

Smoke / Fire Detector with Automatic Water Sprinkler System

Security is primary concern everywhere and for every one. Every person wants his home, industry etc to be secured. This project describes a security alarm system that can monitor an industry and home. This is a simple and useful security system and easy to install. This fire / smoke detector is realized using readily available, low cost components. One of its many applications is in any offices and shops for security against fire. The detector will sense smoke caused by fire accident and switch on the water sprinkler to prevent major damage.

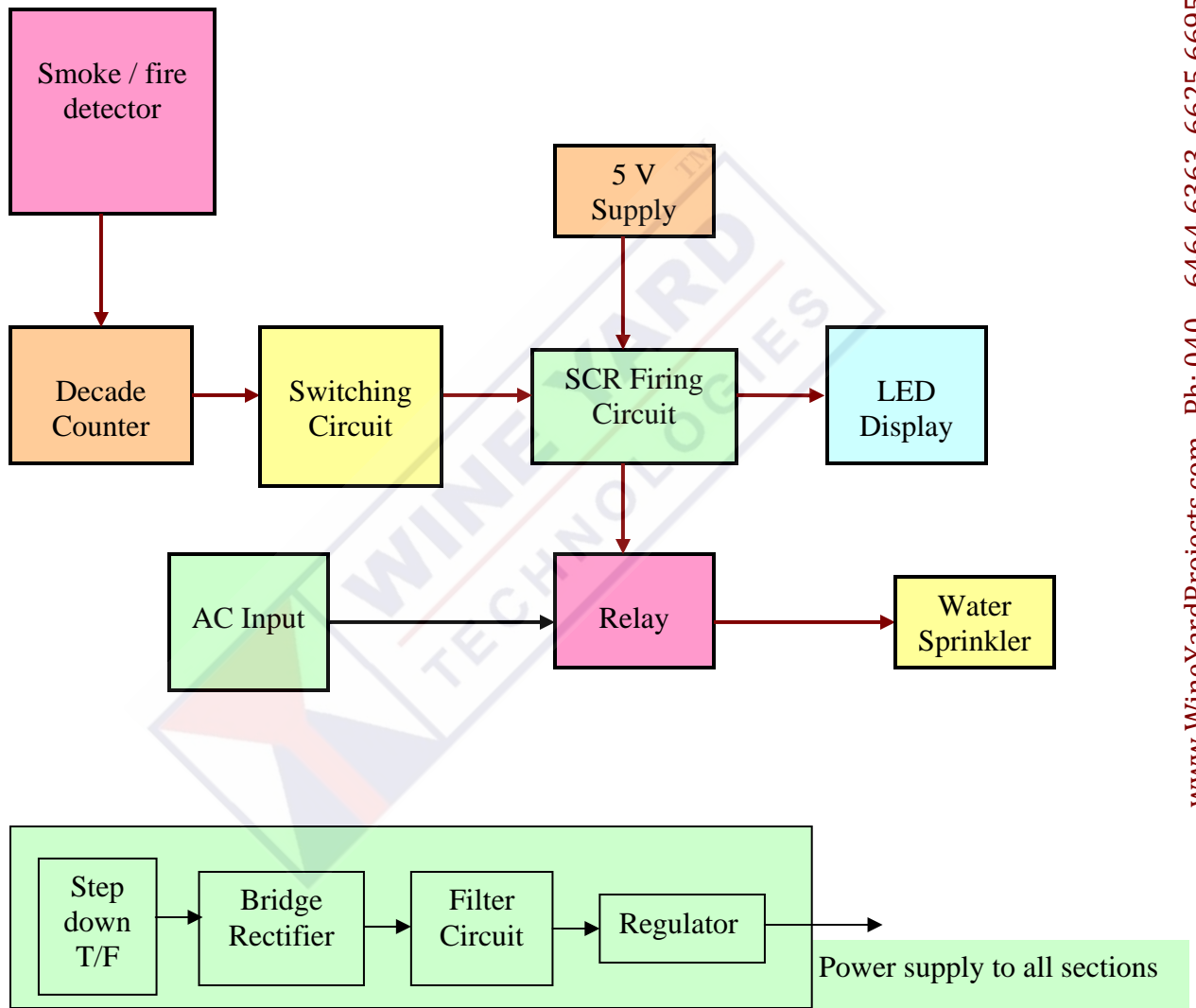
This system senses the smoke. The smoke detector comprises of an IR transmitter and an IR receiver. If smoke is presented between these two devices, the output of the sensor goes high and activates the sensor.

A relay is connected to the system and this relay is activated when the smoke is detected. This relay switches on the water sprinkler.

The circuit works off a 5V battery or 5V regulated power supply and uses smoke detector as its principal component. Initially, when the power is switched on, decade counter is reset by power-on-reset components. As a result, output of Decade counter goes high and the entire circuit is in idle state. LED indicates the power status. In the event of smoke, decade counter is clocked by the pulses from the piezo ceramic element connected to its clock pin. All the outputs of decade counter are fed to relay- driver switching transistor through diodes connected in OR mode. Immediately after clocking, any of the outputs of decade counter would go high and NPN transistor would conduct. As a result, SCR is fired through its gate. This, in turn, energizes relay. The relay contacts can be used to switch any water sprinkler device to prevent major damage caused by

fire. The circuit can be reset by momentarily pressing switch. Two Zener diodes at the clock input of IC1 are used for protection against high voltage input. In the case of repeated false triggering of decade counter, add a 100nF capacitor in parallel to the piezoceramic element.





Advantages:

Highly sensitive
Fit and Forget system
Low cost and reliable circuit

Applications:

Home / Office
Banks
Factories
Store Rooms

