HIGHER DIPLOMA IN SOFTWARE ENGINEERING COURSEWORK

Robotic Application Development

DIY Fire Fighting Robot

Module Name:	Robotic Application Development
Name of Lecturer:	MR SUPUN
Department:	School of Computing
Submission Due on:	13 May 2024
Type of Coursework:	Group 15
Title of the Coursework:	DIY Fire Fighting Robot

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DECLARATION

This project includes our course work of Robotic Application Development which is a module to higher diploma in software engineering course of NIBM and in this project we are going to design prototype DIY Fire Fighting Robot. This is the procedure of the course work that will be launched under Mr. Supun

SUMMERY

This project centers on building a basic, functional fire-fighting robot accessible to DIY enthusiasts. Using a Raspberry Pi and LiDAR sensor, the robot will The robot detects where the fire is and puts it out. The goal is to emphasize learning and create a clear guide for others with an interest in robotics.

CONTENT

- Introduction/ Nature of the project

  The project aims to needed to construct a basic firefighting robot. By utilizing accessible components such as L298 Motor driver and Flame sensors, we intend to demonstrate how simple, and effective firefighting solution can be created at home.

- Technology
  - Motors and Wheels: To make the robot move.
  - Simple Fire Fighting Mechanism: A water tank and pipes in a small container
  - Programming Language: C++ and java

Use Components

- Arduion UNO
- Flame sensors
- hardboard sheets
- BO motors
- L298 Motor driver
- Solder-less Breadboard
- Mini servo
- 5-9v Water pump+pipe
- Water tank/bottle
- 3.7V batteries
- Jumper wires
- TIP-122 Transistor
- 104 uf capacitor
- 1K Resistor

Expected outcomes of the project

Our primary result is that the robot detects the road, avoids the obstacles and puts out the fire.

Budget of the project

	Item	*Prices*
1.	Arduion UNO	RS.8000
2.	Flame sensors 3	RS.600
3.	Hardboard sheets	RS.670
4.	BO motors	RS.1290
5.	L298 Motor driver	RS.670
6.	Solder-less Breadboard	RS.230
7.	Mini servo	RS.670
8.	5-9v Water pump+pipe	RS.1290
9.	Jumper wires	RS.300
10.	TIP-122 Transistor	RS.70
11.	104 uf capacitor	RS.4
12.	1K Resistor	RS.50
	Total	**13,844**

Duration of the Project