Technology Commercialization Opportunity

Autonomic Biofeedback - Combining Multiple Signals as Comfort

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Background and Technology Description
Peripheral autonomic biofeedback training is a useful therapeutic process for teaching self-regulation of anxiety and stress. It is relevant for the general population and also applicable for those with specific diagnoses such as autism spectrum disorder (ASD), post-traumatic stress disorder (PTSD), specific phobias, etc. How well the physiological signals promote learning through positive reinforcement depends on how they are presented – or fed back – to the user. Where other methods are limited by an over-reliance on a single signal only or complicated by a display of multiple individual signals, this approach provides meaningful and useful data to users by dynamically combining a set of relevant signals into an intuitive whole. The software that implements this novel algorithm to create a unified comfort value is the Dynamic Feedback Signal Set: DyFSS.

Anxiety disorders are the most common mental illness in the U.S. Beyond these statistics are the many undiagnosed anxieties related to a number of other disorders such as ASD. Peripheral autonomic biofeedback training helps to strengthen vagal tone as a method of learning control over the body's "fight or flight" response. The novel algorithm maximizes the potential gain for users of biofeedback.

The current, working implementation uses the NeXus-10 hardware by Mind Media, B.V. to collect four physiological signals. The variables used in calculating the DyFSS value are peripheral skin temperature (Tmp), skin conductance level (SCL), respiration rate (Rsp), and heart rate variability - low frequency percent (HRV).

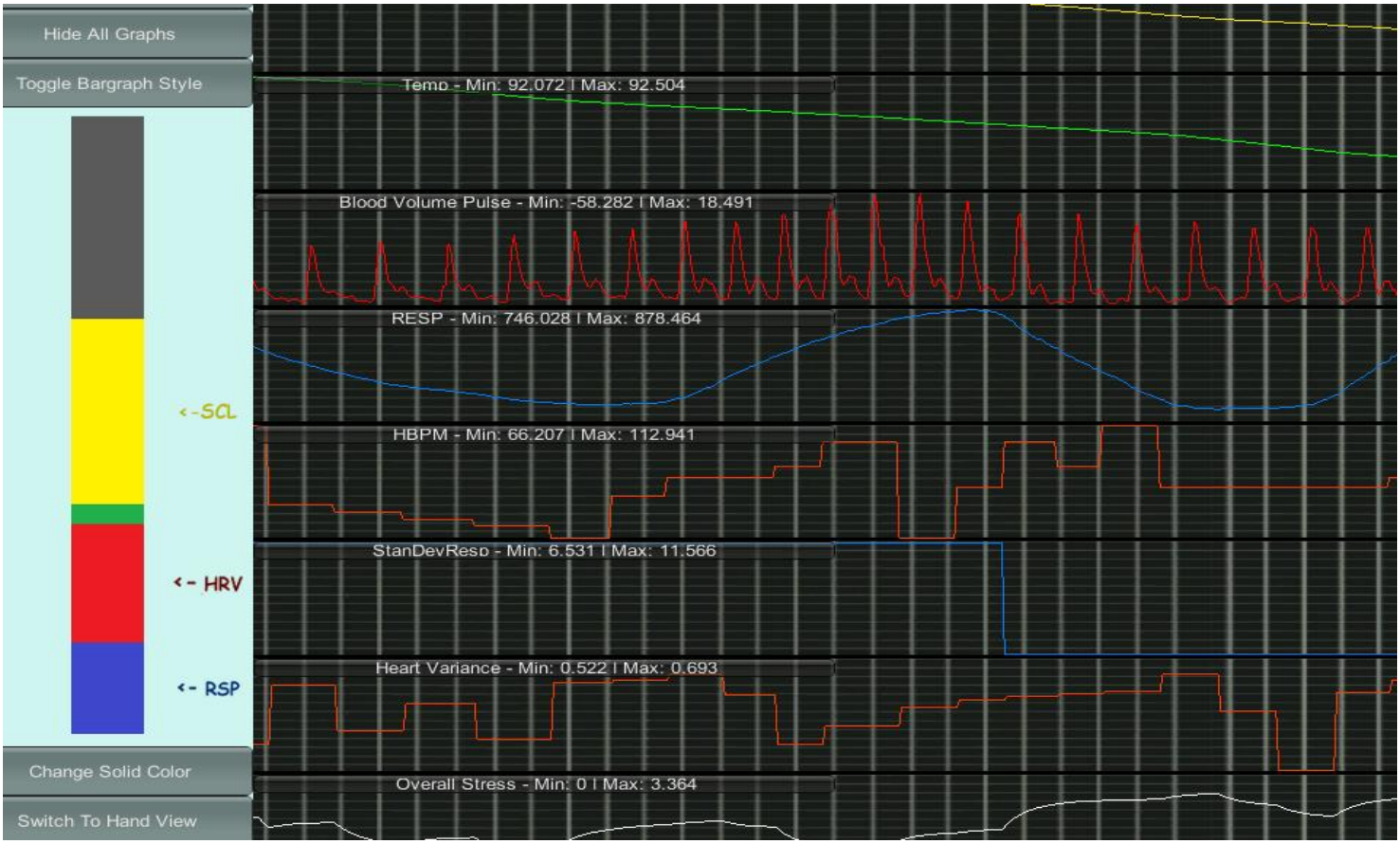
Keywords: Biofeedback, Anxiety, Stress, Autonomic Nervous System, Vagal Tone, Heart Rate Variability, Skin Conductance Level, Peripheral Skin Temperature, Respiration Rate, Autism Spectrum Disorder, Post-Traumatic Stress Disorder

Technology Readiness
The Dynamic Feedback Signal Set currently has an Alpha Version being tested and improved.

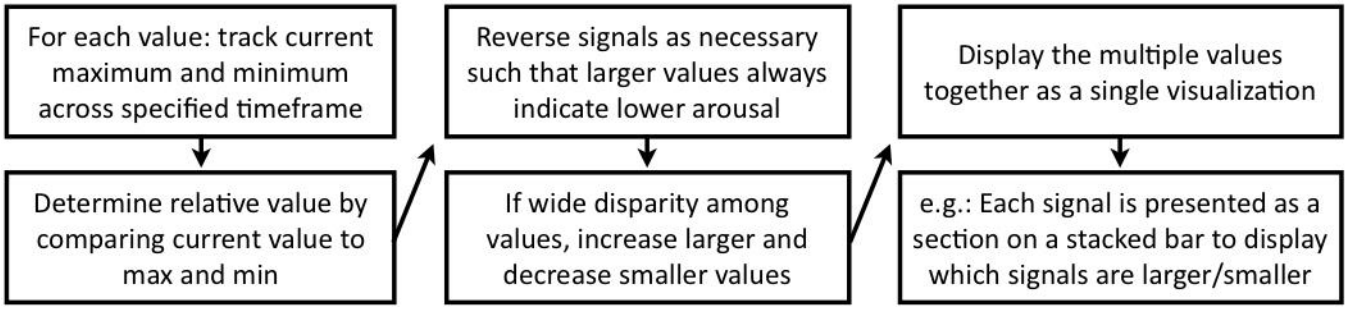
Idea	**Concept**	Prototype	Alpha Version	Beta Version	Released

RIT developers will work with licensees to move the design to a commercial product.

Intellectual Property
This technology is the subject of a pending U. S. patent application.



On the right are line graphs of the physiological signals and/or calculations on the signals that then feed into the algorithm. On the left is the four-color DyFSS bar, which displays the graphical representation of the novel calculations as described in the patent



Flow of data as the physiological signals are translated from their standard units of measure.

Target Customers

- Clinicians working with anxiety disorders (primary or secondary)
- Biofeedback software manufacturers
- Clinical practices and organizations that focus on behavioral treatments
- Interactive game and media developers

Opportunity

RIT's Intellectual Property Management Office (IPMO) is interested in working with qualified parties who are interested in the commercialization of this novel rehabilitation system. Arrangement types include licensing the technology to existing organizations or to new organizations.

Contact

Those interested in learning more about this opportunity should contact:

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