



BLIND SPOT MONITORING AND NOTIFYING SYSTEM



PRESENTED BY

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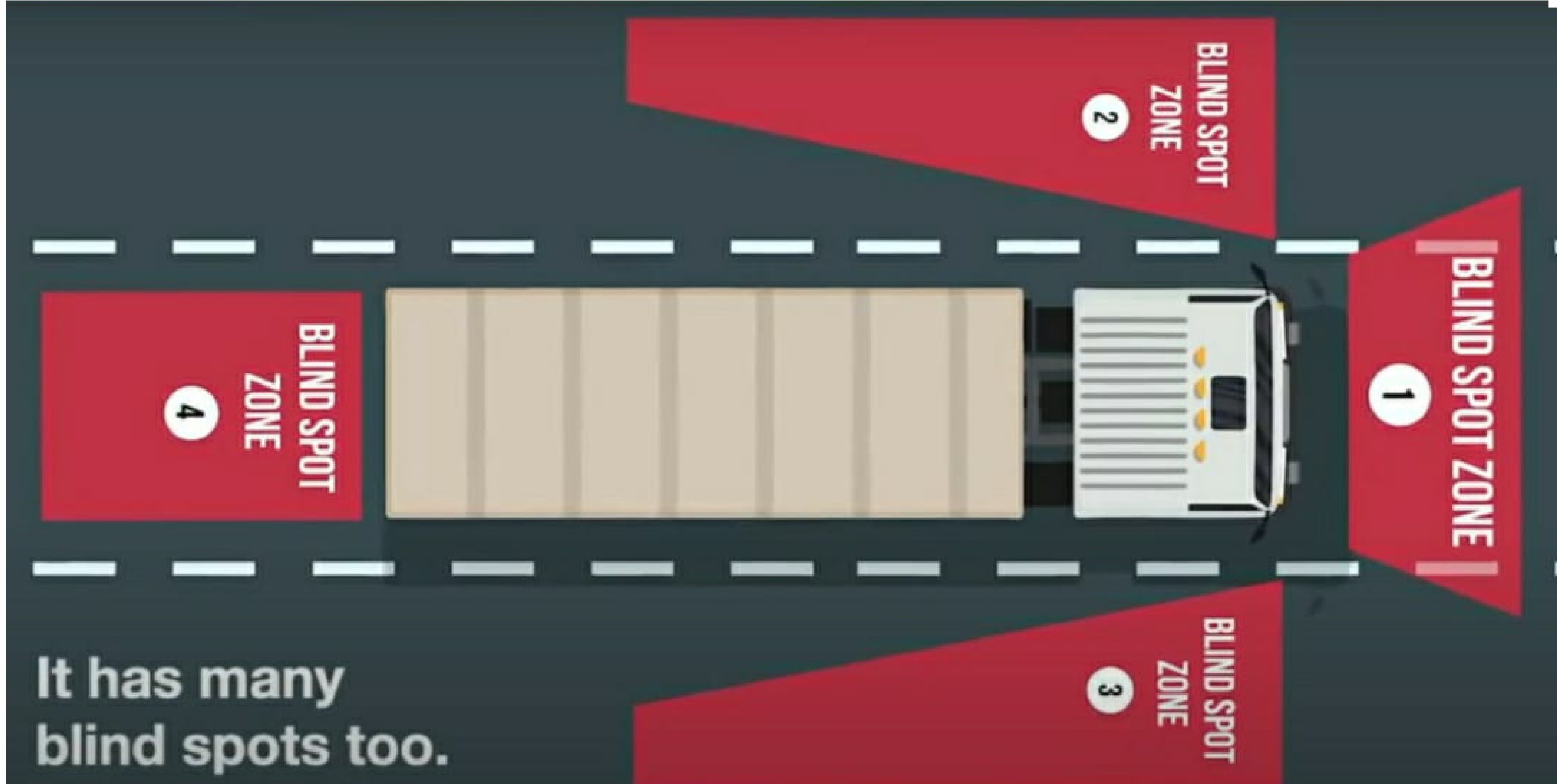


ABSTRACT

A blind spot in a vehicle is an area around the vehicle that cannot be directly seen by the driver while at the controls, under existing circumstances. Commoners are usually unaware of blind spot. So they are more prone to accidents when they disobey traffic rules road safety measures.

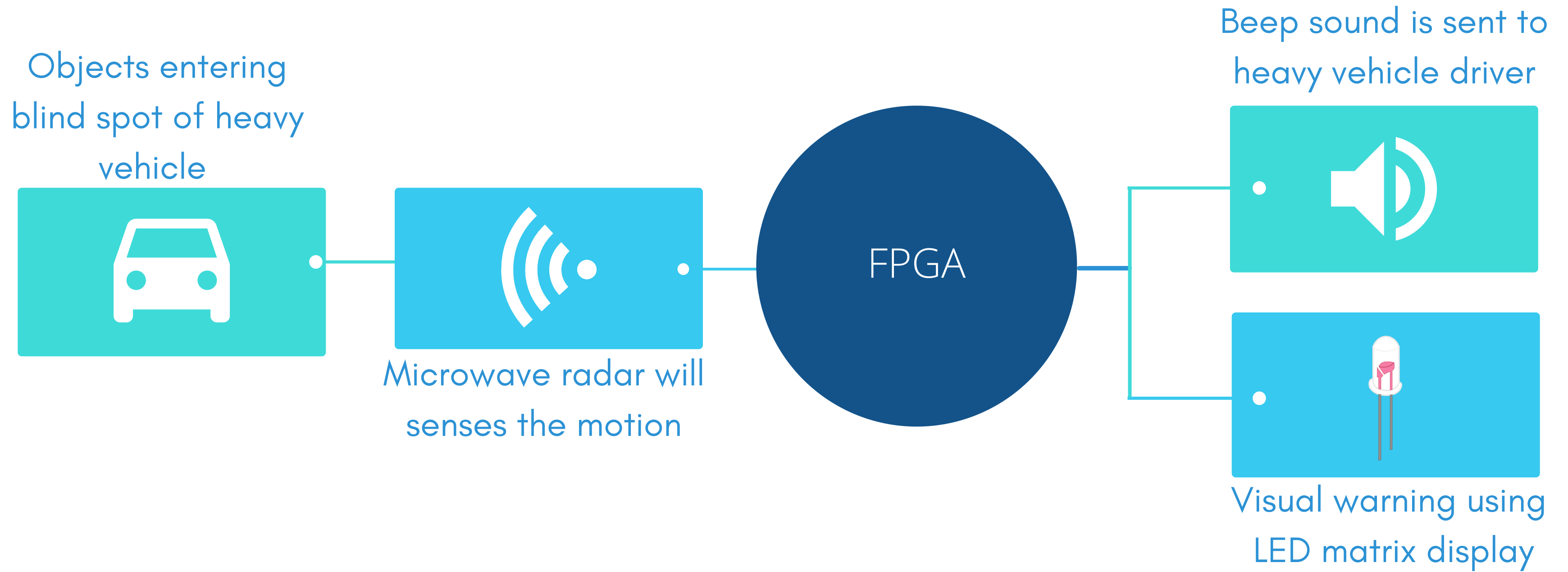
The driver visibility is the maximum distance at which driver can identify prominent objects around the vehicle, primarily determined by weather condition and vehicle design. In India, thousands to lakh of people are killed in road accidents more likely due to blind spots. Hence there is a need of blind spot monitoring system. When a car or bike enters the blind spot of heavy vehicle, the heavy vehicle driver will be notified through an voice note. The vehicle in the blind spot will be warned through LED matrix, which is placed in the view of vehicle's blind spot that will flash a warning message when detected, thus alerting the bike or car of the danger.

We believe that our project could help prevent more number of accidents by providing an automatic warning to those cars or bike in vehicles blind spot ,the dangerous position. So, in case of the heavy vehicle being unaware, those in danger can take action.





SCHEMATIC DIAGRAM





METHODOLOGY



- Radar sensor uses a microwave Doppler radar technique to detect moving objects. It has a sensitivity range of ~7 meters and the range can be reduced depending on the application. When triggered, its output pin will switch from LOW (0 V) to HIGH (3.3 V) for a finite time (2 to 3 s) before returning to its idle (LOW) state. The delay can be increased by using capacitor. The radar continuously emits low energy microwave in the target area and It senses change in the frequency of reflected signal. This allows the device to detect moving vehicles.
- The radar is placed near the rear view mirror. The range of the blind spot on either side of the vehicle is determined and the radar is adjusted to the threshold value. When an object (car/bike) enters the blind spot (the target area), as it crosses and approaches threshold range the motion will be detected by radar.
- The radar is interfaced with the FPGA kit. The radar output is given to digital/analog pin of the FPGA. As long as the output is high the FPGA will generate square wave, which is zeros and ones of desired duty cycle which will drive the piezo buzzer. Piezo buzzer is an electric component that comes in different shapes and sizes, which can be used to create sound waves when provided with electrical signal. The buzzer will alert the heavy vehicle driver that there is a vehicle in the blind spot. Simultaneously, the LED matrix/array is triggered by FPGA which is visible to the vehicle in the blind spot.



Design and Stimulus block codes

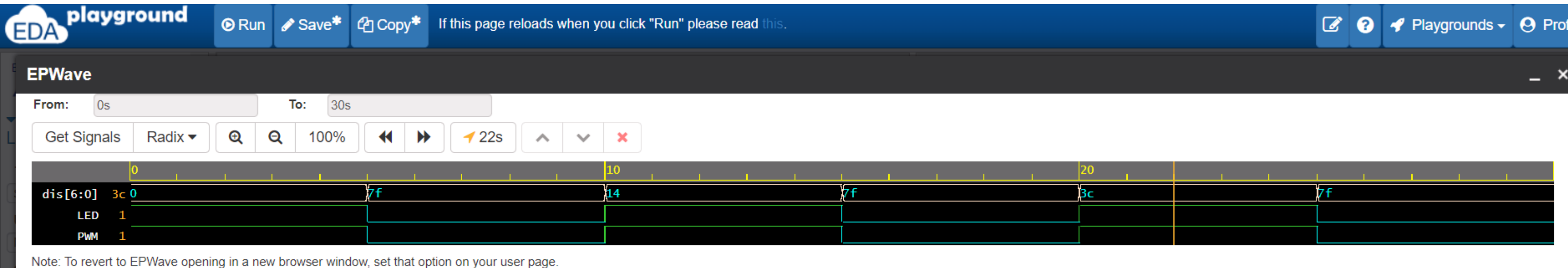


```
module monitor(LED,PWM,dis);
input [6:0]dis;
output reg LED;
output reg PWM;
always@(dis)
begin
    if(dis<=7'b1100100)
    begin
        assign LED=1;
        assign PWM=1;
    end
else
    begin
        assign LED=0;
        assign PWM=0;
    end
end
endmodule
```

```
module stimulus;
reg [6:0]dis;
wire LED;
wire PWM;
monitor uut(.LED(LED),.PWM(PWM),.dis(dis));
initial
begin
    dis=7'b0000000;
    $dumpfile("dump.vcd");
    $dumpvars(1);
    #5 dis=7'b1111111;//127
    #5 dis=7'b0010100;//20
    #5 dis=7'b1111111;//127
    #5 dis=7'b0111100;//60
    #5 dis=7'b1111111;//127
    #5 $finish;
end
endmodule
```



Test Case Simulation Outputs





THANK YOU