NIGHT VISION TECHNOLOGY

Seeing without being seen

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INTRODUCTION

- Night Vision Technology is one through which we can view distant objects in the night

- It uses 2 techniques:
  - Image Enhancement
  - Thermal Imaging
**IMAGE ENHANCEMENT:**

- Generally called as night vision devices (NVDs)
- It rely on Image Intensifier Tube

- Image Intensifier tube changes photons to electrons, multiplies them and back again.
IMAGE INTENSIFIER TUBE
Normal view of a place at night

View of the same place using Image Enhancement Technology
THERMAL IMAGING:

It is quite easy to see everything during the day..

..but at night, you can see very little.

Thermal imaging lets you see again.

- It is based on thermograph (records temperature variations of a body) and INFRARED ILLUMINATION.
THERMAL IMAGING
Colored thermographic image of a dog

A Monitor displaying the Image of a person using Infrared Illumination
GENERATIONS:

Images of a squirrel using different generation’s NVDs

Generation I

Generation II

Generation III

Generation IV
Comparison between Generations:

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<tr>
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<th>Gen1</th>
<th>Gen2</th>
<th>Gen3</th>
<th>Gen4</th>
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<tbody>
<tr>
<td>Detection Range (m)</td>
<td>170</td>
<td>270</td>
<td>360</td>
<td>430</td>
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<tr>
<td>% Improvement over Gen 1</td>
<td>0%</td>
<td>60%</td>
<td>110%</td>
<td>153%</td>
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NIGHT VISION DEVICES (NVD’S):

- Scope
- Scope mounted on a gun
- Video camera
- Camera
- A man wearing goggles
APPLICATIONS:

Military Purposes

Coastal surveillance
Wild Life Observation  

Security
Control Accidents
Hidden Object Detection
CONCLUSION:

Presently, we are using this for security purposes. Researches are under progress to make these devices more cheaper, smaller and better which would render more purposes to civilians also.
THANK YOU