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Pen to Measure and Reduce Stress

In the future, more and more products will be able to interpret what users are feeling and use that information in a smart way. To illustrate the power of this theory, researcher Miguel Bruns Alonso has developed a pen which can measure the stress levels of the person using it, and can actually help to reduce that stress. In experiments, the heart rate of people who used the anti-stress pen fell by an average of five percent.

On December 23, Miguel Bruns Alonso will receive his PhD degree from TU Delft based on his research into this subject.

Aggressive driving

There are already devices which can detect what the user is doing and feeling, and use this information in a smart way. This has now become a primary goal for product developers, and one which has already been achieved in automobiles, to some extent. For example, some cars can detect aggressive driving and intervene to counteract it. Delft PhD student Miguel Bruns Alonso decided to develop an anti-stress pen to demonstrate the potential of this relatively new concept in product design.

Nervous

Bruns, who studies industrial design, carried out various experiments during the course of his research, which showed that people tend to play with their pens in their hands when they are tense. It also seems that when they are encouraged to check these nervous movements, or make more gentle movements, it is possible to gain more control over a situation. 'Sensors in a pen could provide an unobtrusive way of measuring stress levels. Giving users the right feedback could then help them deal with their stress in a constructive way,' says Bruns.

Heart rate

'That is why I have developed a pen which can detect 'nervous' movements and determine whether the user is

stressed. The pen also provides a counterweight to these movements using built-in electronics and electromagnets. When it detects the quicker movements associated with stress, the pen gradually becomes more difficult to move around. This encourages users to move in a more relaxed way, which in turn makes the pen yield more easily again.

Experiment

When the pen was evaluated in an experiment, people who received feedback on their behaviour had a lower heart rate (around 5 percent lower) than those who received no feedback. They experienced less psychological stress. However, neither were they aware that they were actually receiving any feedback on their behaviour. They also said that they did not feel any less stress.

Unobtrusive

'The conclusion to be drawn from this is that products which seek to reduce short-term stress should, preferably, intervene directly to modify that behaviour, rather than warning the user about their stress levels, for instance. This could allow products to reduce stress in an unobtrusive way.'

The anti-stress pen is at present a prototype and not (yet) available for purchase.

Story Source: The above story is reprinted (with editorial adaptations by ScienceDaily staff) from materials provided by Delft University of Technology.