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Cardiac Traffic- “Speedy and Stressless”

Truong Industries’ new app, Cardiac Traffic, promises to beat both traffic and stress

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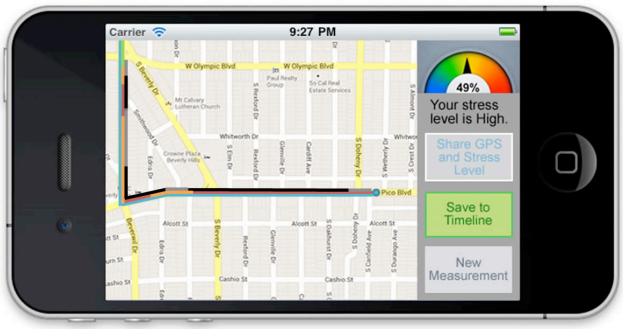

When I first heard of Truong Industries’ Cardiac Traffic, I’ll admit I was dubious. An app that measures traffic by stress? But giving it more thought, I could see the appeal: traffic leads to stress, greater traffic more stress. More stress leads to impaired driving, which can cause more traffic. Cardiac Traffic really works. Which got me curious as to how it “really works.”

There is more to Cardiac Traffic than just its unique technology. Cardiac Traffic gathers data from third parties to indicate traffic severity measured using conventional means. And just as innovative as Cardiac Traffic’s stress measurement is Cardiac Traffic’s way of avoiding and reducing traffic. However, many articles have been written on that aspect of Cardiac Traffic, so the focus of this article will be on the technology itself.

The basic technology behind Cardiac Traffic is this: it measures one’s heart rate variability (HRV), which is the sequence of time intervals between heartbeats. The high frequency (HF) of HRV (0.15-.40 Hz) is influenced by the parasympathetic nervous system, while low frequency (LF) is influenced by the sympathetic nervous system. The sympathetic nervous system controls the body’s fight-or-flight response. During times of stress, one’s parasympathetic activity decreases and sympathetic activity increases, which results in decreased HF, making the ratio between HF and LF larger. A larger LF/HF ration means more stress.

Cardiac Traffic first requires the user to record a baseline measurement of his or her HRV. When a user is driving and the app is active, Cardiac Traffic will measure the user’s HRV; if the LF/HF ratio grows past the baseline, then the user is experiencing stress. Whereas the baseline measurement is taken by having the user place his or her fingertip on the smart phone’s camera. Subsequent measurements are done remotely via the camera.

When Cardiac Traffic is running, the camera functions as a microwave radar reflectometer. If positioned correctly, the camera sends microwave beams towards the vicinity of the heart, and from the signals bounced back to the sensor Cardiac Traffic will calculate the HRV, and from the HRV the LF/HF ratio. If and when the LF/HF ratio exceeds the baseline, Cardiac Traffic will log this as an instance of stress, *and* the corresponding time and location (via the GPS installed in the smart phone). This stress instance/GPS location will then be uploaded to a central database. After a half-hour, the report is purged from the database. Only the “instance” of stress (the fact that the LF/HF ratio exceeded the baseline) will be recorded, not the individual’s LF/HF ratio.

That’s the “give” part of the Cardiac Traffic app. The “take” part, however, depends on the “give” part to work. In addition to recording a baseline in Cardiac Traffic, navigation routes that the driver can be saved in it as well, and this *must* be done as well if one is going to “take”. The routes are not uploaded to the central database; instead the app will search the central database for stress instances whose attached GPS coordinates correspond to the coordinates that make up the route. If a portion of the route has generated stress reports, that portion of the route will, on the map displayed to the user, be highlighted by varying shades of gray and black. The darkness of the highlight corresponds to the number of stress reports. Obviously, a black highlighted section is a “high stress zone.” This is why purging half-hour-old reports are important, it would be quite the flaw if Cardiac Traffic is reporting high stress in an area whose stress reports were “stale.”