 ns 160.0 ns 240.0 ns 320.0 ns 400.0 ns 480.0 ns 560.0 ns 640.0 ns 720.0 ns 800.0 ns 880.0 ns 960.0 ns
70.0 ns
A B 0
D B 1
L B 1
M B 1
S B 1
0%
00:00:00

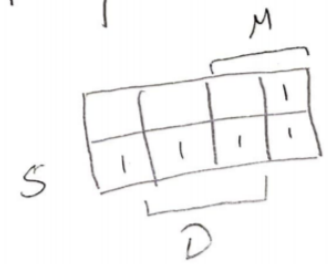

Lab2.bdf
Compilation Report - Lab2
Simulation Waveform Editor - Z:/dcengr/ELEN21/Lab2/Lab2 - Lab2 - [Lab2_20201009160434.sim.vwf (Read-Only)]
File Edit View Simulation Help
Search altera.com
Master Time Bar: 50.0 ns
Pointer: 232.76 ns
Interval: 182.76 ns
Start:
End:
0 ps 80.0 ns 160.0 ns 240.0 ns 320.0 ns 400.0 ns 480.0 ns 560.0 ns 640.0 ns 720.0 ns 800.0 ns 880.0 ns 960.0 ns
50.0 ns
A B 0
D B 1
L B 1
M B 0
S B 1
0%
00:00:00

(i) input : Switch (M)
motion
disable

output : light
alarm

(ii)

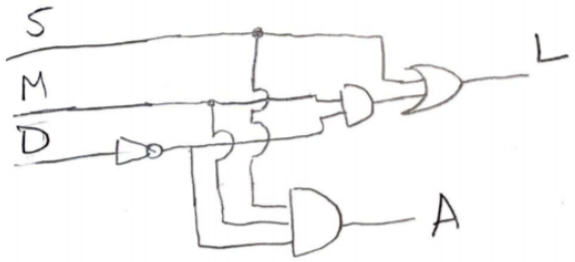
S	M1	D	L	A
0	0	0	0	0
0	0	1	0	0
0	1	0	1	0
0	1	1	0	0
1	0	0	1	0
1	0	1	1	0
1	1	0	1	1
1	1	1	1	0



$L = S + \bar{D}M$

$A = \bar{D}MS$

(iii)



									repeat
A	0	0	1	0	0	0	0	0	0
D	0	0	0	1	1	1	1	0	0
L	1	1	1	0	1	0	1	0	1
M	0	1	1	0	0	1	1	0	0
S	1	0	1	0	1	0	1	0	1

(IV) report

~~For~~ For this project we designed a circuit in quartus. To design this we had to learn the ins and outs of quartus and use logic gates to express our circuit. Schematic is included in a screenshot. The questions that the TA asked basically was just if it worked and why. Also he asked us about the waveforms and how it affected the alarm.

Results in Prelab

TT

S	M	D	L	A
0	0	0	0	0
0	0	1	0	0
0	1	0	1	0
0	1	1	0	0
1	0	0	1	0
1	0	1	1	0
1	1	0	1	1
1	1	1	1	0

Results in Waveform (top of page is how it was shown)

S	M	D	L	A
1	0	0	1	0
0	1	0	1	0
1	1	0	1	1
0	0	1	0	0
1	0	1	1	0
0	1	1	0	0
1	1	1	1	0
0	0	0	0	0

Mixed up inputs but same (expected) output values