

# Fire confront Automaton

**M.Narendra Prasad**

**Assistant Professor**

Dept. of Electronics & Communication Engineering  
St.Martin's Engineering College  
Hyderabad, Telangana  
narendraprasadece@smec.ac.in

**G.Vikram**

**Assistant Professor**

Dept. of Electronics & Communication Engineering  
St.Martin's Engineering College  
Hyderabad, Telangana  
vikamece@smec.ac.in

*Abstract - Automaton can fight against hearth that happens from any direction. The main aim of this project is to style a Automaton that automatically detects the hearth and spray the water unceasingly in that particular direction. Arduino has been used as a controller to that 4 Temperature sensors are connected in order to detect the fire from any direction. Pumping motors has been connected so as to spray the water from tank that is carried by our automaton to anyplace.L293D Motor driver IC is connected to Arduino to drive the Robot. Once power supply is given, H Bridge mechanism is employed within the Motor driver IC in order that movement in robot is initialized quickly.*

*Keywords- Arduino Uno, Temperature sensors, Motor driver IC*

## I. INTRODUCTION

Nowadays, Many of Properties damaged due to the fire accidents, this could be done because of negligence and careless of human beings. If the prevention isn't finished within the short period of time, if the fire engine arrives late, that's conjointly caused for the property loss. single fire engine is not enough to stop the fire that comes from all directions. So that we have a tendency to design a robot that consists of four temperature sensors to any or all four sides to detect the fire from all directions. A Pumping motor has been used with Water tank to spray the water towards fire when fire accident occurs, within short amount of time fire will be stop with high speed spray. Arduino uno is used as a main controller to those sensors and Stepper motors are connected.

## II. LITERATURE SURVEY

Satya Ranjan Das, Santosh Kumar Behera, Mihir Narayan Mohanty [2019]defined the paper Research on IOT Based Fire Detection automaton. This automaton will fight against hearth as well as harmful gases exploitation Infrared sensing element and gas detector and once automaton detects any hearth or gas within the building of any homes or offices it'll fight with harmful gas exploitation applicable sensing element and at the same time sent the message to user by exploitation SMS services or GPRS Packs. automaton is controlled by IOT server with the assistance of computers, portable computer or mobile.

Ankita Wakade, Kirti Khopkar ,Vrushalee Yadav, Prof.U.D.Dattasamaje Modern Education Society's College of Engineering, Pune India [2019]defined the paper Research on Fire Fighting Robot Using Arduino. The proposed vehicle is in a position to detect presence of hearth and quenching it automatically by using gas sensing element and temperature sensing element. It contains gear and motor driver to handle the movement of automaton. Relay circuit is employed to regulate the pump and once it can detect hearth then it can communicate with micro controller

(Arduino) through Bluetooth module. The planned automaton has a water jet spray that is in a position imbiber type of sprinkling water.

Sushmitha .R , Uma Bharathi .S, Sandiya .S R.M.D. Engineering College, Chennai, Tamil Nadu India [2018] defined the paper analysis on Arduino Based Fire Fighting Robot with High-pressure Water Sprinkler proposed project aims to develop an Arduino controlled hearth fighter automaton that may be accustomed extinguish the hearth through remote handling. The vehicle consists of a tank together with a pump which might throw water once required. This system uses an Arduino Uno micro controller. The Infrared receiver on the vehicle is used to receive the quantity of flame. These values are accustomed realize the situation of the fire. These are then fed to the motors to blame for dominant the vehicle movements ahead, back, left and right directions.

Snehal Adsul , Ujjwala Lokhande, Pranita Dagale ,Prof. M. D. Sale Professor, Dept. of Computer Engineering, Sinhgad college of Engineering, Maharashtra, India [2018] defined the paper Research on Android Controlled Firefighting Robot using Arduino.The proposed automaton has a water spray that is capable of sprinkling water in hundred and eighty angle. The sprinkler can be move towards the desired direction . At the time of moving towards the supply of hearth it might happen that it can return across some obstacles ,then it has obstacle avoiding capability. It detects obstacles victimization ultrasonic detectors.

Sushrut Khajuria, Rakesh Johar, Varenayam Sharma, Abhideep Bhatti Department of Electronics and Communication Engineering, MIET, Jammu, India [2017 ] defined the paper Research on Arduino Based Fire Fighter Robot. Automaton sprinkles water on to hearth. The automaton vehicle is loaded with the water tanker and a pump that is controlled by wireless communication to throw water. An Arduino micro controller is used for the desired operation. A fireman automaton suppresses and extinguishes fires to forestall loss of life and destruction of property and the atmosphere.

Sharavanan.S , Nithiya Devi.V , Venkat Raja.R.T. Venugopal Department of Mechatronics Engineering, Hindusthan College of Engineering and Technology, Coimbatore, Tamilnadu, India [2017 ] defined the paper Research on Automotive Fire Fighting Robot, automaton will automatically detects the hearth by means that of temperature detector and by manual Bluetooth methodology and ultrasonic sensing element it moves concerning the flame ,after the detection of hearth by automatic methodology, The automaton vehicle is loaded with tank that contain up to two Litre of water and pump motor that is controlled through motor driver circuit to spray water.

### III. PROPOSED DESIGN

**Hardware Description** Proposed design consist of 1).Arduino uno 2).Temperature sensing element 3).Relay 4).Motor Drivers 5).Water pumping motor. Power supply is given to Arduino uno from the 5V Battery. Temperature sensors has been placed in four directions so that automaton will detects hearth from four sides. Motor drivers are going to be repulse rebuff wheels of automaton. Relay is employed to activate the pumping motor whenever needed. Water tank has been placed on automaton which can carry that wherever it goes.

**Hardware Connections** means of connecting Temperature sensing element with Arduino Uno: Connect Arduino Uno Ground to LM35 Ground and Connect Arduino 5V pin to LM35 pin one& Connect Arduino Uno Analog Pin one to LM35 pin OUT. means of connecting the L293 IC with Arduino Uno; Connect Ground Pins of L293D to Ground Pin of Arduino Uno.10K POT is connected between 5V and Ground. Pin no.2 (IN1) is connected to Pin no.11 of Arduino. Pin no.9

(IN2) is connected to Pin no.10 of Arduino. Pin no.1 (EN1) is connected to Pin no.9 of Arduino. OUT1 & OUT2 Pin is connected to DC Motors which can be connected at wheels of automaton.

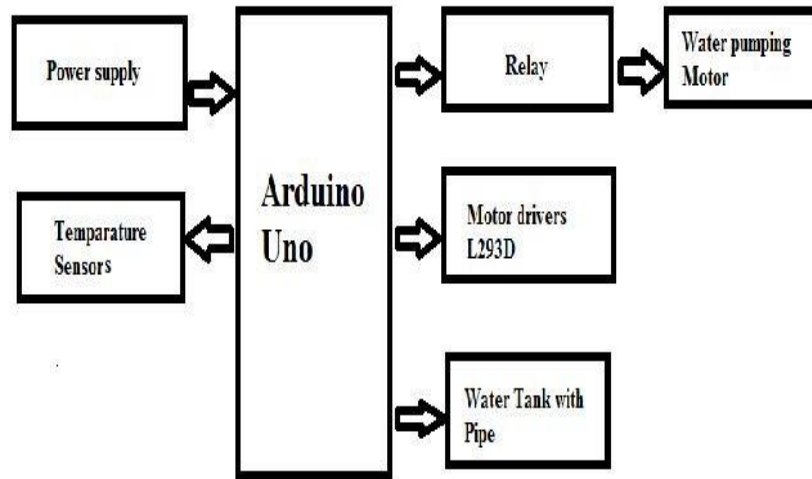


Fig.1: Block diagram of proposed design

**Working** Once power supply has been given to Arduino Uno from battery, The automaton can begin moving forward. it's a autonomous operation. When hearth happens at any direction of automaton which will be detected by the temperature sensors that are connected at four sides of automaton. When hearth is detected by Temperature sensing element which will sends command to Arduino Uno which can activates the relay that in-turns activates pump motor. Pump motor can get the water from tank that is placed near to it. It starts sprinkle the water towards the fire coming from any direction.

#### IV. EXPERIMENT RESULTS

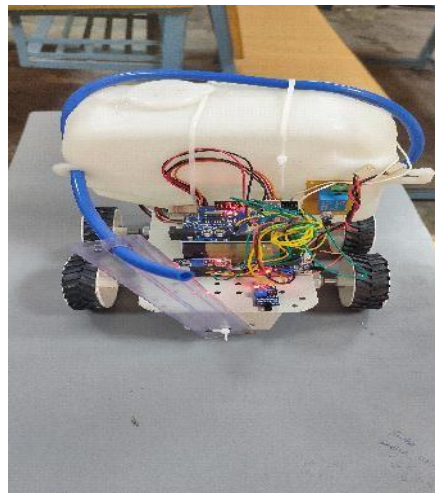


Fig.2: Set up of automaton

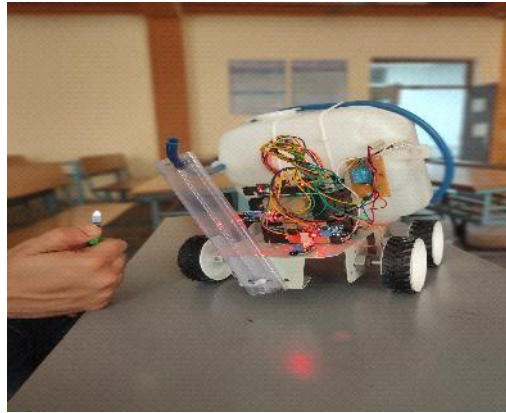


Fig.3: Creating a fire environment before the automaton



Fig.4: automaton sprinkling the water towards the fire

## V. CONCLUSION

In this paper, we have a tendency to have developed a automaton system that helps to fight against fire created from any direction. Automaton can detect the hearth and starts to sprinkle the water in that specific direction with packed with speed. If hearth happens altogether directions, Then automaton can rotates by spraying water in altogether directions. This is the special feature of our design style.

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