ASHESI UNIVERSITY

Team Project

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CE 322: Digital System Design

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The purpose of this project was to create a digital system that serves as an electronic scoreboard for a lawn tenus court at Ashesi's sports complex.. Our team was tasked with designing the scoreboard to display scores in the traditional lawn tennis form which progresses from "Love/Lo"(0) to 15 then to 30 then finally 40.

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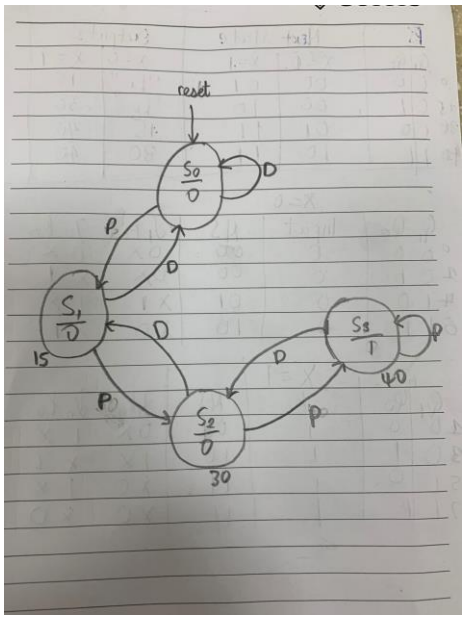
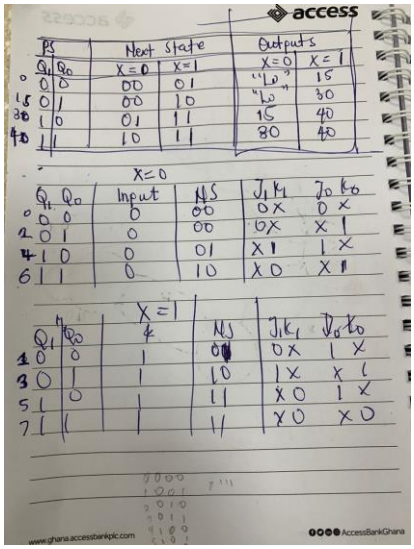
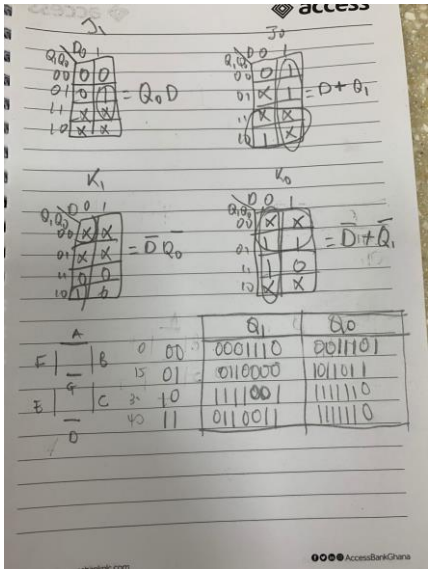
Moore machine of our counter and states



Our tables with our present state & next state

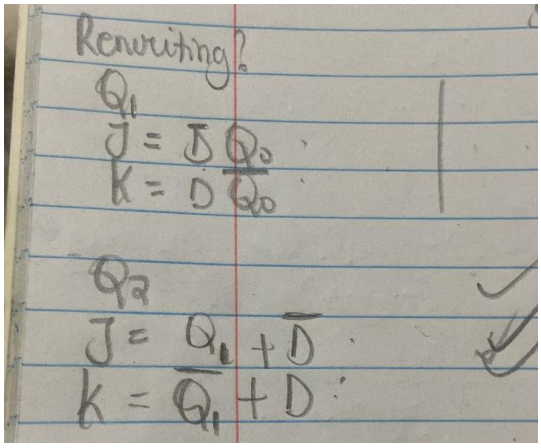


Our kmaps and output table

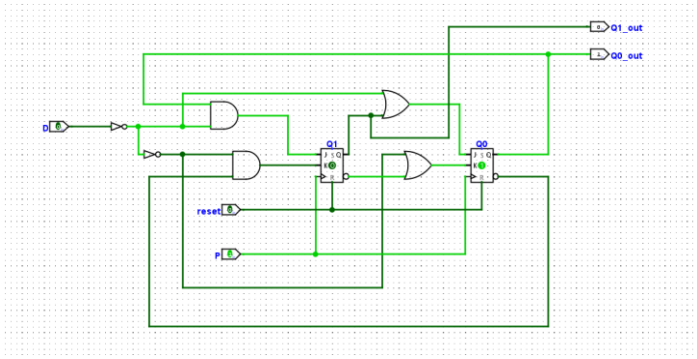


We realised after building our Logisim circuit, that we designed for the system to count forward when D = 1, instead of when D = 0, as stated in the project document. Instead of going through

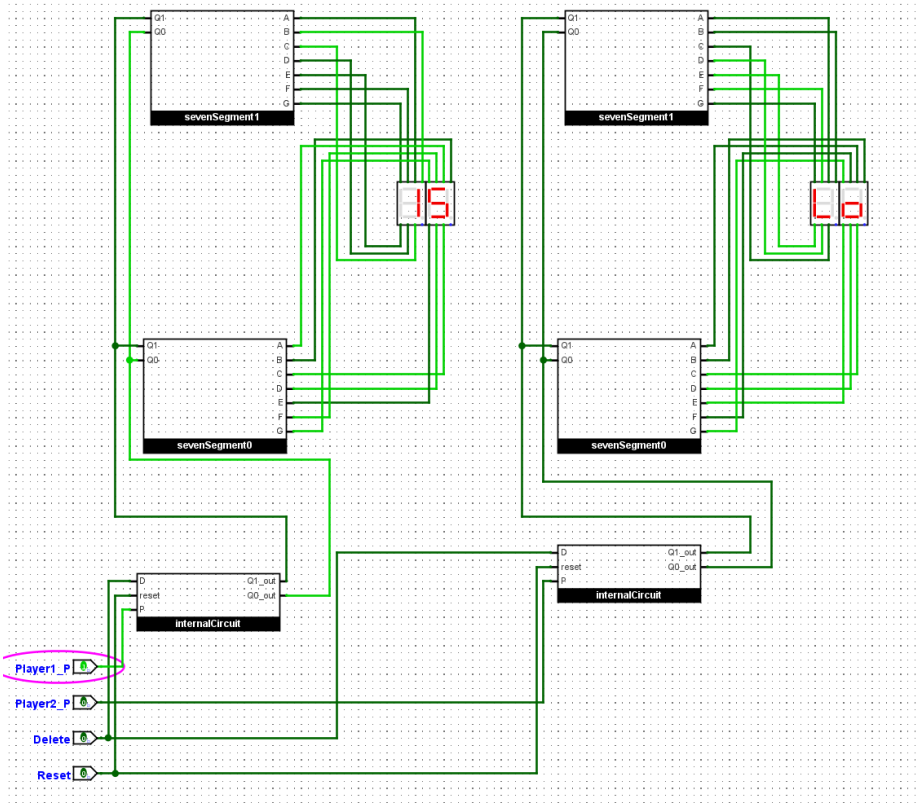
the entire design process again, we realised, that our equations corresponded with the actual operation of the circuit, and what we had to do was negate the D value. The equations below are the actual equations used in our implementation.



Our circuit implemented with JK flipflops



Our final circuit with the seven segment displays


Q1
Q0
A
B
C
D
E
F
G
sevenSegment1
sevenSegment0
D
reset
P
Q1_out
Q0_out
internalCircuit
Player1_P
Player2_P
Delete
Reset