inferno
thermal third eye

Wireless Hands-Free Thermal Imager for Firefighting

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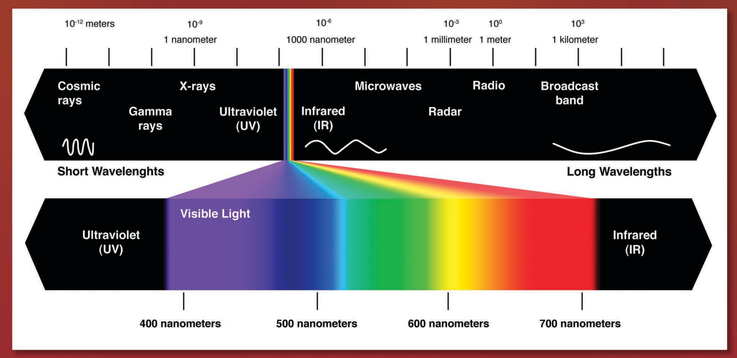
Problem

Firefighters have a tough job. The smoke that obscures their vision during firefighting makes that job even tougher. One method of combating this smoke is to use an infrared camera to "see through" the smoke.

However there are currently some problems with that method:

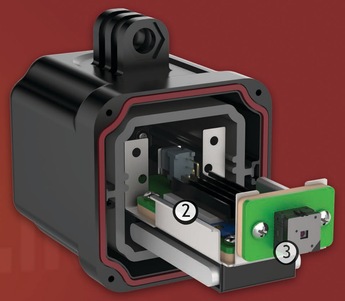
- *Current cameras are expensive*
- *Requires use of hands, limiting other tasks*
- *Smoke can still obscure viewing screen*



Our Solution

A hands-free wireless camera that attaches to the brim of a firefighter's helmet. Video is wirelessly broadcast to a display inside of the SCBA, giving the firefighter peripheral thermal vision.

1 Recon Snow2 HUD
Example receiver device worn inside the SCBA, displaying the output from the Inferno camera



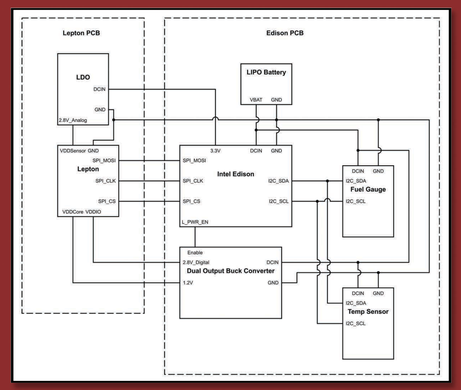
2 Intel Edison
Streams infrared video while operating as a wireless access point

3 FLIR Lepton®
Vanadium oxide microbolometer detects infrared light as a change in resistance across each pixel with 14-bit precision

4 Multipurpose Button
Momentary switch button allows you to toggle power to the Inferno and switch between color palettes

5 Micro USB Port
Waterproof micro USB port allows for easy charging with widely available 5 volt smartphone chargers

System Block Diagram



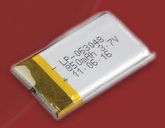
Hardware

Intel Edison

- *Dual Core 500 MHz Processor*
- *Built-in 802.11 b/n/g*
- *800 mW max power draw*
- *35.5mm x 25.0 mm footprint*

FLIR Lepton®

- *80 x 60 pixel microbolometer*
- *50º FOV*
- *150 mW nominal power draw*
- *8.5mm x 8.5mm footprint*



Lithium Polymer Battery

- *850mAh capacity*
- *Provides 4 hours of operation*
- *Standby time of 19 days*
- *48.27mm x 29.5mm footprint*

Acknowledgements

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