module project(

input [3:0] password\_in, //輸入設定密碼

input [3:0] password\_try,//輸入猜測密碼

input set, //設定密碼

input unlock, //嘗試解鎖

input clear,

output [3:0] password\_out, //目前密碼

output reg unlock\_out,//解鎖燈號

output reg lock\_out,//上鎖燈號

output reg beep=0 //蜂鳴器

);

reg[3:0]password; //儲存密碼

reg check; //輸入正確後輸入錯誤也不會鎖定

assign password\_out = password;

always @(set,unlock,clear)

begin

if(clear)

begin

password=0000;

lock\_out=0;

unlock\_out=0;

check=0;

beep=0;

end

else if(set)

begin

password = ~password\_in;

lock\_out = 1;

unlock\_out = 0;

check = 0; //上鎖狀態

beep = 0;

end

else if(unlock)

begin

if(password\_try == password && check==0)//輸入正確

begin

lock\_out = 0;

unlock\_out = 1;

check = 1; //解鎖狀態

beep = 0;

end

if(password\_try != password && check==0)//輸入錯誤

begin

lock\_out = 1;

unlock\_out = 0;

check = 0;

beep = 1; //蜂鳴器響

end

end

end

endmodule