FLIR ONE

The Flir ONE uses a 2 camera system:

- 1 thermal LEPTON camera:
  - http://www.flir.com/cores/content/?id=66257
  - Resolution: 160x120
  - Framerate: 8.7 Hz
  - Pixel size: 12µm
  - Spectral range: 8-14 µm

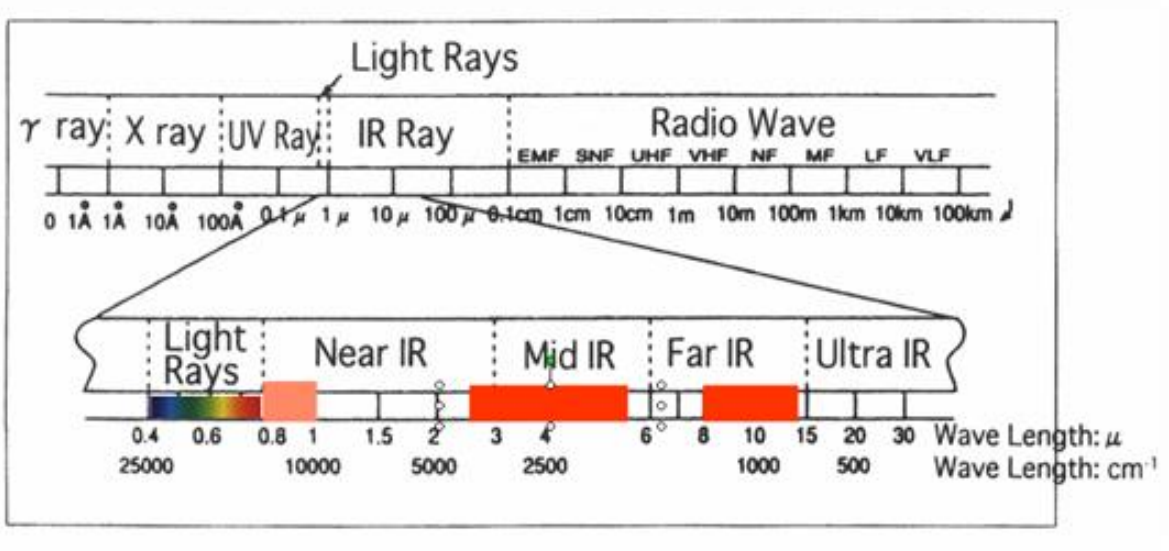



Fig. 1

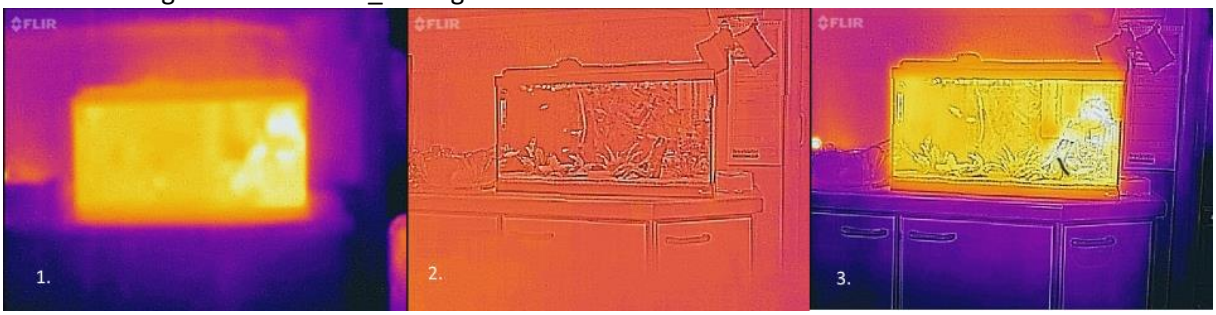
  - Vertical field of view: 46°
  - Horizontal field of view: 35°
  - Temperature range: -20°C to 120°C (-4°F to 248°F)
  - Temperature difference: 0.1°C (0.18°F)
  - Accuracy: ±5%, depends on many factors like ambient and scene temperature, emissivity of materials
- 1 visible light VGA camera:
  - Used to obtain visible edge data
  - 640x480 resolution
  - Obviously requires light (unlike the thermal sensor)

The images taken by each camera get combined with FLIR's proprietary and patented MSX (Multi Spectral Dynamic Imaging) technology. http://www.flir.co.uk/cs/display/?id=56012

Testing: all done with the app provided by FLIR

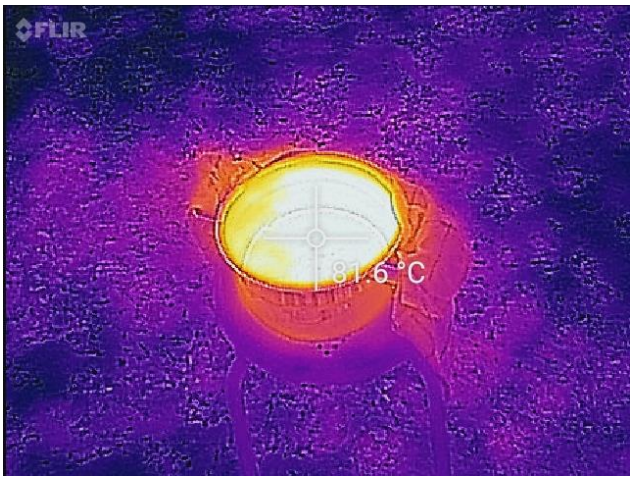
https://play.google.com/store/apps/details?id=com.flir.flirone&hl=en_GB

MSX: full images in folder MSX_testing

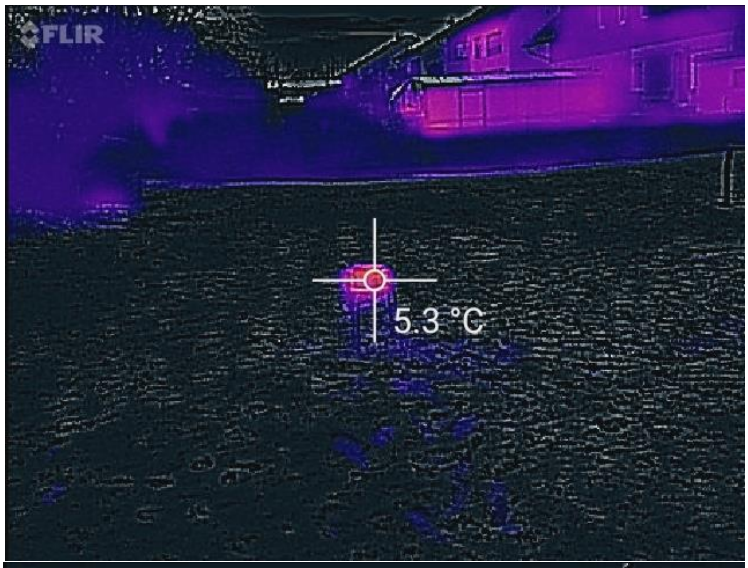



1. Image with covered VGA camera
2. Image with covered thermal sensor
3. Combined image from VGA camera and thermal sensor

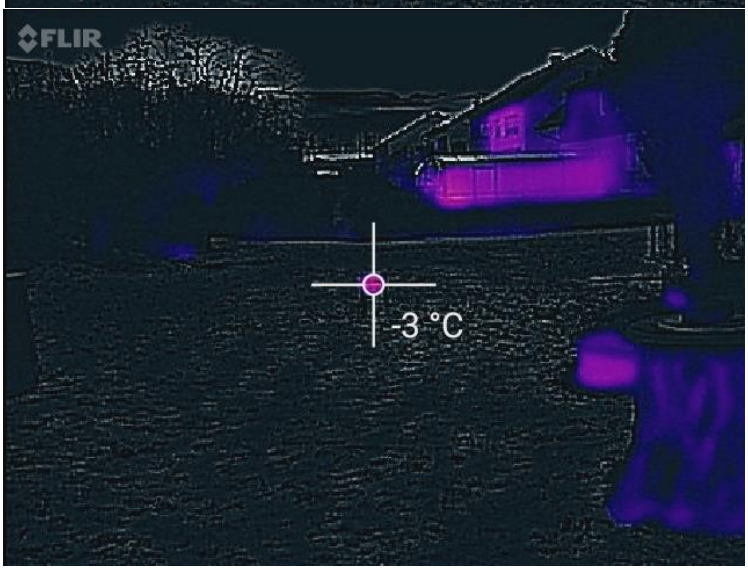
Distance testing: pot of hot water (12cm height, Ø 21.5cm), ambient temperature: -7°C

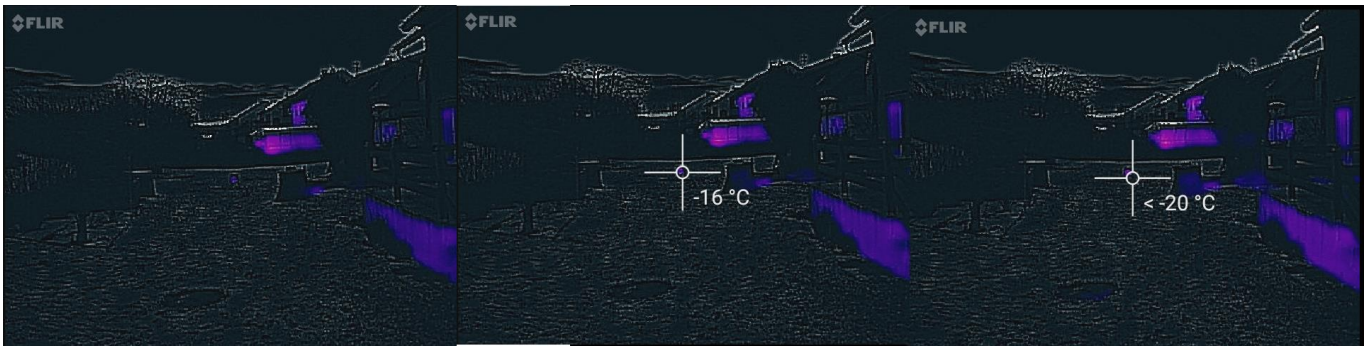

Close up




distance: ~ 6m




distance: ~ 12m




distance: ~ 25m, full images in folder distance_testing_pot

1. Original image
2. Measured temperature of pot
3. Measured temperature of area around pot

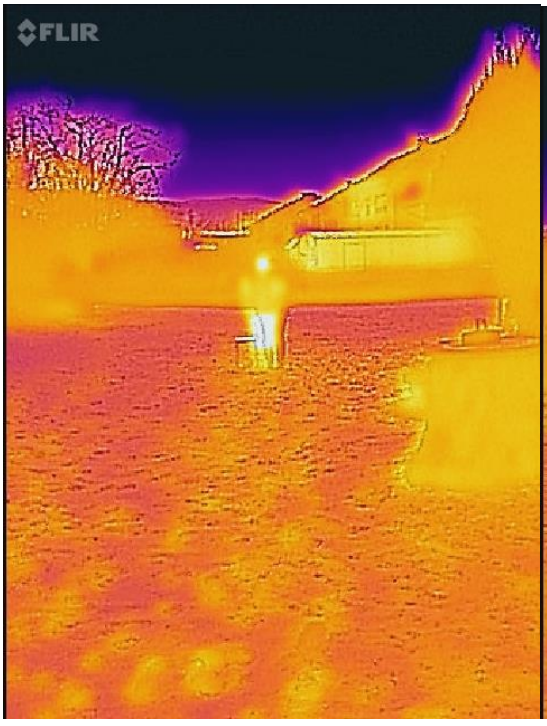
Distance testing: Human heat signature, ambient temperature: -7°C

full images in folder distance_testing_humanheatsignature

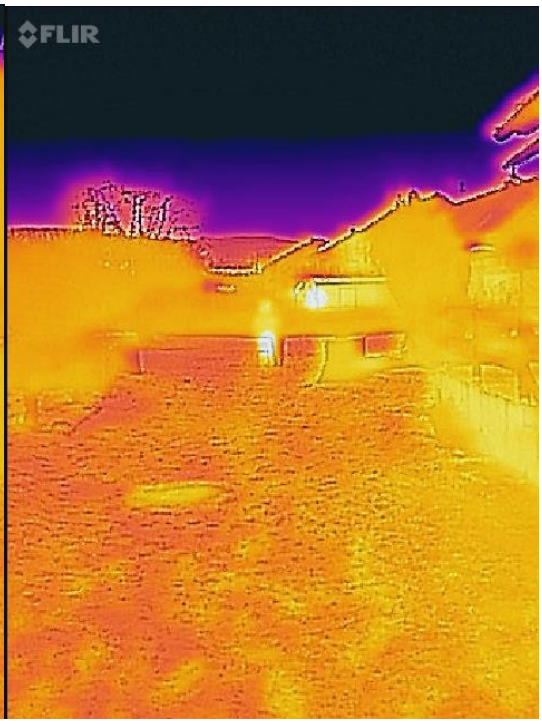
FLIR states on their website human heat signatures are measurable up to ~ 100 feet (equals 30.48m)

1. Close up

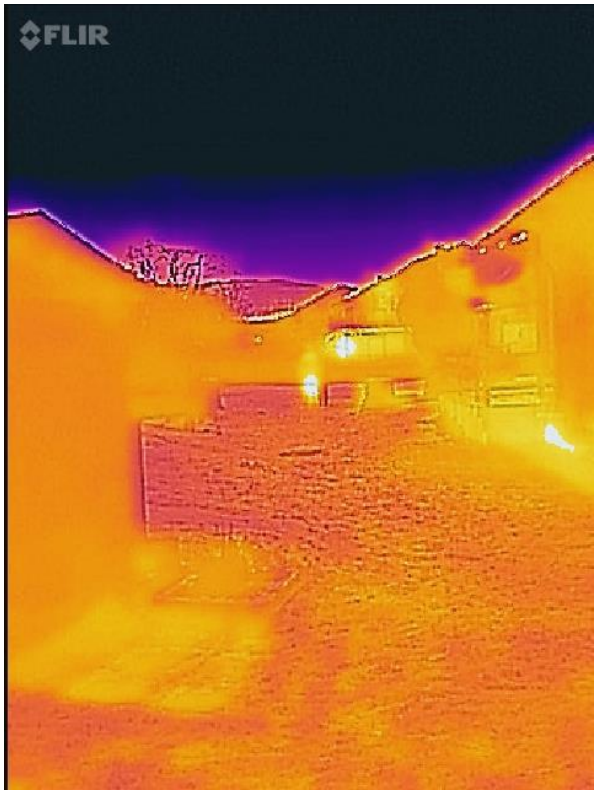

2. distance: ~ 6m




3. distance: ~ 12m

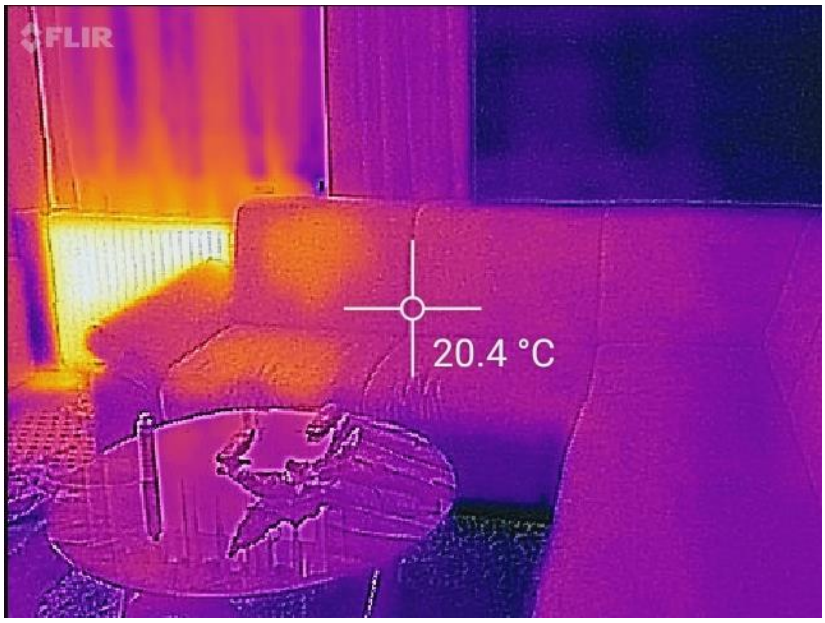



4. distance: ~ 25m

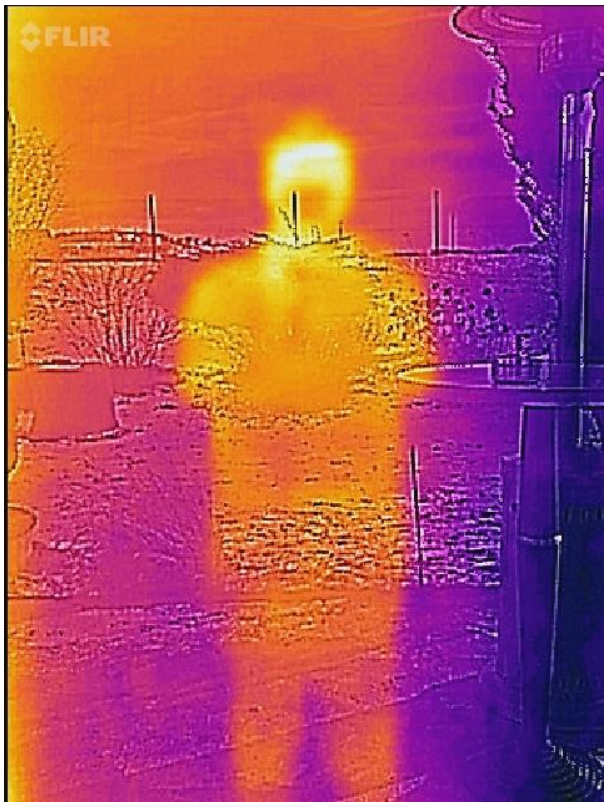



5. distance: ~ 30m

Other testing:




heat signature after sitting on a couch




heat signature on glass