

“No Pass” Thermal Alarming System

Objective:

To design and build a trespassing security system that triggers a sound alarm upon a person/object crossing a secure boundary.

Equipment required:

To accomplish the design, we need the following peripherals:

1. FLIR Lepton[®] 3 Micro Thermal Camera Module
2. uxcell 85dB Sound Electronic Buzzer Alarm
3. LPC4088 Microcontroller

Design Overview:

A FLIR Lepton[®] thermal imaging camera will be used to perform thermal mapping of the surroundings. The thermal image data will be used to calculate the thermal centroid, which represents the hottest point in an image. This can help create a spatial coordinate system using which a “No Trespassing” boundary will be set using the centroid as a reference point. A person usually much warmer than the surroundings will cause the centroid to move to the location of the person on the image. As soon as the centroid crosses the “No Trespassing” boundary, the electronic buzzer alarm gets triggered and goes off to alarm the surveillor.



FLIR Lepton[®] 3