Robot Fire Fighter

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Abstract:

This Robot is automatic fire extinguisher that senses the fire and act automatically without human intervention. Once the robot is released it is going to identify the place of the fire and going to identify the fire properties and how to deal with it. This Project is mainly concerned by the Robot software not our main scope the hardware. In this robot there will be many upgrades from the previous published work. We are going to use thermal imaging to identify the fire and the fire type also this will indicate the extinguisher type going to be used to put down this fire.

1 Introduction:

1.1 Background:

Fire extinguisher is one of the most dangerous jobs around the globe. Some fire fighters lose their lives trying to put down a fire or trying to save another human. In this project we are going to spare their lives with a robot that can easily determines the fire place and the fire type to act accordingly on these data on how it is going to put the fire down using which substance.

1.2 Motivation:

We thought about this Project just to save lives of the hundreds fire fighters dying all the time trying to do their jobs and risking their lives. This Robot is going to do the fire fighter work and maybe more efficient and faster because it is going to take actions according to real data collected from the scene with image processing. And there could be errors in the early prototype but the final stable version is going to do the job as it should be done.

1.3 Problem definition:

Risking lives:

By this Robot we are going to minimize the fire fighter real exposure to the risk of dying during their job because all what they have to do is going to the scene and releasing the robot and it is going to do its job without human intervention.

Minimize human error:

On the scene the fire fighter could take wrong actions due to frustration of the situation and any wrong action could lead to losing his life but this robot is going to take the right actions because simply he cannot feel.

2 Project Description:

2.1 Objective:

The objective of this Robot is to save lives lost during these catastrophic situations. This Robot is being developed to act like autonomous fire fighter.

2.2 Scope:

The scope of this project is developing the software of the robot that makes it able to act without human intervention from image processing to controlling the arms and legs of the robot.

2.3 Project Overview:

The Robot is going to sense the heat with heat sensors to know which direction the fire is and then going to go to thermal imaging to analyze the fire and start taking actions accordingly.

3 Similar Systems information:

3.1 Similar Systems and papers:

3.2 Matec Web Conference, Design and Implementation of Fire Extinguisher Robot with Robotic Arm (Abdul Waris Memon, Juan Du1, Abdul Haleem Abro2, Sharmeen Iftikhar Shah2 and Moazzam Ali Bhutto3)

3.3 8th International Conference on Ubiquitous Robots and Ambient Intelligence, Automatic Fire Extinguisher Robot (B. Swetha Sampath)

3.4 Global Journal for Research Analysis, Fire Fighting Robot (A.K. Srivastava, Keshav Kumar Singh, Vinkita Tripathi, Jyoti Dev Nath, Md. Imamud din)

3.5 International Journal of modern trends in engineering and science, Autonomous Fire Fighting Robot (B. Deepak, S.P. NAveenkumar, M.Pandiyan , P.Tamilarasan , L.Tuvaraj)

3.6 Similar System Description:

A System proposed by B. Swetha Sampath has been developed to use only heat sensors without using any imaging or thermal imaging analysis. It is also developed to use only water to put fires down

3.7 Comparison with proposed project:

Our system is going to use thermal imaging to analyze the fire and determine what is the fire type to use the right substance to put down the fire.