DESIGN AND CONSTRUCTION OF AN AUTOMATIC FIRE FIGHTER & SURVEILLANCE ROBOT

A thesis

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APPROVAL

This is to Certify that the project on **'' Design and Construction of an Automatic fire fighter & surveillance Robot''** by Md. Amanullah (ME2102024270), Amit Hasan (ME2102024271), Md. Abu Sayem (ME2102024339), Abdus Salam (BME1901017392), Rifat Mahmud Samrat (ME2102024227), has been carried out under our supervisor. The project has been carried out in partial fulfillment of the requirements of the degree of Bachelor of Science (B.Sc.) in Mechanical Engineering of years 2024 and has been approved as to it's style and contents

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STUDENTS DECLARATION

This is to Certify that the Thesis **'' Design and Construction of an Automatic fire fighter & surveillance Robot''** has been prepared as a part of completion of the Bachelor of Mechanical Engineering Program. I have discovered this paper very interesting, beneficial and insightful.

This Entire paper is based on our practical experience. I expect this paper to be informative as well as comprehensive. This thesis Paper will help me a lot in my future Career life.

Thank you very much for your guidance and cooperation during the course without which this thesis Paper cannot be completed.

Moreover, if you have any Further inquiries concerning any additional information, I would be very pleased to clarify that.

Yours sincerely

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Abstract

The Design and construction of an Automatic Fire Fighter & Surveillance Robot aim to provide an innovative solution for fire detection and firefighting in hazardous environments. This project integrates advanced components such as an IR reader, flame sensor, GPS module, GSM module, Arduino Uno, and motorized systems to create a dual-part system. The transmitter unit detects fire incidents and transmits real-time location data to the firefighting robot. The receiver unit on the robot processes this data, enabling it to navigate to the fire site using BO motors and a motor driver. Upon arrival, the robot's secondary system utilizes the flame sensor to confirm the presence of fire, and a MG995 servo motor is employed to deploy a CO2 foam spray for extinguishing the flames. The system demonstrates the effective use of automation in reducing human involvement in high-risk scenarios while providing a responsive and efficient firefighting mechanism. This robot not only ensures timely action but also contributes to safety and surveillance in challenging environments.

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Table of Contents

Page No.

Acknowledgement……..……iii
Abstract……...iv-vi
Table of Contents…….....Vii
List of Tables……..….....x
List of Figures…….....xiii
Chapter 1: **Introduction**…….……..1
1.1 Introduction…….……..1
1.2 Objective……...…..…..2
1.3 Background…….....….....3
1.4 Scope of the problem…….…....5
1.5 Importance of firefighting robot……...….7
1.6 Advantages: ……...…..10
Chapter 2 **Literature Review**…….….....11
Chapter 3 **Design and Structure** ….……12
3.1 Circuit Diagram…….……...…..12
3.2 Block Diagram…….…… ……...…….…..13
3.3 Full overview…..…….…...16
Chapter 4 **Experimental Equipment**…….……....…...16
4.1 Experimental Equipment's…….……...…17
4.1.2 Arduino Uno……..……..…..…17
4.1.3 L298N motor ….…….…….....18
4.1.4 Bo Motor…….……...……18
4.1.5 Flame sensor……....……19
4.1.6 Remote and IR Receiver……...……...19
4.1.7 Node MCU …….…....20
4.1.8 GPS module (NEO-6M)……....……21
4.1.9 GSM Module ……....…..21
4.1.10 MG995 - Servo motor……..…..…22

4.1.11 CO2 foam spray…….……22
4.1.12 Battery……..…….23
4.1.13 Wire ……..……..…24
4.2 Hardware…….……..……..…24
Chapter 5 **Methodology**……..…25
Chapter 6 **Result**……...……...…30
6.1 Result …….……...…31
6.2 Graph ……..……...39
6.3 Result Work Sheet……..……...40
6.4 Cost Analysis…….……....41
Chapter 7 **Future Recommendation** ……..……....42
7.1 Advanced Fire Detection Technologies……...…….....42
7.2 Improved Navigation and Mapping……...42
7.3 Enhanced Communication Systems……...…43
7.4 Advanced Fire Suppression Systems…….……43
7.5 Structural and Material Enhancements…….....…..43
7.6 Energy Efficiency and Power Management…….…..…44
7.7 Scalability and Multi-Robot Systems……..…….44
7.8 Data Analytics and Reporting…….…..44
7.9 Legal and Ethical Considerations…….……44
Chapter 8 **CONCLUSION**…….....45
8.1 Conclusion…….……45
REFERENCES ……..46
APENDIX……...…..…49

List of Figures

Figure 3.1 Transmitter Side Circuit diagram of Fire Fighting Robot……...……..12
Figure 3.2 Receiver Side Circuit diagram of Fire Fighting Robot……..13
Figure 3.3 Transmitter Side Block Diagram of Proposed System……...……14
Figure 3.4 Receiver Side Block Diagram of Proposed System……..….15
Figure 3.5 Full overview of Proposed System…….16
Figure 4.1 Arduino Uno……...…17
Figure 4.2 L298N motor Driver……...…18
Figure 4.3 Bo Motor…….18
Figure 4.4 Flame sensor……..…….19
Figure 4.5 Remote and IR Receiver……...……..19
Figure 4.6 Node MCU……..……20
Figure 4.7 GPS Module (NEO-6M)…….……21
Figure 4.8 GSM Module……..……22
Figure 4.9 MG995 - Servo motor…….22
Figure 4.10 CO2 Foam spray……..…….23
Figure 4.11 Battery……...……23
Figure 4.12 Wire……..24
Figure 6.1 Fire Detection Device (Transmitter Side)……..……30
Figure 6.2 Fire Fighting Robot (Receiver Side)……...……31
Figure 6.3 Robot Rotate to Left…….……..32
Figure 6.4 Robot Rotate to Right…….……33
Figure 6.5 Robot Going Forward……...……..34
Figure 6.6 Robot Going Backward……..…….35
Figure 6.7 Fire Detected in Left Side of Robot……. ……..36
Figure 6.8 Foam Spray is throwing to fire of Right Side of Robot…….37
Figure 6.9 Getting SMS with Fire Detection Location Data……....38