## Automated Fire Extinguisher

## Introduction

The project purposely is for house safety where the main point is to avoid fire accidents which have a great potential to cause damage if not intervened on time. A fire accident in many cases may be a consequence of human agency without any intention, accidental or due to natural causes without human agency.

Fire accidents are a major form of accident and can cause a huge number of casualties and property damage. In normal times it is not always feasible to rely on human patrol to detect and extinguish fires, as such there is a need to rely on an automated alarming system or extinguishing system in case of an abrupt fire. In order to achieve this, we came up with a system to detect and extinguish the fire just on time before damage is caused.

## Objectives

To detect and extinguish fire just on time before damage is caused.

## Literature Review

In automated mode, the extinguisher comprises a LM393 flame sensor and a L9110 fan fire extinguisher being driven by a DC motor. The flame sensor consists of a thin metallic rod that creates a small current of electricity to confirm the presence of fire in the environment. It also consists of a photodiode to detect light.

When fire is detected by the flame sensor, the sensor will provide a HIGH signal, the Arduino reads the signal and triggers the fan to rotate and choke the fire. This is done until the flame is brought down to ground level or rather, levels that can be contained before damage is caused.

## Equipment - Bill of Materials

Full size breadboard

Arduino Mega 2560

LM 393 flame sensor

SRD-05VDC-SL-C Relay

L9110 fan fire extinguisher-DC motor

Jumper wires

## Methodology

Schematics

<https://drive.google.com/file/d/1ozVhnFzzidXthXOCSgcoZGSW8KhyU-q3/view?usp=sharing>

## Flowchart

INFRARED WAVELENGTH

IS INFRAREDWAVE-LENGTH>X?

SWITCH FAN ON

SWITCH FAN OFF

INFRARED WAVELENGTH=Xnm

## Conclusion

### Scalability

In future, we could use a motor with higher torque in order to put out larger accidental fires on time before damage is caused. Also, we could incorporate use of Raspberry Pi or Node MCU in order to make the system configurable through the internet.

This will cement the aspect of IoT in our system. As such, to build an Android system and one will be able to control lighting and climate regulation in their house by a simple click of the button from their smartphones.

### Challenges

Our DC motor fan could not put out some fires mostly because it did not have enough torque to rotate the fan and choke the fire. This perhaps could be addressed by used of a stepper motor with larger mechanical strength; also, by use of a larger propeller/fan.