Project Report

Title:

Fire alarm and automated water sprinkler system

Abstract:

1.The circuit detects smoke using a smoke detector which switches ON a buzzer and water sprinkler.

2.In addition to it there is also a manual switch so that it can be operated manually.

3.It also switches OFF the buzzer and sprinkler by itself when all the fire is extinguished.

4.This is done by starting a counter when all the given inputs become zero.

Working principle:

*The circuit is all made of logic gates and flip flops.

*Flip flops are used to start a counter when no more fire is detected by smoke detector.

*The buzzer is used to warn the people in case of fire.

*The output from the smoke detector and the wall switch is given as inputs to an OR gate.

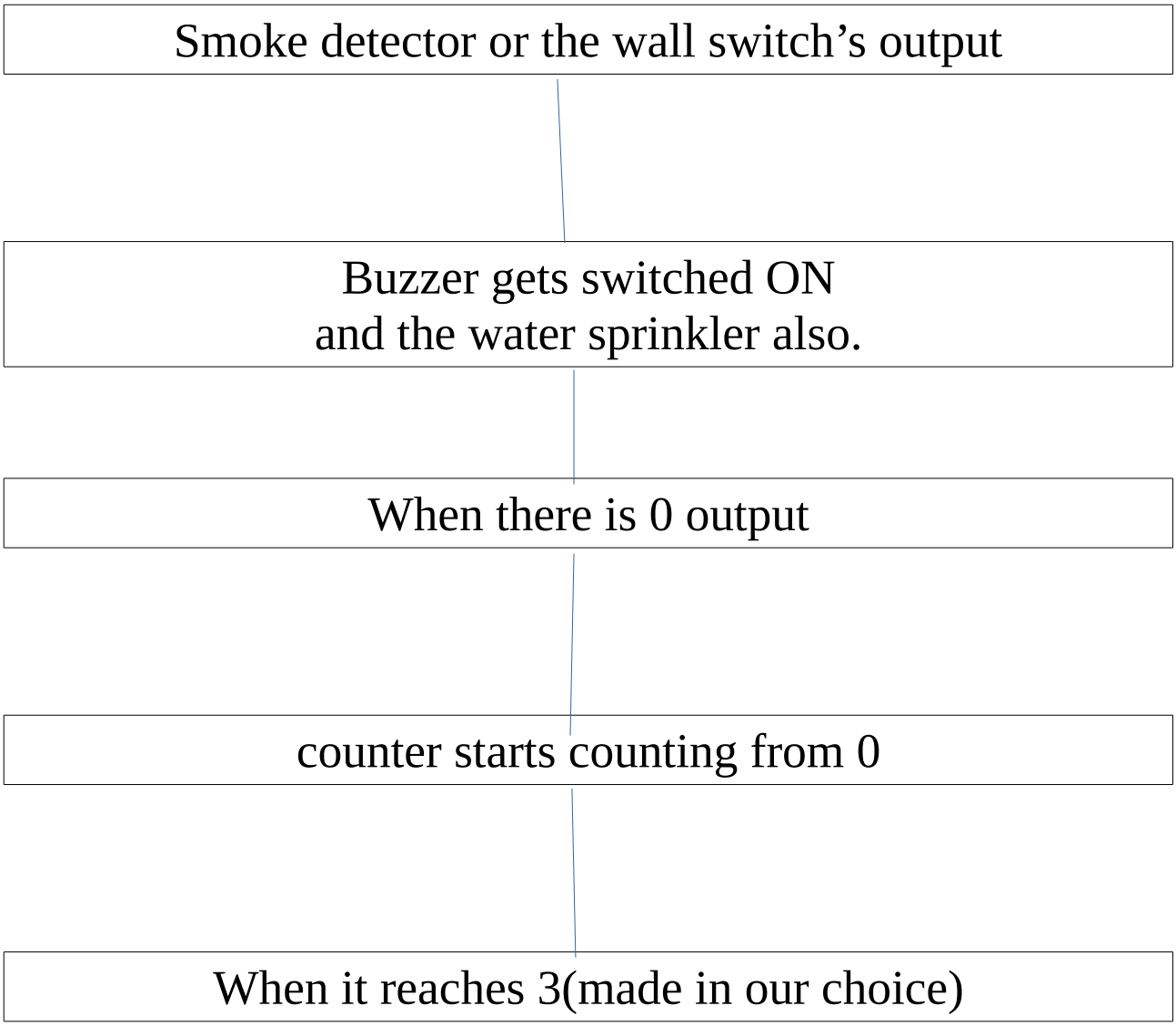
*When the output of the OR gate is HIGH the buzzer starts ringing.

*It will be ringing until no more fire is detected.

*This is done automatically by starting a count which starts from 0 and ends after some desirable time.

*This is done with a counter made of J-K flip flops.

BLOCK DIAGRAM



It stops the buzzer and water sprinkler also.

The counter again goes to zero which is given as a reset to J-K flip flops.

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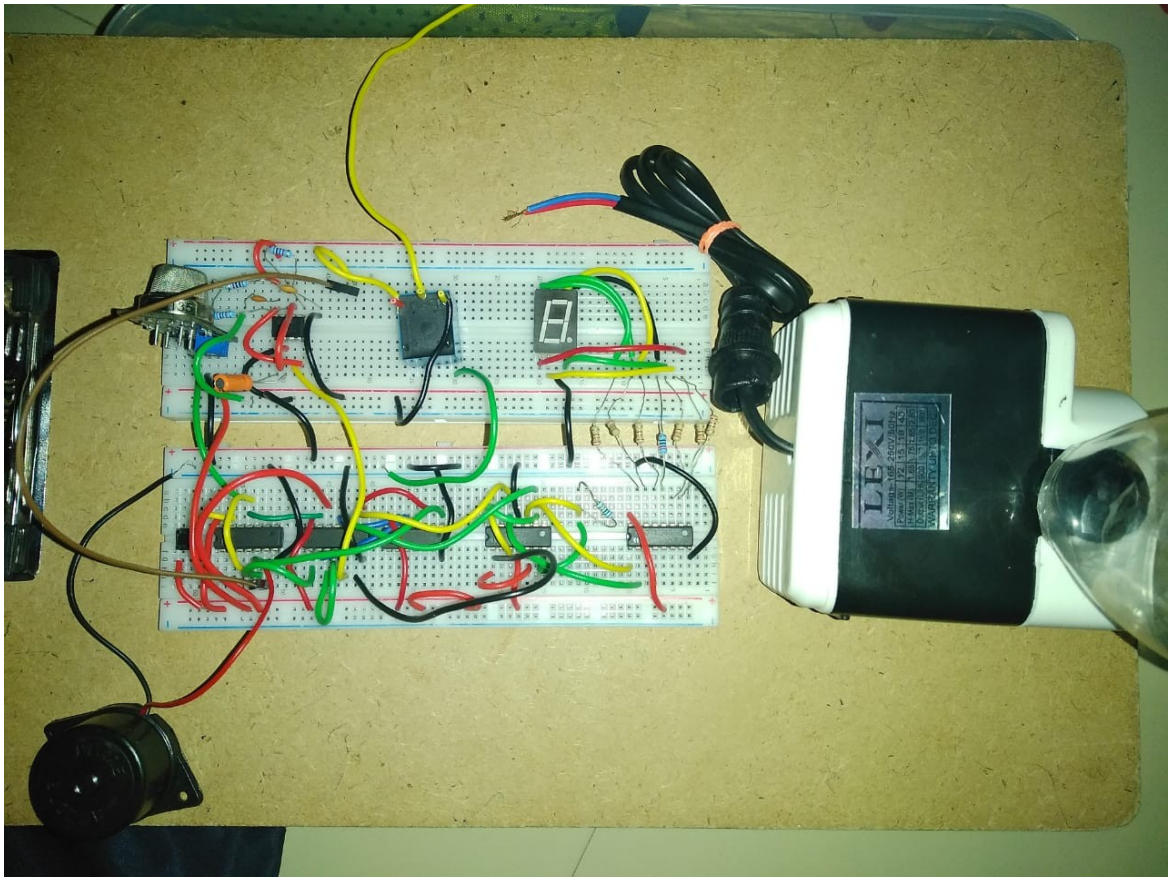
So it can be used again and again.

CIRCUIT



TAKE AWAY

*Making of 2-bit binary counter using j-k flip flops which is asynchronus.

*Using 555-timer as a clock which takes 2 seconds per cycle.

*Working of electric motor.

* For working of electrical motor we get know how to convert DC supply to AC supply using relay

RESULTS:

--->Detecting smoke and turning on buzzer.
--->When smoke is detected or the wall switch is ON the buzzer rings .
--->Water sprinckler starts .

--->Turning OFF the buzzer.
--->The buzzer stops ringing after 3 counts from 0.
--->And then water

sprinckler also stops functioning.

APLLICATIONS

- Fire Prevention and Protection Services from Advanced Fire Protection Systems.
- This doesn’t need human interference as it is all done automatically.
- By using this we can reduce the massive loss caused due to fire accidents.
- Such systems are also used where there is less human interaction .

  Ex: Mining areas,industrial areas, etc.
- This can be very useful in school and college labs.
- This is very useful to protect important go-downs etc.

Conclusion:

1.This can be made and operated easily capable of sensing accurately.

2.It is also preferable because, even if there is no one to to stop the fire it gets switched ON and OFF by itself.

3.There is no water wastage too ,it actually saves water.

4.It can be used anywhere and this system will give an immediate response.

5 Finally, it is an efficient way of reducing fire accidents.