

ABSTRACT

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Design and Implementation of Fire Fighting Robot Simulator

(vi + 99 pages : 14 tables, 61 pictures)

Robots have been implemented in many aspects of our life, not only in the industry sector but also in our daily life. Therefore, developing an algorithm for a robot to operate autonomously is a very interesting idea.

Through this final project, a simulation of fire fighting robot is designed and implemented. Relying on its sensor, a robot must be able to search multiple rooms to find source of fire and extinguish it before returning to its starting position.

The main fire searching algorithm is designed using wall following method. To implement this in the robot, the algorithm is written into a Basic Atom microcontroller with support from several sensors which are used to detect ultraviolet radiation, heat, distance, and surface color.

Through simulation, the algorithm is proven to be effective. However, the implementation of the algorithm still has problems caused by many variables of real world environment.

References : 18 (1986-2006)