

**KULLIYYAH OF ENGINEERING**

**DEPARTMENT OF MECHATRONICS ENGINEERING**

**MCTE 2332**

**DIGITAL SYSTEM AND MICROPROCESSOR**

**“SIMPLE FIRE ALARM SYSTEM”**

**Prepared by:**

MOHAMAD ANAS BIN MOHAMAD IDRIS (1818965)

**Prepared for :**

Dr. HAZLINA BT. MD. YUSOF

**OBJECTIVE**

* To discover fires early
* Give a signal to people to get out of the building.
* To extinguish the fire in early phase.

**DESIGN PROCESS**

This fire alarm is system that will detect the early sign of development of fire like a smoke, high temperature and if this sensor does not detect well, then people can push the emergency alarm to execute from the place. Instead, just give warning/alarm this system also will spray a water if there is a fire. Here is the specification of the system :

* Input system :
  + Temperature/heat sensor
  + Flame detector
  + Smoke detector
  + Emergency fire alarm button
* Output system :
  + Emergency light
  + Emergency alarm
  + Water spray
* System Process :
  + The three outputs system will **Turn On** when :
    - Temperature is **HIGH** AND flame detector is **HIGH**
    - Emergency Button is **HIGH**
  + Emergency light only **Turn On** when smoke detector is **HIGH**

**DETAILED DESIGN**

**Circuit Diagram**

1

**Diagram

Description automatically generated**

6

5

4

7

3

2

Legend

1. Flame detector 🡪 A
2. Temperature sensor 🡪 B
3. Current flow (Always HIGH) 🡪 C
4. Emergency Button 🡪 D
5. Smoke detector 🡪E
6. Emergency Light
7. Emergency Light + Alarm + Water spray

**Boolean Table**

**A picture containing table

Description automatically generated** **A picture containing table

Description automatically generated**

**Logic Equation**

(AB+CD)+E

**DESIGN VERIFICATION**

**Diagram, schematic

Description automatically generated**

**CONCLUSION**

In conclusion, this system is designed to discover fire early development in order to give a warning for a people in the building about a fire. But in this system, there still need some improvement for a sensor especially detect accurate data like for a smoke sensor there might be would detect a smoke from a smoker in the building. For enhancement we need a very accurate sensor in order the give the better outputs. Hopefully, this system will benefits other.