

# Fire Alarm System Report

## Digital System Design Project

Team Number: 14

Team Name: Combo Happy Meal

Team Members:

Safa Magdy	43-2214	T13
Shadi Nakhla	43-0411	T13
Fady Samir	43-1366	T13
Caroline Emad Emil	43-0396	T15
Karim ebrahim	43-0414	T13
Youssef Samir	43-2742	T13

## 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

Pin Planner - C:/Users/Safa/Desktop/DSD to be submitted/DSD Project/System - System

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Tasks

- Early Pin Planning
  - Early Pin Planning...
  - Run I/O Assignment Analysis...
  - Export Pin Assignments...

Top View - Wire Bond  
MAX 10 - 10M80DAF484C7G

Pin Legend

Symbol	Pin Type
○	User I/O
●	User assigned I...
●	Fitter assigned I...
○	Unbonded pad
○	Reserved pin
○	Other configura...
○	DEV_OE
○	DEV_CLR
○	DIFF_n
○	DIFF_p
○	DQ
○	DQS

Named: \* Edit: Filter: Pins: all

Node Name	Direction	Location	I/O Bank	VREF Group	Fitter Location	I/O Standard
buzzer	Output	PIN_W10	3	B3_N0	PIN_W10	2.5 V
fire	Input	PIN_AB11	4	B4_N0	PIN_AB11	2.5 V
motor	Output	PIN_AB17	4	B4_N0	PIN_AB17	2.5 V
pump	Output	PIN_W11	4	B4_N0	PIN_W11	2.5 V
smoke	Input	PIN_Y5	3	B3_N0	PIN_Y5	2.5 V
stop	Input	PIN_B8	7	B7_N0	PIN_B8	2.5 V
<<new node>>						

All Pins

0% 00:00:00

## 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);
  }

}
```