Federally Funded Basic Research
Making the Invisible, Visible Through Infrared Technology

Image: Courtesy of NVESD

What is infrared?
Infrared radiation (IR) is emitted from all heat-producing objects. Infrared imaging is the detection and imaging of this heat emission.

Image: Courtesy of KSV

AIDING U.S. TROOPS
The US military uses infrared imaging technology, or Night Vision, to enable soldiers to see better in darkness. It was used extensively in Vietnam and Operation Desert Storm. IR technology is also deployed in weapons, such as "heat-seeking" missiles.

HISTORY OF IR TECHNOLOGY
Federally sponsored basic and applied research at the Department of Defense, the National Science Foundation, USDA, and NASA made modern IR technology possible. The Army's Night Vision and Electronic Sensors Directorate played a key role in early IR technology development. Today IR technology has numerous security and civilian applications.
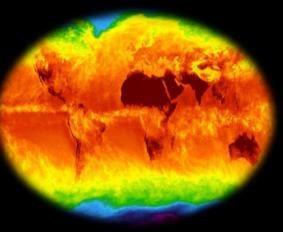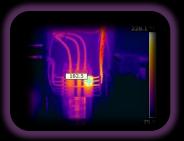
PROVIDING SAFETY IN THE HOME
IR sensing equipment is used to detect possible fire hazards from electrical equipment, which heats up before it fails. Firefighters also use IR imaging to detect fire sources.

IMPROVING ENERGY EFFICIENCY
IR imaging improves household energy efficiency by detecting locations of heat loss (See right side middle).

Image: Courtesy of Reece Builders

Image: Courtesy of JPL

OBSERVING CLIMATE CHANGE AND WEATHER
Infrared imaging is used to observe land and ocean temperature, weather, plant and animal growth, migration patterns, and pollution. IR satellite images provide the most up to date storm conditions, and they are a vital tool in observing climate change phenomena such as glacial melting and overall atmospheric fluctuations.

Image: Courtesy of JPL

UNDERSTANDING THE UNIVERSE
Astronomers use infrared imaging to detect heat-emitting objects- both invisible and visible objects- in space. It has added dramatically to our knowledge of the early universe.

Image: Courtesy of Caltech

DETECTING DEADLY DISEASES
IR imaging is an effective technology for breast cancer, arthritis, diabetes, tumors, and other physical ailments.