VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JNANA SANGAMA", BELAGAVI-590018, KARNATAKA

Project Report (17EEP85)
on
"SMART AUTONOMOUS FIRE-FIGHTING ROBOT"

Submitted in partial fulfillment for the requirement of the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

Submitted By
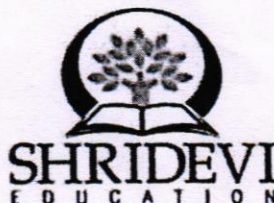
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CERTIFICATE

Certified that the Report of project work entitled "SMART AUTONOMOUS FIRE-FIGHTING ROBOT" carried out by **SHIVAKUMAR A R (1SV15EE031), AJITH KUMAR S (1SV17EE001), KEERTANA R (1SV17EE003), SUJATA (1SV17EE011)** a bonafide students of **SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY, TUMKUR-572106**, has successfully carried out the project work in partial fulfillment for the award of **Bachelor of Engineering** in **Electrical And Electronics Engineering** of the Visvesvaraya Technological University, Belagavi during the year 2021-2022. All the corrections/suggestions indicated for internal assessments have been incorporated in the report. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for Bachelor of Engineering Degree.

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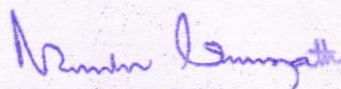
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ABSTRACT

The principles used in this design are such that enable our robot to be extended to a more robust system to be used to combat actual fires in residential or commercial settings.

The main requirement of this project is to create a robot that is fully autonomous. This means that once the robot is started by the user, it navigates, searches for, and extinguishes the fire on its own, with no assistance or input from the user.

A fire fighter's work entails detecting and extinguishing fires. In this rapidly evolving technological age, the world is gradually moving toward automated systems. Firefighters, on the other hand, are often in danger of losing their lives. The majority of the deaths were caused by toxic gases found in the firefighting environment. As a result, in order to resolve these issues, our system was developed

This advanced firefighting robotic system independently detects and extinguishes fire. In the age of technology, the world is slowly turning towards the automated system and self-travelling vehicles, firefighters are constantly at a risk of losing their life. Even though there are a lot of precautions taken for Fire accidents, the natural/man-made disasters do occur now and then. In the event of a fire breakout, to rescue people and to put out the fire we are forced to use human resources which are not safe. With the advancement of technology especially in Robotics it is very much possible to replace humans with robots for fighting the fire. This would improve the efficiency of firefighters and would also prevent them from risking human lives Fire spreads rapidly if it is not controlled. In case of a gas leakage there even may be an explosion. So, in order to over comet his issue, safe guard live of our hero, our system comes to the rescue. This firefighting robotic system is powered by Arduino Uno development board it consists of the ultra-sonic sensor mounted on a servo motor for obstacles detection and free path navigation, it is also equipped with the fire sensor or flame sensor for detecting and approaching fire it also makes use of water tank and spray mechanism for extinguishing the fire. Water spraying nozzle is mounted on servo motor to cover maximum area. Water is pumped from the main water tank to the water nozzle with the help of a pump.

Keywords: Arduino UNO, Firefighting Robot ,Temperature Sensor ,Water Pump.

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