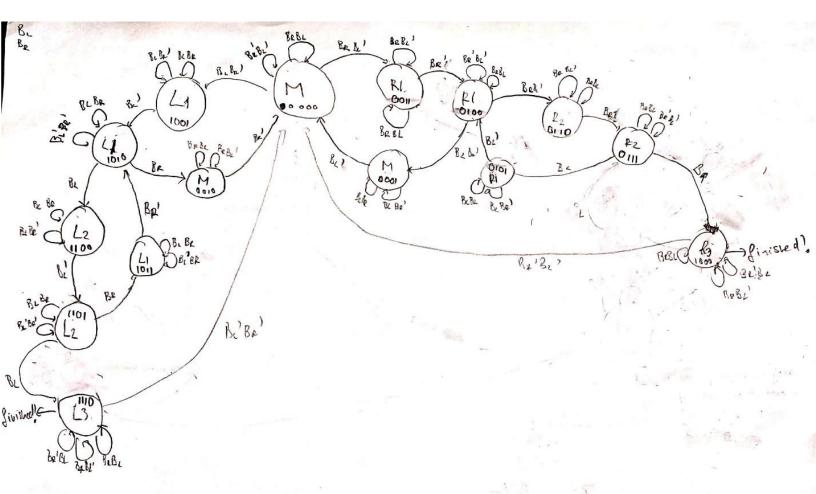
How it works?

When both buttons are pressed or no buttons are pressed the state of the machine will stay the same. When one player holds the button and doesn't release, it will only move for one step. When the rightmost or the leftmost LED is reached it will stay there until both buttons are released after which the middle LED will light up resetting the game.

State diagram



Truth table

A

Boolean expressions for this truth table

```
10 = So'S1'32153' BEBE' + So'S15258L'BE + So 71' 52'57' (OCEE + OC'SEE + OC'SEE + BEBE') + So 51'S1 B' (Zelle+ PEBE) + Zelle') + So 51'52'53
                       = 2, 2, 2, 2, Brpr, + 20, 2, 25 28 f, Br +2021, Br + 2021, Br + 2021, Br + 2021, 23 + 2021, 23 + 2021, 25, Br
                [1] = 5, '5, '525 (Rige'+ B. Be') + 5,'5,52'57'(& 'B. '+6,82+ Rige) + 5,'5412'57 + 56'55253 (Ac'82', B. Art & B. Art & B. S. S. 2'53 (E'Br)+B. Brt & Br')
                                 + Suggest' (BEBR + PE/BL + BEBE') + Suggestion +
  = 20, 2:23 pc, + 20, 2:25, 86, + 2:25, 31, 56 + 2:25, 36 + 2:25, 28 FT + 2:25, 21 ET + 2:25, 31 ET FT + 2:25, 31, 35 FT + 3:25, 31, 35 FT 
            + Cosiss & Sosiss, ( of of true) + Sosiss 23, ( front sign,) + 20,21,22, (Brok + 20,28)
      = 20,23,86,86 + 21,23,80 + 20,25 BIBK + 206,12 BIBK + 212523,87 + 2021,25 87, + 2021,25 BI, + 2021,55 PI, + 2021,5
           13 = 6'9' 52'53 ( 0, 50 + 32'84) +5. '5, '5253 ( 160 + 82'86) + 5, '6.52'55 ( 160 + 62'66) + 5, '6.52'55 ( 160 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 53 ( 162 + 62'84) + 50'5, 52 (
                           + 302,25,2 ( BeBe + Dryo ) + 2 2,25 ( BrB+ + B5BB) + 206,20,23 ( 8,95) + 25,55) + 2,5,27 ( 8,84,858) + 2,5,27,13 ( 87,85) + B5, B8)
    = Sols, 'Sz'Sz'BL'Be + So'Sz'BLTe' + Si'Sz'S3 BL +Sz'S3 BLBE +Si'S2S3 Be +So'S1S3 BL +So'S1S2 TR' + Sos. 32'B2'
    L1 = 508,52153+ 50515253+505152'53+505152'53+5051'52153+5051'52153
                              = 28 21,23 + 2025 (3, + 203125)
[ = 5, 5, 62 53, + 50, 5, 52 13 + 505, 62, 53, 1 505 15 5)
                       = So's, s2 + S, s2 s3' + Sosi's2's3'
-3 = 305, 52'53 + 30252'50 + 505,32'50) + 50'5,52'33 + 50'5,52'53 + 420'51'5254
               = 50,2',2528 + 2'65, + 70 25,23,
```

<u>Truth table for LEDs</u>

I will use L, L2 and L3 ortputs to light up 7 epds

LI	12	13	JL 1	12	63	24	25	26	07	
0	0	ð	0	0	0,	1	0	0	0	
0	0	1	0	0	0	0)	0	d	
0	- August	ð	0	a	0	O	0	1	8	
0	7	1	0	O	0	0	۵	6)	
1	0	6	0	0	1	B	0	0	ð	
1,	O	1	0	1	0	0	0	0	0	
	0.550	0	i	0	0	0	0	0	8	
11	IIII NOT AEEN									

=> P1=L1L2 L3'
P2 = L1 L2'L3'
P3 = L1 L2'L3'
P4 = L1'L2'L3'
P5 = L1'L2'L3'
P5 = L1'L2'L3'
P7 = L1'L2'L3'