

Abstract

Khaled Mahar

Landmines Recognition System using Thermovision Technique

sub-surfaceburied landmines, with the surrounding environment constitute a complex system with variable characteristics. infrared thermography techniques are attractive candidates for this kind of applications. they can be used from a considerable standoff distance to provide information on several mine properties,they can also rapidly survey large areas. this paper presents a robust method for landmine detectionrecognition. it uses the mean-shift algorithm to segment the acquired infrared image. the segmented image retains pixels associated with mines together with background clutters. to determine which pixels represent the mines, a second phase of segmentation is applied to the output of the mean-shift algorithm by using a self-organizing maps (som) algorithm. depending on the resulted cluster intensity variations, the chips extracted from the segmented image are processed to extract mine signatures. after that, the extracted signatures are scanned horizontally, vertically,diagonally to build a cluster intensity variation profile. this profile is statistically compared with the known mine signature profiles v.the proposed system is applied on series of time variant mid-wave infrared images (mwir),the test result show that the system can effectively recognize the mines with low false alarm rate.