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Biofeedback Mobile App for Military Service Members

Joint Base Lewis-McChord, Wash.—The Department of Defense has released a smart phone mobile application to help service members use the therapeutic benefits of biofeedback.

[BioZen](#), a mobile app from the Defense Department’s National Center for Telehealth and Technology, known as T2, uses wireless sensors to show the user their physical level of relaxation.

It is the first portable, low-cost method for clinicians and patients to use biofeedback in and out of the clinic.

“Mastering biofeedback successfully is difficult and frustrating for many people,” said Dr. David Cooper, T2 psychologist. “This app takes many of the large medical sensors found in a clinic and puts them in the hands of anyone with a smart phone. BioZen makes it easier for anyone to get started with biofeedback.”

BioZen shows real-time data from multiple body sensors including electroencephalogram (EEG), electromyography (EMG), galvanic skin response (GSR), electrocardiogram (ECG or EKG), respiratory rate, and skin temperature. Each sensor sends a separate signal to the phone so users can see how their body is responding to their behavior.

It can display Delta, Theta, Alpha, Beta, and Gamma brain waves. It can also combine the brain waves to show meditative and attentive cognitive states. Users can document their session with biofeedback data recorded in the phone or tablet. BioZen generates graphical feedback from the recording sessions to show the user’s progress over time.

The mobile application, free for Android devices, is built on an open source framework Bluetooth Sensor Processing for Android, also known as [B-SPAN](#), developed by T2.

Users need to purchase compatible medical sensors to use the app. A sensor can range in price depending on quality. The cost of compatible sensors begins between \$75 and \$150. A list of compatible sensors is on the BioZen website.

The National Center for Telehealth and Technology, located at Joint Base Lewis-McChord, Wash., serves as the primary Department of Defense office for cutting-edge approaches in applying technology to psychological health. T2 is a component center of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury. More information about BioZen and T2 is available at <http://www.t2health.org>.

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