

Project I Description

Project Name: Demining Assistant Kit

Sponsor: LAU – BRIC Lebcscr

Team Size: 3 MEE Students

Project Overview

Landmines are still a worldwide problem. Landmines' detection is a necessary step to remove them and rid the world from this problem. Infrared imaging (IR) is one of the possible sensors used to detect shallow buried landmines. The strength of IR imaging is due to the different thermal behavior of different objects buried at various levels. This leads to a possible detection of buried objects and in particular landmines.

The aim of this project is to design and develop a demining assistant kit comprised of a fully autonomous robot and a demining helmet. The robot serves as an assistant in demining operations utilizing the power of the IR sensor. The safety helmet holds several sensors to aid the deminer fully autonomous robot.

Project Areas and Majors needed

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

Design and Build a robot with the following properties:

- The robot should be as lightweight as possible to avoid triggering landmines
- The robot should be able to traverse through hard terrains
- Equipped with a basic IR camera to record the required thermal data
- Possibly equipped with an additional normal camera
- The device must be controlled through a transmitter/receiver radio link
- The device must be powered by rechargeable batteries
- The robot should be able to move backwards and forwards without trouble

The helmet should satisfy the following:

- The helmet should include a stabilized camera that is always pointing downwards
- The helmet should be as lightweight as possible to not disturb the deminer
- The design should be ergonomic

- The helmet should include an ear piece and a microphone for communication with a base station
- The helmet should include a visor for protection
- The data from the different sensors should be recorded on the helmet
- The helmet should include rechargeable batteries