

Photos:

*Top of smartphone with IR camera
The app medical mode screen*



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FEVER DETECTOR FOR A SMARTPHONE

LATEST INVENTION ALLOWS A SMARTPHONE TO INSTANTLY TAKE NON-CONTACT TEMPERATURE AND DETECT FEVER

It hardly can be a better timing for this invention – **a risk of the Ebola epidemic and need for screening people to detect fever** demands instant availability of *non-contact* medical thermometers. *Fraden Corporation* of San Diego (www.fraden.com) announces that it was granted a second U.S. patent for augmenting any smartphone with an instant non-contact infrared (IR) thermometer.

Both patents offer a significant new capability for mobile devices permitting an instant detection of fever by measuring the body temperature without physical contact.

A special sub-miniature infrared (IR) camera is incorporated into either a smartphone or protective case (“jacket”). The IR camera works together with the phone digital camera that acts as its viewfinder. This results in unprecedented convenience and ease of taking temperature by a smartphone – just aiming the phone at the person’s head. The company developed an app that automatically detects the forehead surface, reads the IR camera output signal, calculates the internal body temperature with a clinical accuracy and within just one second presents the result on the screen.

A different app geared for the screening purposes at ports of entry can download the passenger list, record the temperature of each passenger on departure and arrival and automatically transmit all the relevant data to the health authorities.

The IR camera and its apps offer a selection of three operating modes: medical, inanimate objects and thermal gradients. The medical mode operates from 94 to 108°F with accuracy of 0.3°F and meets the International ISO Standard for clinical thermometers.

When using other modes, the IR camera covers a broad temperature range from -22 to +400°F. This allows measuring non-contact temperature of any inanimate object. For instance, it will find applications in the home environment such as kitchen (cooking and refrigeration), bedroom/bathroom (baby formula and bath water temperature), outdoor (air, pool, lake or ocean temperatures), in industry (automotive and production machinery, chemical processes, energy management, construction), firefighting, military, *etc.*

According to the new patents, a tiny IR lens (0.08” in diameter) is positioned near the digital camera lens, so that the smartphone has no protruding parts and looks nearly identical to a conventional smartphone. Temperatures taken by a smartphone can be instantly communicated to health care providers and used for tracking of a sick individual.

Alternatively, the IR camera can be incorporated into a “smart” protective case, rather than into the phone itself. It communicates with the phone app wirelessly (Bluetooth or NFC). Thus, no plug-in connection is required. The “smart” sensing cases are produced by SensorJacket, Inc., a San Diego company (www.sensorjacket.com) associated with Fraden Corp. The smart cases are adapted for iPhone-5, but in the near future the company plans to make smart sensing cases for other iOS and Android smartphone models. The company also considers licensing the technology to major smartphone manufacturers.

Beside thermal detection, the new patents claim other smartphone sensors with functionalities for monitoring electro-magnetic pollution caused by high voltage power lines, microwave ovens, Wi-Fi routers and radio stations. The patents also cover detectors for measuring UV exposure from the sun as well as thermal imaging cameras embedded into smartphones or protective cases.

“In these turbulent times, when people worry about global epidemics, such as Ebola, swine flu, SARS or any other potential viral calamity, having a medical non-contact thermometer in your pocket becomes a necessity. A smartphone is a modern-day Swiss Army Knife with several very useful “blades”. A non-contact thermometer will be another essential blade for a smartphone”, said Dr. Jacob Fraden, a co-inventor of this technology and an expert in non-contact temperature measurements.

About Fraden Corp.

Based in San Diego, California, Fraden Corp. is a leading *invention company* specializing in finding elegant and practical solutions to complex technical problems. The company’s expertise includes non-contact temperature measurement, security devices, medical monitors, infrared motion sensors, and more, with clients including Johnson & Johnson, Novartis, Braun, Gillette, CleanAlert, Advanced Monitors Corp., and others.

Dr. Jacob Fraden, president of Fraden Corp. holds over 50 patents. He is the inventor of highly popular products: Thermoscan infrared ear thermometer, blood pressure monitor and motion controlled light switch, among many other devices. The Fraden team uses strong engineering and scientific background in physics, mathematics, electrical engineering, computer science, physiology, medicine and other fields.