Fire Alarm, Smoke Detector and Automated Sprinkler System

Introduction:

- An automated Fire alarm is used to detect the presence of fire by monitoring environmental changes associated with combustion.

- The fire alarm system is classified as either automatically activated or manually operated or both.

- The main objective of the project is to detect the fire and to control the spread of fire using water sprinkler system.

Problem:

- Now-a-days one of the major problems is the massive loss of lives and money caused by fire accidents.

- Though there are fire extinguishers and engines to reduce the damage ,we should have an efficient solution which responds immediately without any human interference.

- So,here is the solution and that is the Fire alarm with an automated water sprinkler system and this is not beyond our knowledge.
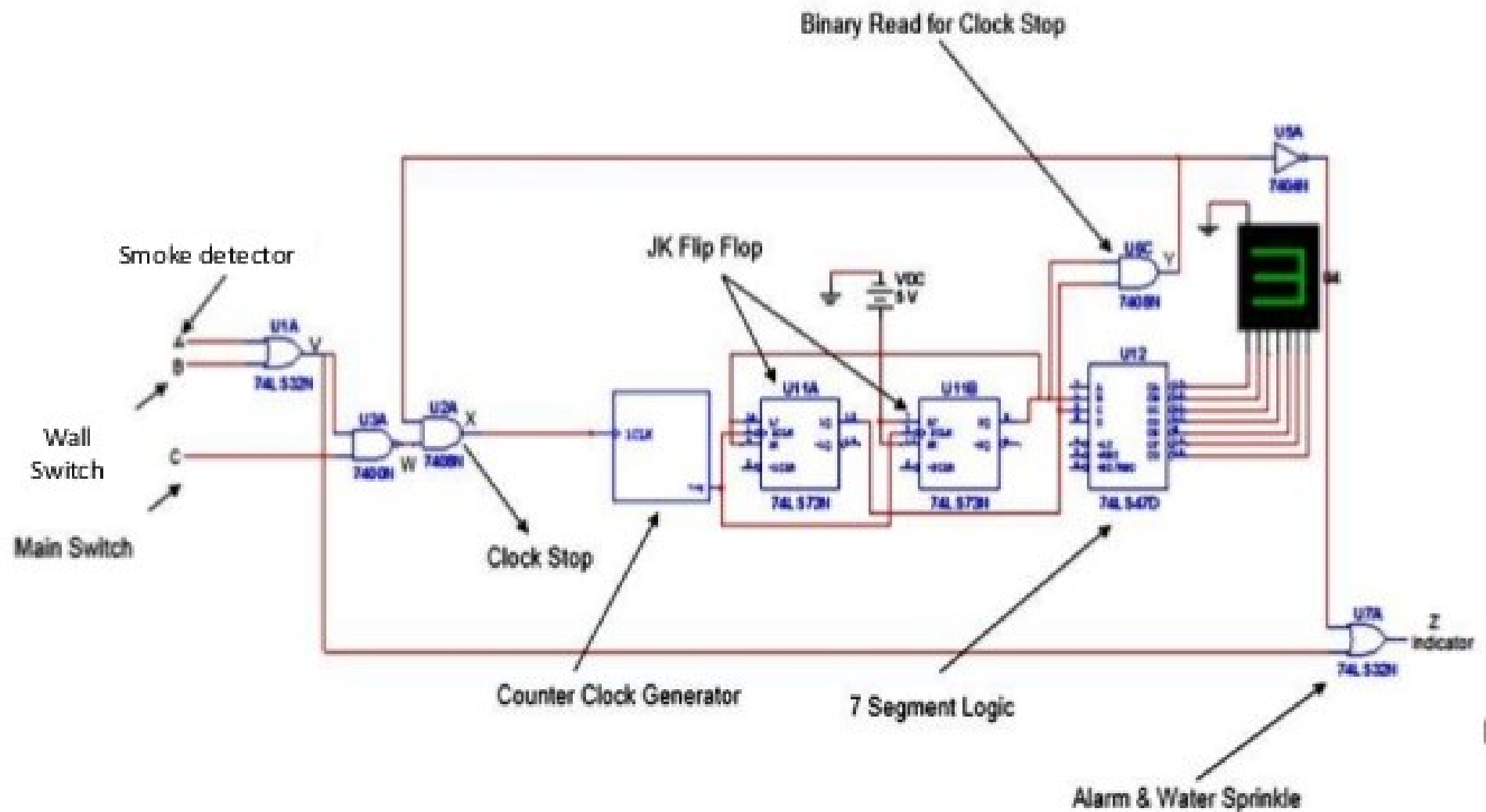
Components required:

- Smoke detector.
- J-K flip-flops.
- AND,OR and NOT gates.
- Switches.
- 7 Segment logic and display.
- Alarm.

Here we go. . .

System Design

Working Principle:

- We have a main switch to ON and OFF the entire system.

- There is a smoke detector and also a manual switch in the circuit.

- Whenever the manual switch is ON or the detector detects smoke ,automatically the water sprinkler and alarm get switched ON.

- We do this by an OR gate.

- So,this becomes our primary circuit.

Working Principle

- It's not complete yet.

- And ,now it is the case of switching off the sprinkler when no smoke is detected.

- We do this by making a counter which counts up to 3 seconds made by flip flops.

-   If no smoke is detected by the detector and also if the manual switch is off then the counter starts counting from 0 to 3.

- When it reaches 3 it automatically stops the activity of the sprinkler.

Conclusion

- This circuit additionally needs a backup system for water.

- This is the basic idea of a fire alarm.

Thank you