

# **INFRARED THERMAL IMAGING**

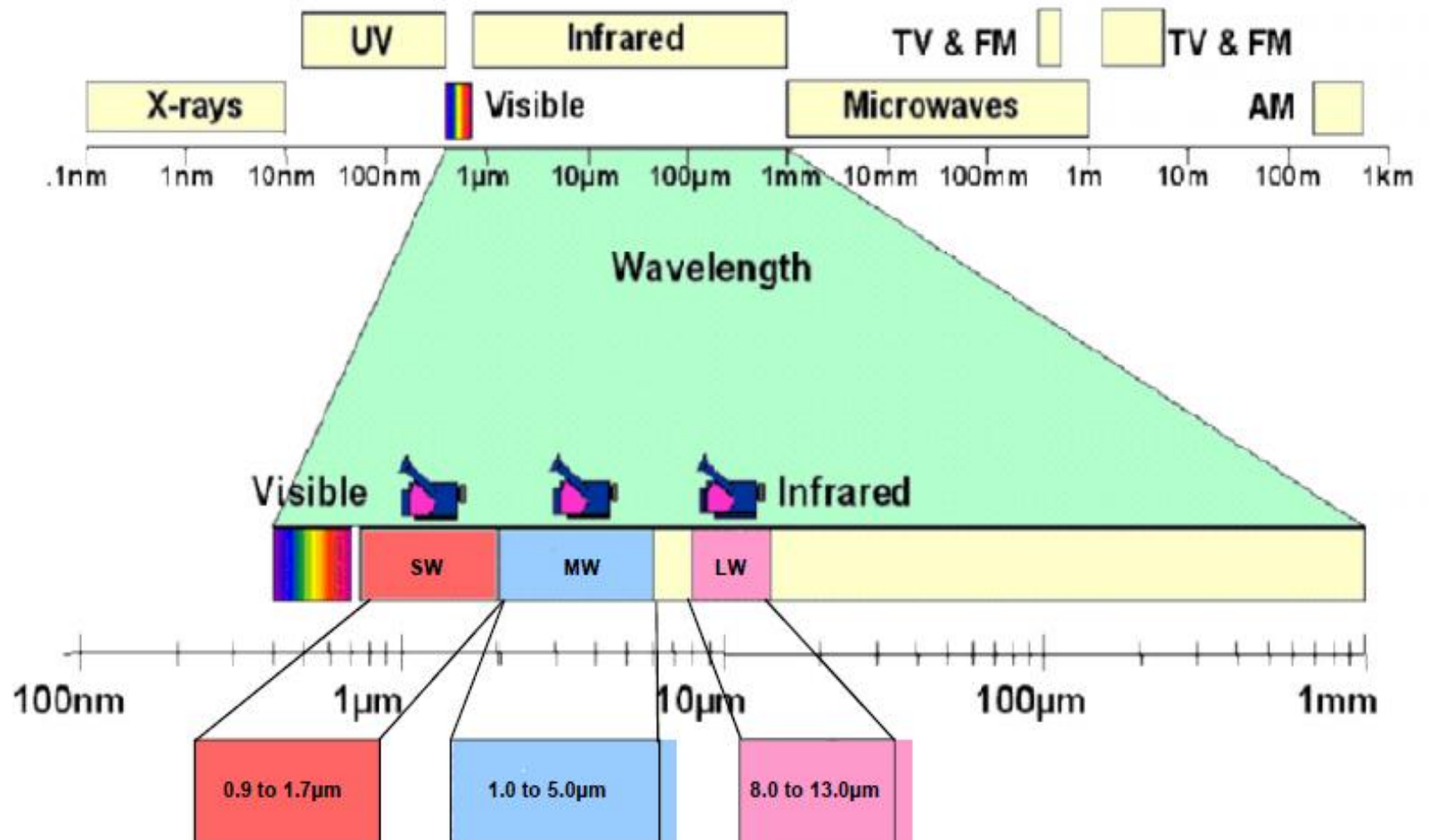
**SUBMITTED  
BY**

**N.SOBHA DEVI**

# CONTENTS

- ✓ About Infrared
- ✓ Electromagnetic spectrum
- ✓ Thermal Imaging
- ✓ Thermography
- ✓ Infrared Thermography
- ✓ Applications
- ✓ Advantages
- ✓ Conclusion

# ABOUT INFRARED



# Definition of Thermography

Thermography means “**writing with heat**”.

Just like  
**What is Thermal Image**

Photography means “**writing with light**”.

The picture that is generated is called a  
“**thermogram or thermal image**”.

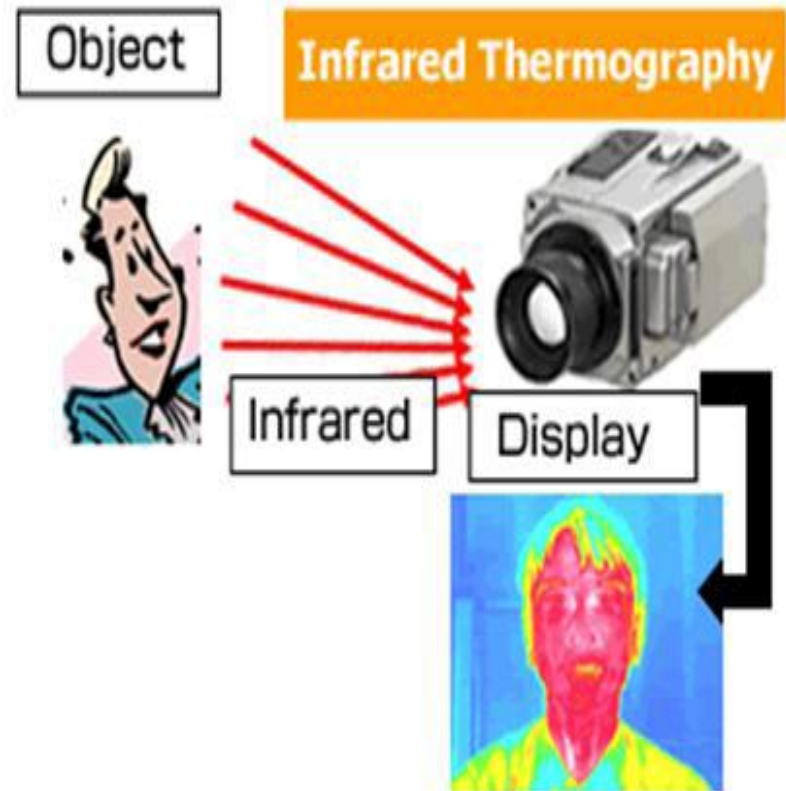
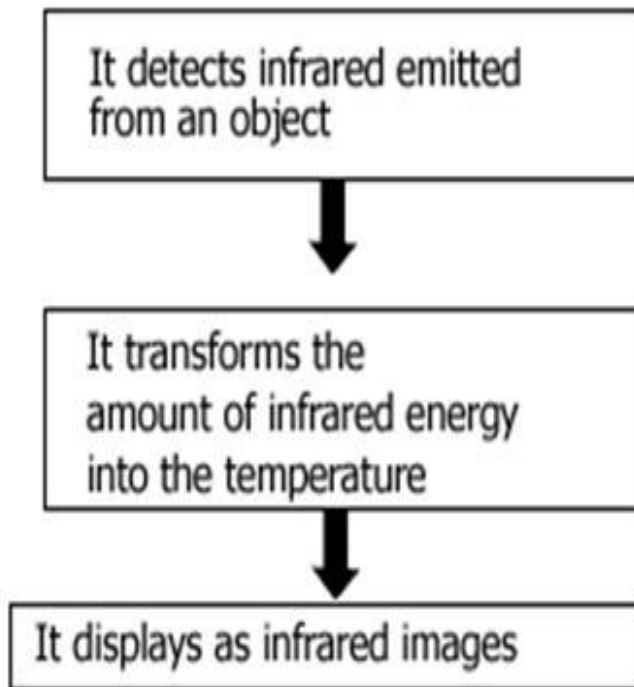
# How Do Thermal Imaging Infrared Cameras Work



An infrared camera is a noncontact device that detects infrared energy (heat) and converts it into an electronic signal, which is then processed to produce a thermal image on a video monitor and perform temperature calculations.



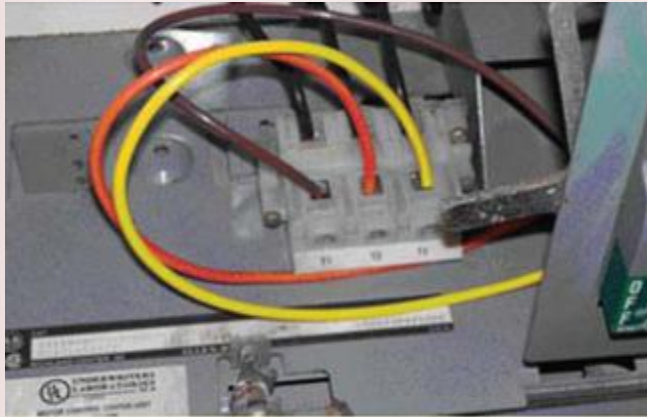
# How It Works



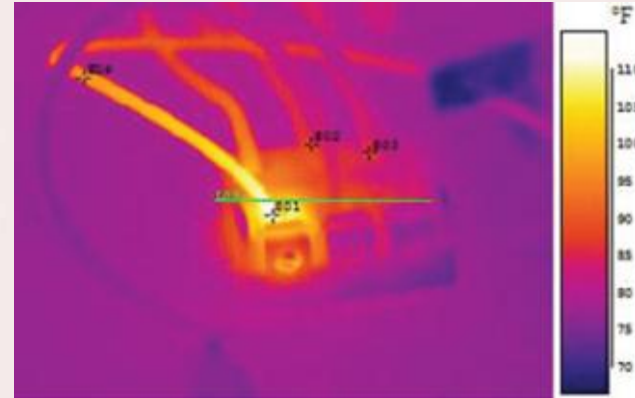
# APPLICATIONS AREAS

- ✓Electrical Systems
- ✓Mechanical Systems
- ✓Processing Systems
- ✓Military applications
- ✓ security

# WIRE CONNECTION



Visible Light Image



Infrared Thermal Image

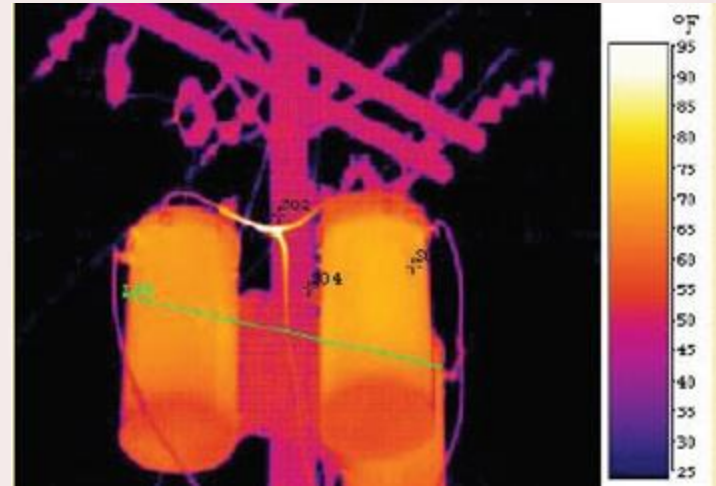
Here we see that even the smaller wire connections can cause potential problems. This control wire connection is loose and if it fails ,the machine that it controls is shut down.



# SWITCHING AND FUSES ABOVE TRANSFORMERS



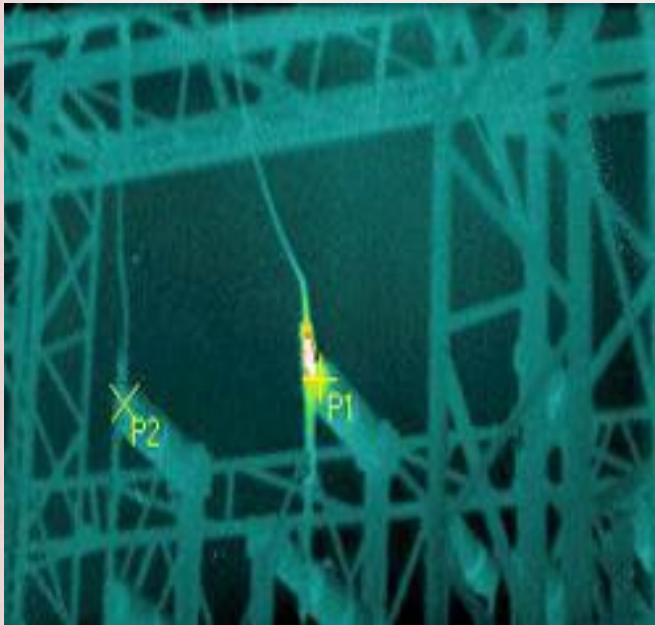
Visible Light Image



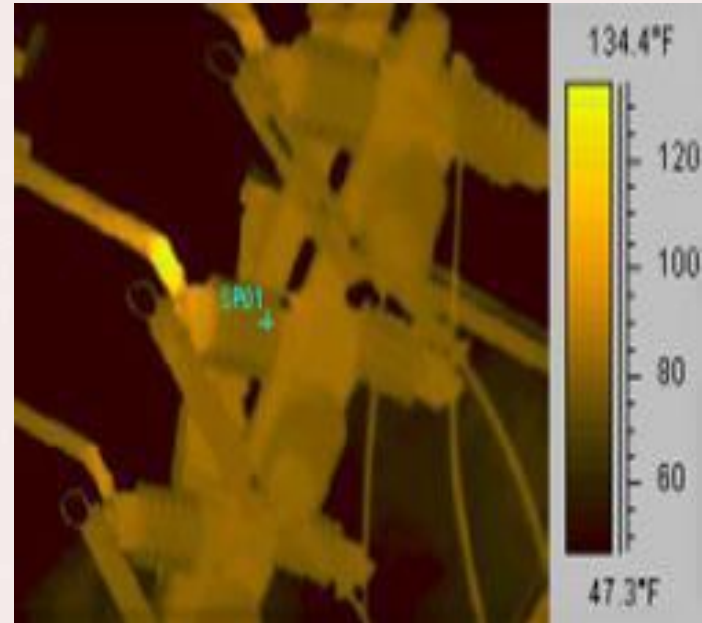
Infrared Thermal Image

These crimped connections between the transformers appear to be loose. They should be checked. If any failure in the system, the entire system would be shutdown.

# Detection of a Faulty Electric System

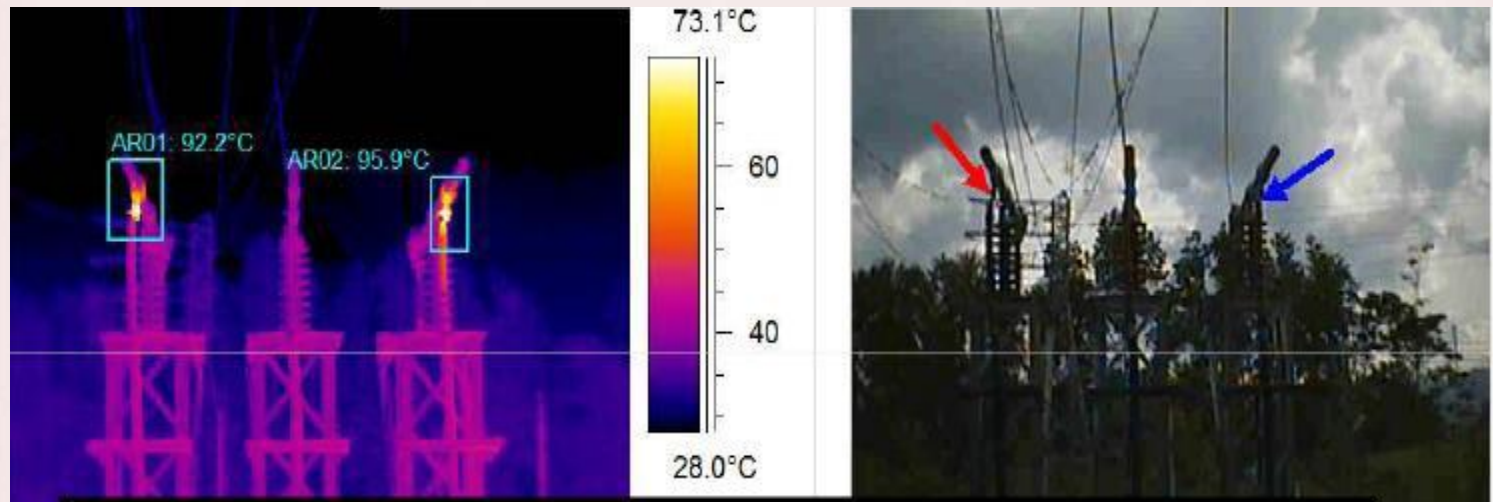


**Visible Light Image**



**Infrared Thermal Image**

# Detection of Industrial Electrical fuse block



Visible Light Image

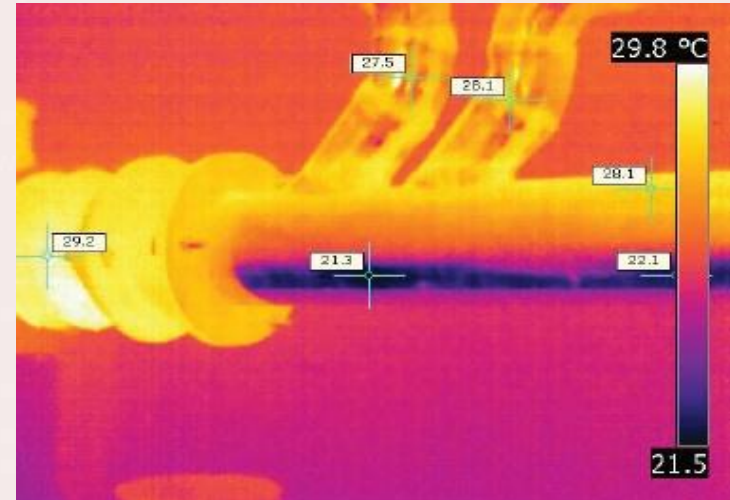
Infrared Thermal Image



# PARTIALLY BLOCKED DRAIN PIPES



Visible Light Image



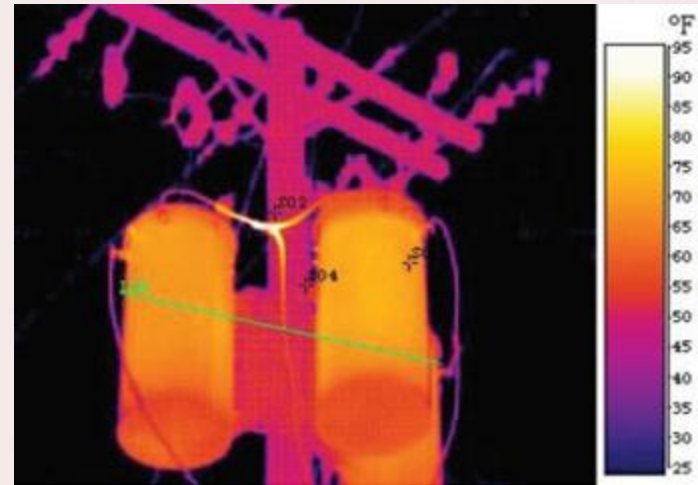
Infrared Thermal Image



# SWITCHING AND FUSES ABOVE TRANSFORMERS



Visible Light Image



Infrared Thermal Image

These crimped connections between these transformers appear to be loose. They should be checked. A failure here would shut down the entire system.

# Level Detection

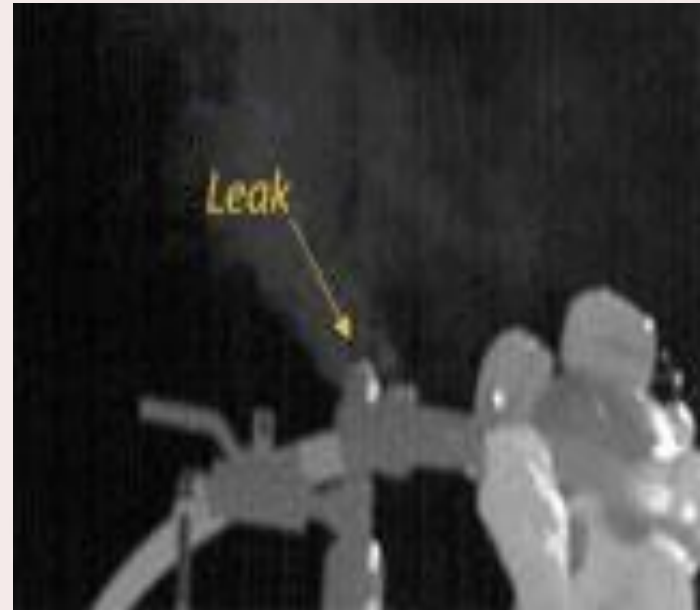


**Level comparison of two tanks**

# Detection of leakage in Petrochemical & Refineries



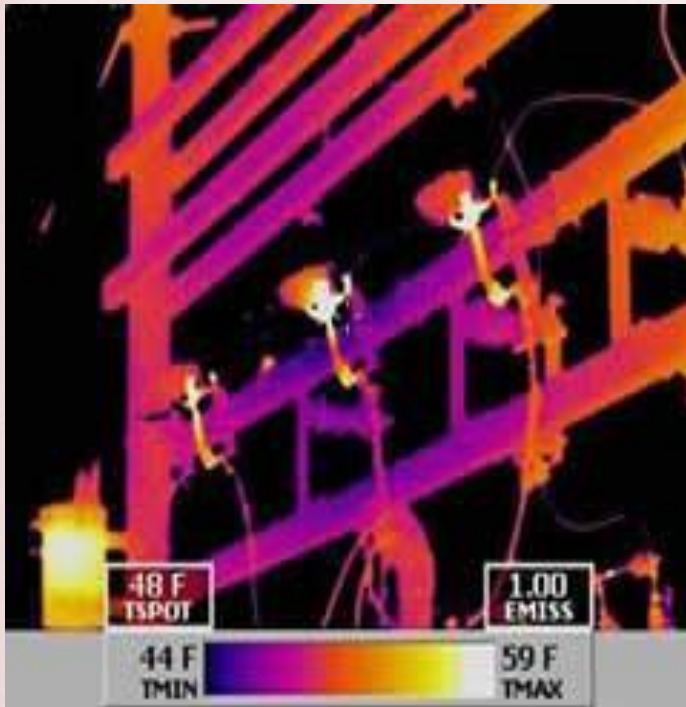
**Visible Light Image**



**Infrared Thermal Image**



# Power Distribution Centers



Infrared thermal image



Visible light image



# Thermal imaging technology that enhances night-time road safety



Infrared Thermal image

Visible light image

# Security

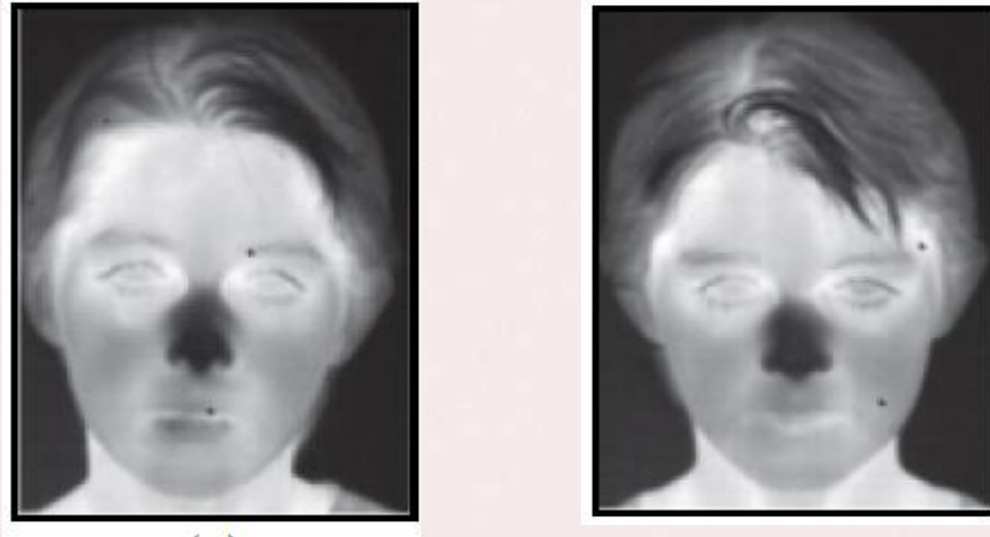


# Military Applications





# Face Recognition



**A pair of twin's Infrared Images**

Though identical twins have some different thermal patterns, there are some exceptions too.



# ADVANTAGES

- ✓ Increased safety.
- ✓ Reduced risk of fire.
- ✓ Quick problem detection without interrupting service
- ✓ Prevention of premature failure and extension of equipment life
- ✓ Identification of potentially dangerous or hazardous equipment
- ✓ Quickly identify areas of energy wastage and cost savings
- ✓ Detection of plumbing and moisture issues
- ✓ Reduction in Insurance Claims
- ✓ Effective infrared scanning to prevent down-time

# CONCLUSION

Infrared Thermography has proven to be an invaluable resource that is

- ✓ cost effective
- ✓ valuable diagnostic tool
- ✓ Improving system efficiency, power quality,
- ✓ workers' safety as well as Averting outages, valuable equipment failure and line losses.

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