

Output Summary

For the output summary, we have considered two cases, when the user inputs correct password and when it inputs incorrect password. The third screenshot displays different ways to reset the circuit.

Sample Input and Output

Key used in simulation: A-39, B-3, C-38

Simulation when the correct key is entered:

	AC	Pass_0	Touch	Counter	Y0	Y1	o/p
	0	0	0	0	0	0	0
We start moving anticlockwise towards the first number	1	0	0	0	0	0	0
	1	0	0	39	0	0	0
	1	0	0	39	1	0	0
We start moving clockwise direction towards second number	0	0	0	39	1	0	0
	0	0	0	0	1	0	0
Pass_0 input changes to one as we pass 0	0	1	0	0	1	0	0
	0	1	0	1	1	0	0
	0	1	0	2	1	0	0
	0	1	0	3	1	0	0
	0	1	0	3	0	1	0
We start moving in anticlockwise direction to the last number	1	1	0	3	0	1	0
	1	1	0	2	0	1	0
	1	1	0	1	0	1	0
	1	1	0	0	0	1	0
	1	1	0	39	0	1	0
	1	1	0	38	0	1	0
	1	1	0	38	1	1	0
	1	1	1	38	1	1	1
							Lock is unlocked as soon as the person releases the lock

Simulation when the user passes the last key while entering the inputs:

	AC	Pass_0	Touch	Counter	Y0	Y1	Alarm	o/p
	0	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0
	1	0	0	39	0	0	0	0
	1	0	0	39	1	0	0	0
	0	0	0	39	1	0	0	0
	0	0	0	0	1	0	0	0
	0	1	0	0	1	0	0	0
	0	1	0	1	1	0	0	0
	0	1	0	2	1	0	0	0
	0	1	0	3	1	0	0	0
	0	1	0	3	0	1	0	0
	1	1	0	3	0	1	0	0
	1	1	0	2	0	1	0	0
	1	1	0	1	0	1	0	0
	1	1	0	0	0	1	0	0
	1	1	0	39	0	1	0	0
	1	1	0	38	0	1	0	0
	1	1	0	38	1	1	0	0
	1	1	0	37	1	1	0	0
	1	1	1	0	0	0	1	0

Flip Flops changes it's states to the final state as we reach the last key, but the lock does not open as we have not released the key

Since we release the lock after crossing 38, the lock does not open and the alarm goes off indicating that the user has entered a wrong combination

In the above case as alarm rings, the circuit automatically resets.

Simulation of different ways to reset the entire circuit

AC	Pass_0	Touch	Lock	Counter	Y0	Y1	o/p	
0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	
1	0	0	0	39	0	0	0	
1	0	0	0	39	1	0	0	
0	0	0	0	39	1	0	0	
0	1	0	0	39	1	0	0	
0	0	0	0	39	1	0	0	
0	1	0	0	39	1	0	0	
0	0	0	0	39	1	0	0	
0	1	0	0	39	1	0	0	
0	0	0	0	39	1	0	0	
0	1	0	0	39	1	0	0	
0	0	0	0	39	1	0	0	
0	1	0	0	0	0	0	0	
1	1	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	
1	0	0	0	39	0	0	0	
1	0	0	0	39	1	0	0	
1	0	0	0	38	1	0	0	
1	0	0	0	37	1	0	0	
1	0	0	1	0	0	0	0	

The entire circuits resets as soon as the sensor moves past 0 at least four times in the clockwise direction

The entire circuits resets when the user manually locks the lock