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module water_level_controller (
    input wire clk,
    input wire rst,
    input wire level1, // bottom sensor
    input wire level2, // mid sensor
    input wire level3, // top sensor
    output reg pump,   // pump control
    output reg led_red, // low level
    output reg led_green, // medium level
    output reg led_blue // full
);
// State machine for pump control
always @(posedge clk or posedge rst) begin
    if (rst) begin
        pump <= 0;
    end else begin
        if (!level3) begin
            // If top level is low, turn on the pump
            pump <= 1;
        end else if (level1 && level2 && level3) begin
            // If all levels are high, turn off the pump
            pump <= 0;
        end
    end
end

// LED output logic
always @(*) begin
    // Default: all off
    led_red = 0;
    led_green = 0;
    led_blue = 0;

    if (level1 && !level2 && !level3) begin
        led_red = 1; // only bottom sensor active
    end else if (level1 && level2 && !level3) begin
        led_green = 1; // up to mid level
    end else if (level1 && level2 && level3) begin
        led_blue = 1; // full
    end
end
endmodule

```