typedef enum logic[2:0] {S0, S1, S2, S3, S4} StateType;

StateType ns, cs;

always\_comb begin

CLRT1 = 0;

CLRT2 = 0;

SOAP = 0;

SPRAY = 0;

ns = S0;

case (cs)

S0: begin

if(~TOKEN)

ns = S0;

else

ns = S1;

end

S1: begin

CLRT1 = 1;

if(~TOKEN & ~START)

ns = S1;

else if(START)

ns = S4;

else if(TOKEN & ~START)

ns = S2;

end

S2: begin

SPRAY = 1;

SLRT2 = 1;

if(~T1DONE)

ns = S2;

else

ns = S3;

end

S3: begin

SOAP = 1;

CLRT1 = 1;

if(~T2DONE)

ns = S3;

else

ns = S4;

end

S4: begin

SPRAY = 1;

if(~T1DONE)

ns = S4;

else

ns = S0;

end

endcase

end

always\_ff @(posedge clk)

cs <= ns;