From: Ungson, Chris

Sent: 3/28/2011 8:27:11 AM

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Subject: FYI - MIT Imaging System Energy Efficiency Tool/Approach

Folks,

I thought you might be interested in this article in Earth Techling. It might be useful in the CEC's implementation of AB 758 (building rating, building labeling) and perhaps other applications.

Chris Ungson

MIT Imaging System Energy Efficiency Focused

by Caleb Denison, March 25th, 2011

Here's a novel concept: efficient efficiency. It's the notion that the process we use to make something more efficient ought to be efficient itself. We doubt that the three person team at MIT had such an awkward term in mind when they developed their new imaging system, but that's what it does. It makes shorter, cheaper work of identifying weak points in a building's efficiency and provides a metric for gauging how effective our improvement efforts actually are.

The system that researcher Long Phan, research scientist Jonathan Jesneck and professor Sanjay Sarma developed takes a relatively inexpensive, low-resolution infra-red camera, puts it in a Google Street View-type vehicle, takes overlapping images of buildings and then processes the images that it captures with some newly developed software. The result is a high resolution, ultra-detailed thermal map that can provide very specific information about energy loss on a scale as small as a single building or as large as an entire city.The team has already mapped the city of Cambridge, Mass. and hopes their technology will see more widespread use.

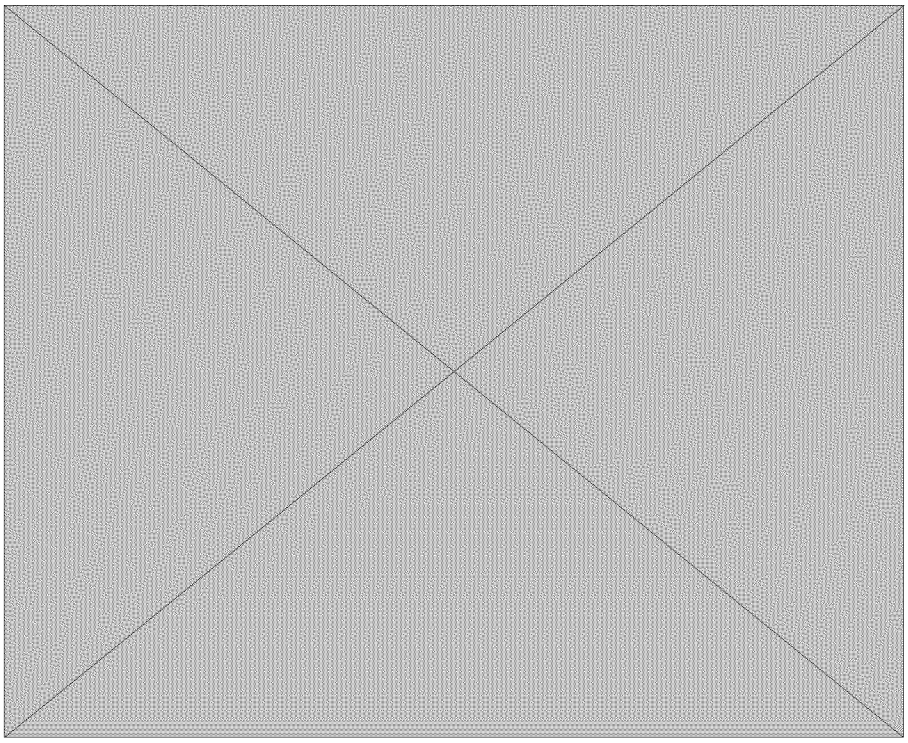

image via MIT

Using the team's highly detailed thermal mapping system, one can hone in on specific areas and/or buildings to determine which structures are bleeding the most energy and where they're bleeding it from. That kind of information can help cities and home owners target the buildings that need the most help first and secure the most bang from their efficiency-improvement bucks. In an MIT story on the project, Long Phan says that the current approach to improving energy efficiency in buildings is "like saying there's a heart-disease problem in the city, so everyone should take aspirin." With their new system, Phan says efforts can be strategically targeted as if to say "this man doesn't need an aspirin, but that one needs two."

Conventional methods for detecting energy loss cost a lot of time and money and require special equipment like powerful blowers that force air out of cracks around doors and windows. The MIT team's new imaging system is said to be faster, less expensive and "non-invasive" because no access to the building is necessary. It can generate brilliant images that show where hot air escapes, and where outside air creeps in. In time, the team intends to develop software that uses measurements taken from the images to calculate the cost of making improvements and, once improvements are made, what the return on investment will be.

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