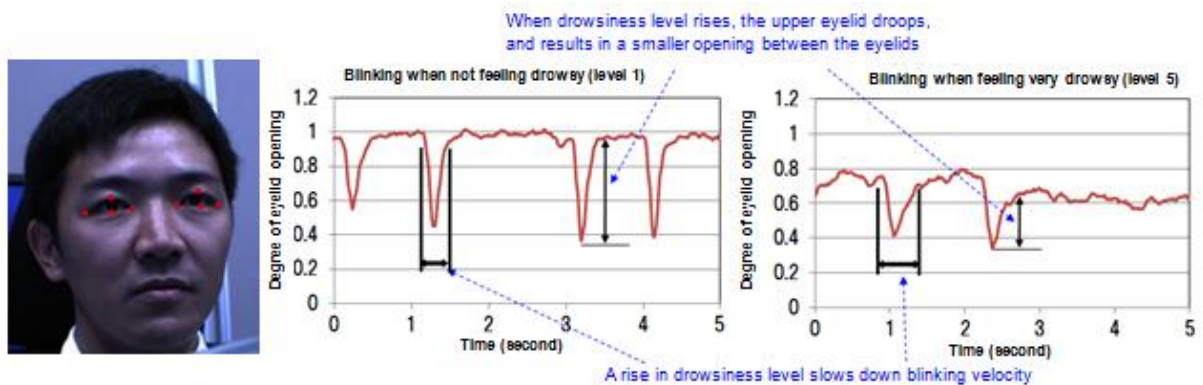


Panasonic finds comfort paths to drowsiness control

August 4 2017, by Nancy Owano



The system extracts an outline of the eyes and monitors time-sequence shifts in blinking features by checking the opening between the eyelids. Credit: Panasonic

(Tech Xplore)—Panasonic has developed technology to help keep drivers safer from risks of drowsiness at the wheel. Cool air and louder music are engineered as remedies, for example, to keep the driver not only awake but feeling comfortable.

Essentially, Panasonic is talking up its achievement in developing "contactless sensing" technology that goes to work to measure the driver's states and in-vehicle environment.

"The sensor and environment data is then processed using artificial

intelligence and a judgement made on how drowsy the driver is," said Matthew Humphries in *PCMag*.

The company's tech gets even more interesting in its capabilities to not only detect drowsiness but also to support the person staying "comfortably awake."

How does it help? (1) By changing air conditioning. The system will provide [cool air](#) to awaken the driver. (2) changing the [music](#) volume. (3) And if this is not enough the system will recommend a stop along the route. "We recommend that you take a break. There's a Panasonic parking area 15 minutes ahead," says a voice.

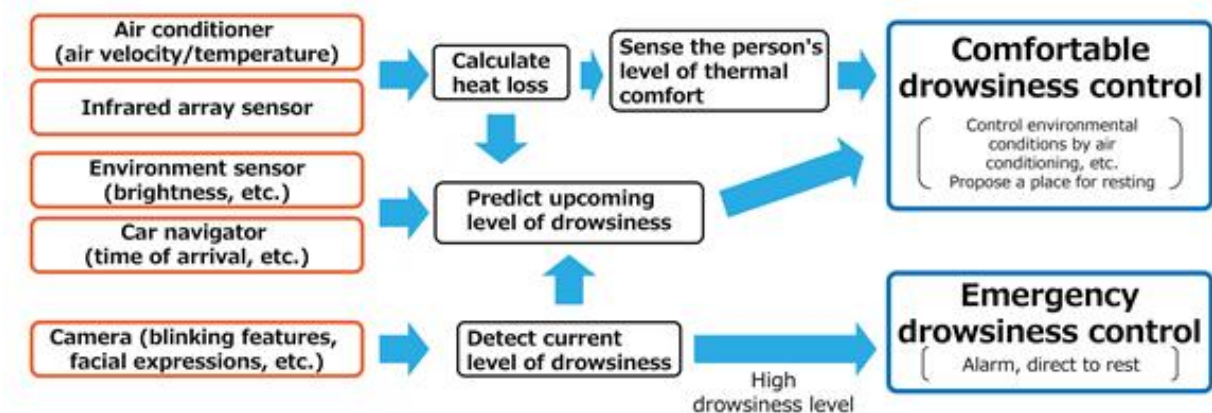
Humphries wrote about this pull-over alternative. We all know the risks when the driver is so tired, that dropping off is at risk.

"Of course, Panasonic's system can only do so much. If a person is driving in a very tired state then no environment changes will maintain a wakeful state. Panasonic has this [covered](#) too, by detecting the higher levels of drowsiness. If such a detection is made, an alarm is sounded and a command to rest issued."

Blink patterns and [facial expressions](#) serve as ways for the technology to estimate drowsiness.

The company said that with image recognition technologies refined through the development of monitoring cameras and other systems, Panasonic developed non-contact, accurate technology for detecting people's blinking features and facial expressions from photographed images.

They compiled a database. The database has measurements on drowsiness and biological signals.



Conceptual diagram of Panasonic's drowsiness control technology. Credit: Panasonic

The database of various measurements on drowsiness and biological signals. They analyzed the relationship between about 1,800 parameters related to blinking features and facial expressions, etc., and drowsiness that were extracted from the database.

The demo showed a driver's facial images captured with drowsiness based on eye-blink waveform patterns and expressions.

Five levels of drowsiness are considered, ranging from 1 to 5.

Heat loss and brightness are watched. "Adjusting [room temperature](#) or airflow based on an individual's estimated level of drowsiness makes it easier to keep a person awake. However, a person would feel a cold when the room temperature is too low, which the level of thermal comfort would be disturbed. By applying our knowledge of thermal environments and physiology accumulated through research & development of indoor air conditioners and other products, Panasonic

has developed, through joint research with Nara Women's University, a [technology](#) to estimate the thermal [sensation](#)."

Seriously drowsy, and weaving across the road, is the max level.

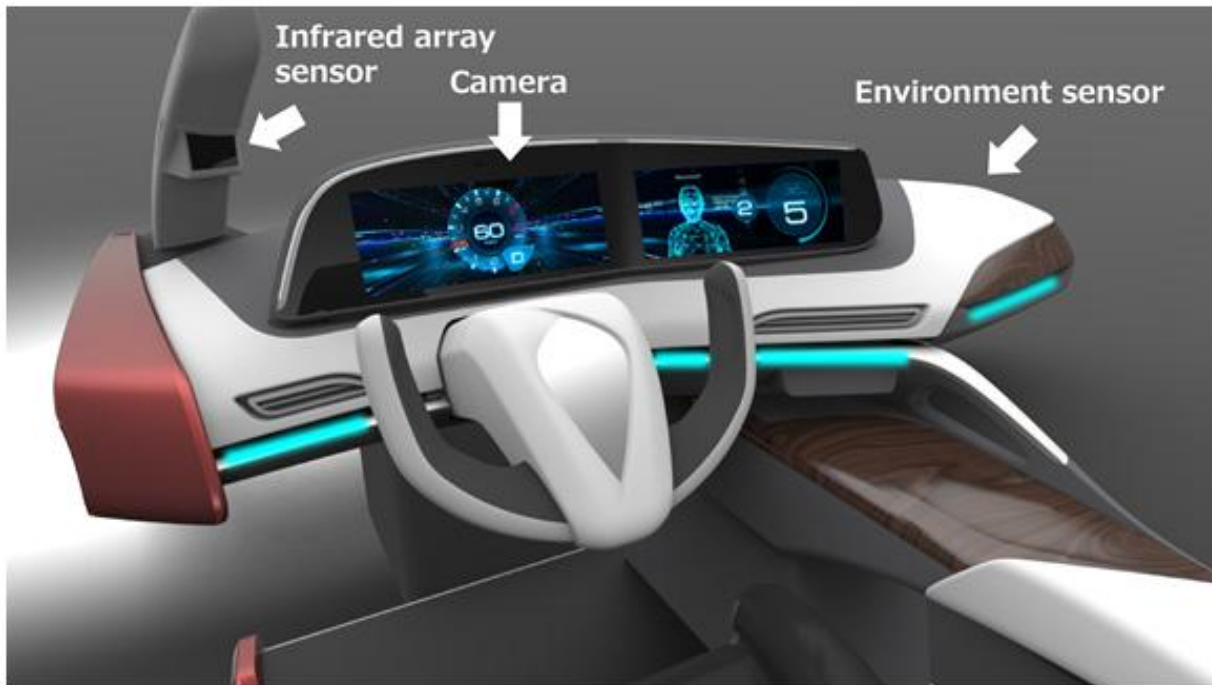


Image of a drowsiness-control system installed in a dashboard. Credit: Panasonic

Also, drowsiness changes at different speeds depending on brightness, said the presenter in the video.

What's next?

The report in *PCMag* said, "Panasonic expects to have the system available to test by vehicle manufacturers in October. If they like what they see then we could see new vehicles incorporating it next year."

In future, said the presenter in the video, they would like to combine the drowsiness technologies they developed with other information such as how much sleep the driver got at home and his or her average sleep. to continue to improve the accuracy of [drowsiness](#) prediction.

More information: [news.panasonic.com/global/pres ...
27-3/en170727-3.html](https://news.panasonic.com/global/pres...27-3/en170727-3.html)

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