

Underneath Vehicle Inspection Using Fuzzy Logic, Subsumption, and Open Cv-Library

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Abstract : The inspection of underneath vehicle system has been given significant attention by governments after the threat of terrorism become more prevalent. New technologies such as mobile robots and computer vision are led to have more secure environment. This paper proposed that a mobile robot like Aria robot can be used to search and inspect the bombs under parking a lot vehicle. This robot is using fuzzy logic and subsumption algorithms to control the robot that moves underneath the vehicle. An OpenCV library and laser Hokuyo are added to Aria robot to complete the experiment for under vehicle inspection. This experiment was conducted at the indoor environment to demonstrate the efficiency of our methods to search objects and control the robot movements under vehicle. We got excellent results not only by controlling the robot movement but also inspecting object by the robot camera at same time. This success allowed us to know the requirement to construct a new cost effective robot with more functionality.

Keywords : fuzzy logic, mobile robots, Opencv, subsumption, under vehicle inspection

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