

Project I Description

Project Name: SAR firefighting robot
Sponsor: LAU – National Instruments
Team Size: 3 MEE Students

Project Overview

Firefighting is a life risking endeavor that has many hazards. One of the major hazards associated with firefighting operations is the toxic environment created by combusting materials. The four major hazards associated with these situations are smoke, the oxygen deficient atmosphere, elevated temperatures, and toxic atmospheres. Additional risks of fire include falls and structural collapse¹. A firefighting robot would eliminate these risks and help save lives.

The aim of this project is to design and develop a fully autonomous robot that will be used in firefighting. The robot should be capable of climbing the wall of a scaled down building with simulated fire and perform search and rescue tasks.

Project Areas and Majors needed

Kinematics (1 MEE Student)	Instrumentation (2 MEE Student)
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Project Deliverables

Design and Build a firefighting robot with the following functions:

- The device must be able to climb the wall of a simulated building under fire using applicable mechanism
- Equipped with camera and microphone to record the mission log
- The device must be controlled through a transmitter/receiver radio link
- The device must be powered by rechargeable batteries
- The device must be able to detect fire in apartments and act accordingly
- The device must be able to detect the location of people in need of help
- The device must be modular so that other functions can be easily integrated