→ The circuit consists of a shift register at the top. The input is fed to the shift register and when we toggel the load button to 1 the register starts working and shifting the i/p one by one with clock pulse.

→ The inputs are fed into two counters made by the JK flip flops. These count the no. of 1's (By upper counter for Boys). & 0's (By lower counter for girls).
The clock pulse to the counters is passed as direct i/p for boy's counter so that it counts '1'. And NOT of i/p for girls counter so that it counts "0".

The values of counter is displayed using a 7-segment Blue led display.

→ Comparator:
The outputs of the counter are then fed to a comparator circuit which compare which is grater no. of boys or no. of girls or are they equal.

→ Stopping circuit:
We have used a FSM made up of 4 flip flops.
It has a 3-bit counter at back. and when counter reaches $111_2$ $(7_{10})$, for first

time after that this output gets toggled from '1' to '0'.

This toggling is used to change the i/p of JK flip flop in the boys and girls counter. Which would stop the counters from further counting.

$$A^+ = A + x \quad \text{—— eq}^n \text{ for FSM.}$$

where $x$ is AND of all o/p of 3-bit counter.

→ The load toggle button is used to load i/p also to start the counter (3-bit) used in FSM.
To count & stop after 8 - counts.