Fire Alarm System Report
Digital System Design Project

Team Number: 14

Team Name: Combo Happy Meal

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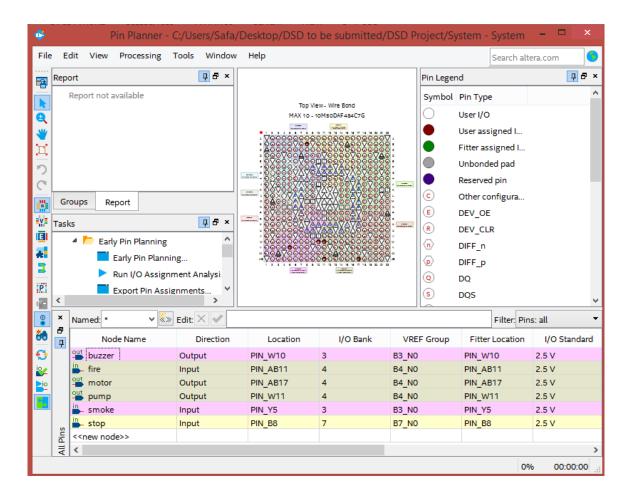|		
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Project description

The aim of the project is to design a fire alarm system. The system has two input sensors(flame sensor and smoke and gas sensor) and two outputs(a buzzer and a servo motor (we may add a water pump)). There also exists a stop push button in order to stop the system manually. The code consists of a process with a sensitivity list of the stop button, the flame sensor and the smoke and gas sensor. If the stop button is pressed, none of the outputs should be active. Otherwise, if the flame sensor detects flame, the buzzer should be activated (and the water pump if added). If the gas and smoke sensor detects gas or smoke , it should activate the servo motor to make it open the windows for fresh air.

Note: Arduino is used to control the servo motor and the fpga is used to control the whole system.

Note: the push buttons are active low.

Pin Assignment

Arduino Code for Servo Motor

```
#include <Servo.h>          //Servo library

Servo servo_test;       //initialize a servo object for the connected servo

int angle = 0;
int contact=0;
int D8=8;
void setup()
{
 pinMode (D8 , INPUT);
  servo_test.attach(9);     // attach the signal pin of servo to pin9 of arduino
}

void loop()
{
   contact=digitalRead(D8);
   if(contact==HIGH){

     servo_test.write(90);          //command to rotate the servo to the specified angle

   }
   else if(contact==LOW){
    servo_test.write(0);
   }


}
```