From the circuit diagram, the BTNx is active High or active Low? Please provide your analysis.

Since the button gives 3.3v when pressed, and 0v when idle, it’s **Active High**

What is a bounce? How do you programmatically debounce the input? Please provide your analysis.

Bounce means when the physical input oscillates cause digital input read value switched between 0 and 1 rapidly for a period of time.

To debounce divide a clock into slower cycle holding time for input to get steady.

Please show your method for implementing a single pulser. (e.g. draw a state diagram, or verilogHDL code)

module singlePulser(

  output reg d,

  input clk, pushed

);

reg ps;

initial ps=0;

always @(posedge clk)

begin

  d = 0;

  if (pushed == ~ps) begin

    if(ps == 1)

      ps=0;

    else if (pushed == 1) begin

      d = 1;

      ps = 1;

    end

  end

end

endmodule