Happy Electronics s.r.o.

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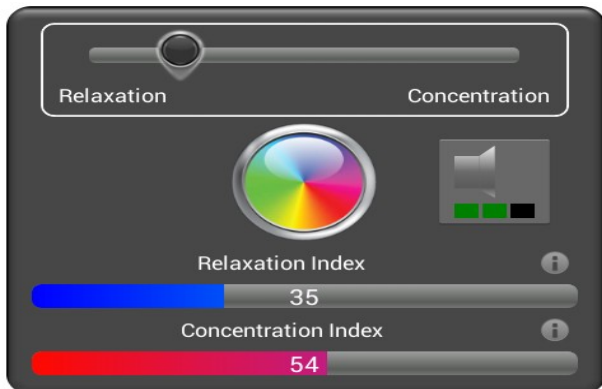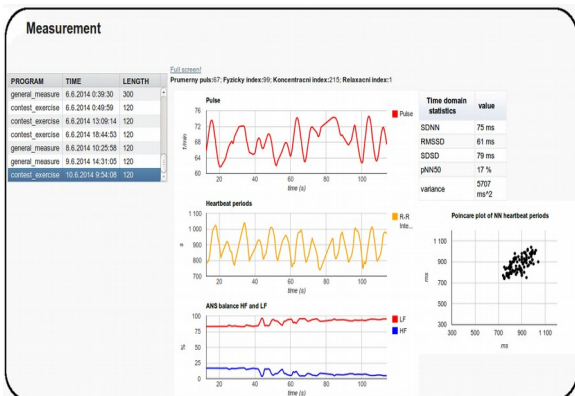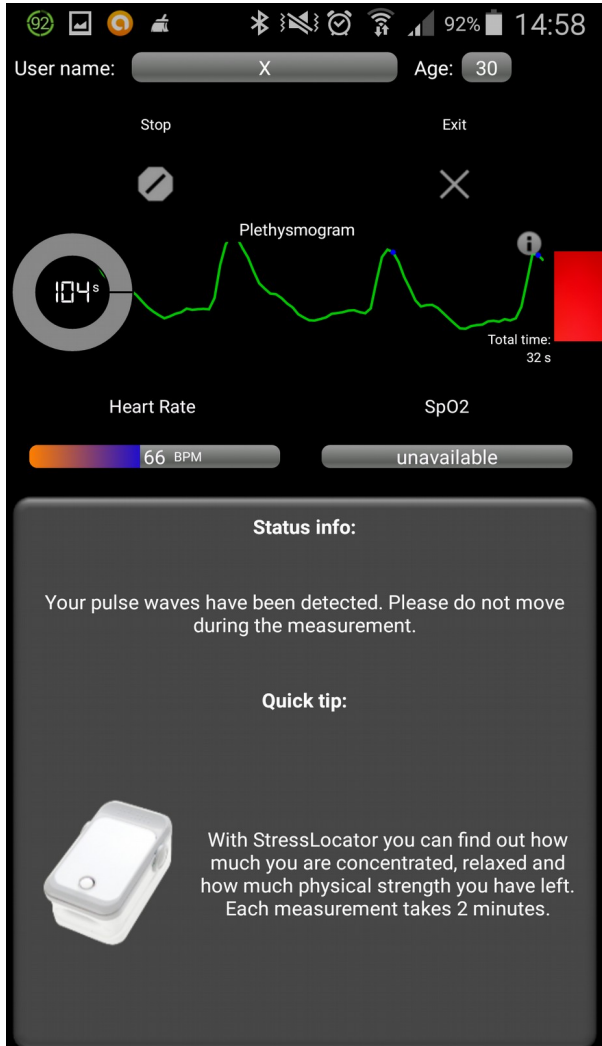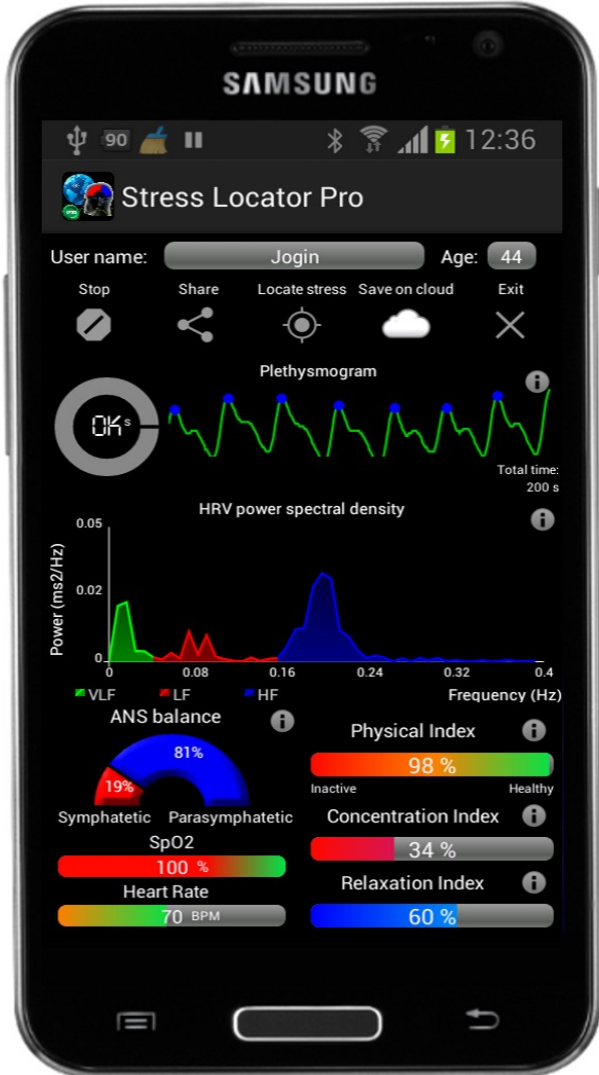
STRESSLOCATOR APP USER'S GUIDE

2015/5   Version 2.10

Differences and possibilities

Content

Before start

Before startup

Before you start measuring, make sure your oximeter is switched on and the bluetooth transmitter of your android device is activated.

The Oximeter (digital heartbeat measuring device)

It's a very sensitive device. We recommend you to limit your movement as much as possible during the measurement. Any movement could have a negative impact on the results.

Measuring

Measurement is being done continuously throughout the whole measuring session. The longer your session is, the more precise your results are.

Age

Don't forget to set your age, it has impact on the interpretation of measured data.

What is StressLocator

About the app

This mobile app reveals your physical and mental state with help of a bluetooth oximeter or the camera of your cell or tablet. It measures and evaluates your heartbeat and blood oxygenation. After just two minutes, you will get results with evaluation and tips on what mental or physical activity you are prepared for. It can be an ideal tool for planning activities. If you need to achieve calm or concentrated state of mind, you can try its another function. The biofeedback with breathing exercises will help you relax or concentrate. You can immediately see your progress. Our easy-to-use app and oximeter provide precise results, which you can check immediately.

History

The StressLocator, which we have been developing for almost two years, consists of three main parts: the sensor, which measures heartbeat, the app for Android devices; and the server application. These three components allow you to measure your levels of physical and mental stress and immediately evaluate your condition. Measuring can be done anywhere, all you need is your Android device with the app.

Versions of the application

Two versions are available: the free one, which allows you to try our app, and the pro version, which offers more indicators and graphics, breathing trainings, measuring unlimited in time, breathing metronome, and history of your previous measurements.

Free version
- The length of measurement is limited to 2 minutes
- Breathing metronome is not available
- History of measurements is not available
- Only 3 indexes
- Allows you to participate in the contests
- Offers the possibility to share your data anonymously and compare results with the rest of the world

Pro version
- Unlimited measurement time
- ANS index, heartbeat frequency and 12 more indicators and graphics
- Metronome and breathing exercises are available
- Measurement's history and the possibility to gather and overview your results
- Possibility to share your data anonymously and compare them with the rest of the world in a contest
- And more

Ways of measurement

There are two ways of measuring, first uses the bluetooth oximeter, the another one a camera lens of your mobile device. We recommend usage of the oximeter, which is more accurate and comfortable. Various smartphones and tablets have various power, some of them can burn your skin whie measiring via the camera. If the lens becomes too hot, remove your finger and end the measurement immediately.

Measuring with oximeter

Put your finger inside the device and turn it on using the button on the top. Before running the app, you have to pair the oximeter with your mobile device.
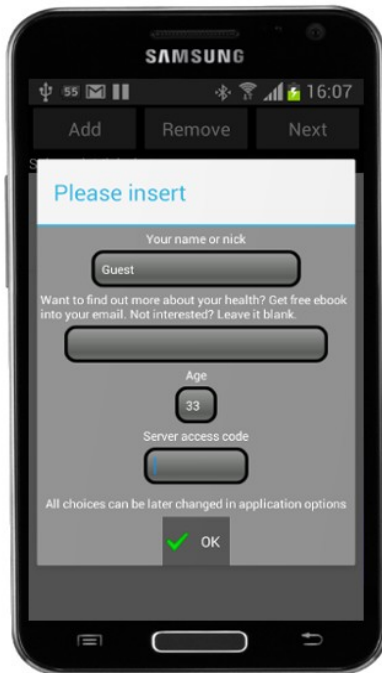To get most reliable results, don't move during the measurement.

Using camera lens of Android smartphone/tablet

Press your finger on the lens and start the measurement. Lenses with high performance can cause uncomfortable feeling of burning. If that happens, remove the finger and end the measurement immediately.

Profile Settings

Each user of the app can have his own profile. Between the measurements, it's possible to switch between the users. That is handy in case when more users of different gender or age want to use the application on the same device.

Creating a profile:

1) Press **Add**

2) Choose your username

3) Insert your email, if you want to acquire additional informations

4) Insert your age

5) Enter your access code to our server, if you have it

6) Press **OK**.

Congratulations, you have just created your profile. Now press N**ext** to move further into the application**.** In the **Current user** options, you can change your profile or add a new one anytime.

Working with more profiles

If there are more profiles in the app, you can choose one of them by clicking on it and proceed by pressing **Next** button. To remove a profile, select it and click on **Remove**.
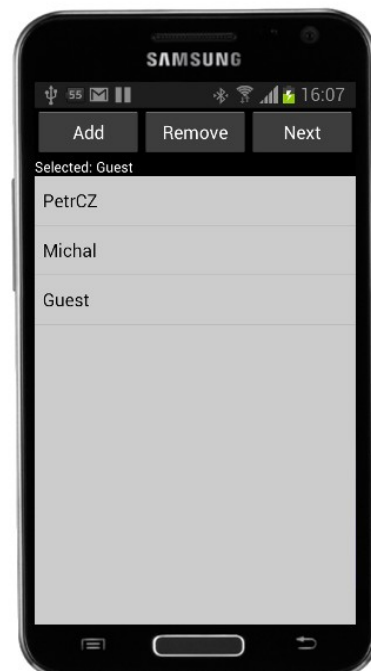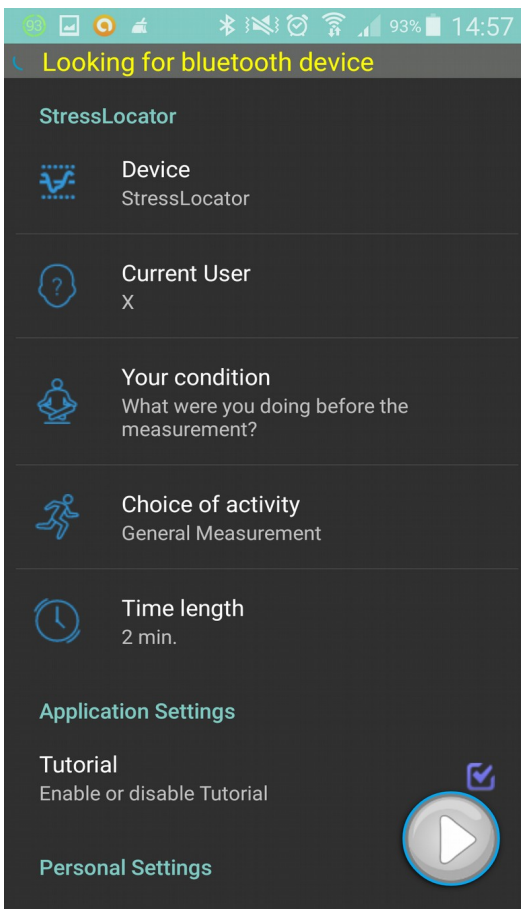
Main Menu

Your condition:

The state you choose should be as close to the reality as possible. It has no impact on the measurement itself, it's used to make the data better arranged on the cloud server. Each category has its own table there, together it creates good overview of your results.

Choice of activity:

General measuremetn
Standard, simple measurement, ideal to reveal your current condition.

Contest 2 min
In the contest, you can compare your current concentration and relaxation, reached within two-minutes measurement, with the other users on our server (to be able to do that, you have to allow sharing data in the Main Menu)

Expert measurement
Shows more information and all the graphics. There's no time limit.

Breathing exercise
These exercises were designed to help you improve your concentration or relaxation, whichever you wish. It's based on breathing-rythm.

Cloud server StressLocator

This service sorts all your measured data into tables, which allows you to check your improvements and notice even long term changes. It guarantees overview not only of your condition, but about your body's reactions in various situations as well.

Why should you use the Cloud Server:

- Saves information from each measurement
- Shows the whole process of measurement
- Helps to find out in which part of a day you are most effective
- Monitors long term changes
- Records and monitors all the indexes in the app
- (requires internet connection)

Registration and logging in

To register to the cloud, follow this link and fill the form. Then you'll acquire your access code via email.

Controls

▷ Resume stopped measuring

⤳ Share your results with commentary

◎ Share your position and results on the world map

✕ End the program
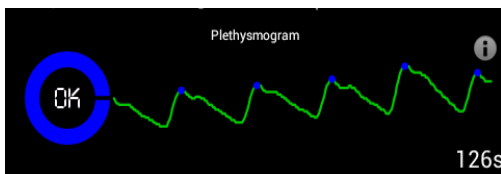
Indexes

Username and age
The age of the user is important because of its impact on the indexes and the evaluation overall. To reach more relevant results, everyone should have his own profile.

Timer

The countdown of the measurement, shows the time remaining to the end.

Plethysmogram

This graphic displays your heart rate. Make sure that each peak has a blue dot on its top. If not, the signal lacks quality. Try to slightly move your finger on the camera of your phone to get better results.

ANS – Autonomous nervous system

ANS keeps optimal working environment for your organs, which is happening nonstop without your conscious control. ANS keeps your heart beating regularly as well as it's responsible for regular breathing and controls various other processes such as digestion, perspiration, salivation etc. Although most of its activities are unconscious, some, like breathing, work in accordance with conscious processes. ANS is divided into two parts: sympathetic and parasympathetic.

Sympathetic division: This part of ANS is responsible for preparing the organism for an immediate reaction (in all cases of fleeing, fighting, sporting and so on). When it dominates, the heart beats faster, more blood streams through skeletal muscles, digestion is suspended. To some extent, you can force it by concentrating.

Parasympathetic division: Is this part of ANS ruling your body, you're not in the best state to perform anything requiring high concentration. The body is prepared to relax and regenerate, the blood flood away from skeletal muscles and brain to support digestion.

Balance
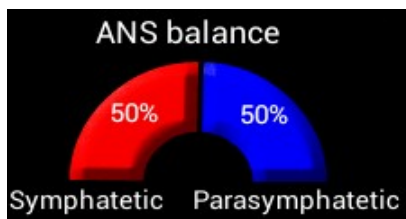
Both systems are in balance, which supports creativity and is optimal for some requiring no big effort.

Prevalence of sympathetic division
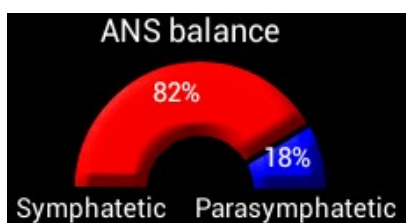
The body is ready to act. If you are somewhat active, including ordinary work requiring concentration, is this state in order. The graphic says how much of its capacity the body uses to perform that activity. However, stress and tiredness are connected with this state, so it should not prevail for too long.
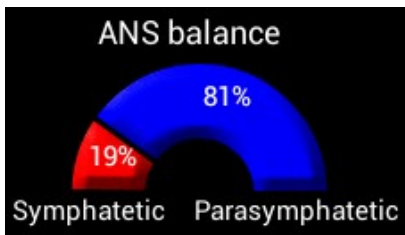
Prevalence of parasympathetic division

Before sleep or after a lunch, the organism usually is in this state. It means that the body isn't ready to focus on anything but resting, digesting and accumulating energy.

Physical index
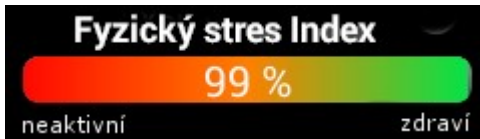
This index is based on your heart rate variability. It shows the percentage of energy you currently have at your disposal.
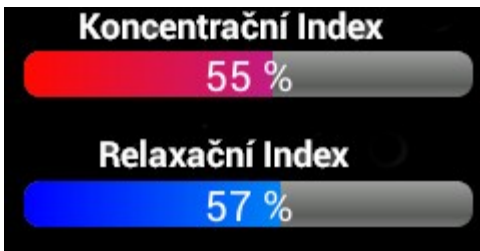
Physical index score
91 - 100 – physicaly in order   **70 - 90** – slightly tired
50 - 70 – very tired   **0 - 50** – exhausted

Concentration index: Indicates how concentrated you are on an activity, how much you are currently able to concentrate.

Relaxation index: Indicates to what extent your body relaxes or is able to do so.

SpO2

Percentage of blood oxygenation in your body. It's variable, depending on your previous physical activity, and individual. For an active athlete it can be as low as 80%.

SpO2 score
100% - **90%** The average value is 96,5%
90% - **80%** Usual during or after a sport performance
70% - **60%** Such a low score could mean a serious health problem
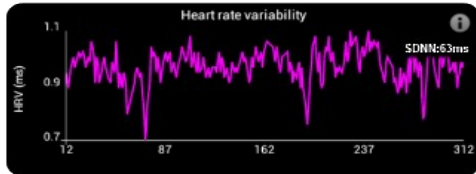
Heartbeat

Lower values are common for athletes, who have a stronger heart able to pump more blood.
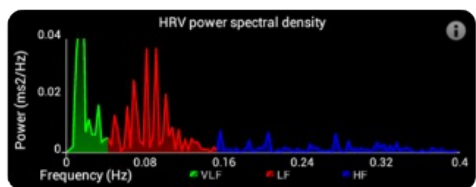
Men   **75** beats

| Women | **82** beats |
| Athletes ca. | **60** beats |

Heart rate variability

Indicates pulse variability between the beats of your heart. The higher the pulse variability, the better physical condition is. Lower heart rate variability indicates tiredness of organism.

HRV power spectral density

Indicates the power spectral density of the HRV signal. There is a certain level of correlation between HRV signal and harmonic sinus waves. This graph is designed for therapists and experts.
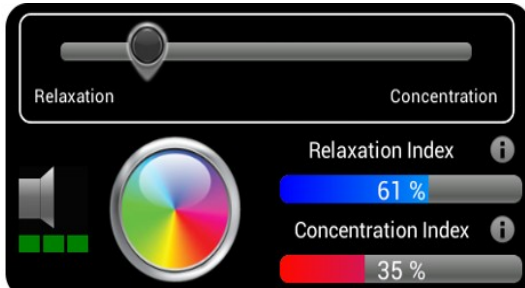
Poincaré plot
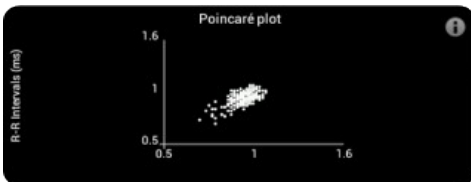
One of many techniques used to analyze heart activity. It is used to reveal some heart diseases or confirm proper heart functioning.
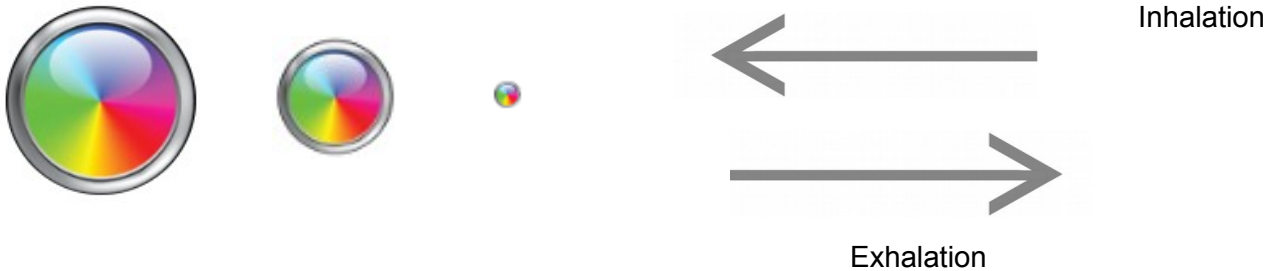
Actual heart rate

Heart rate development in time

Breathing Exercises

Exercises are focused on enhancing your concentration or relaxation by precise breathing. For this, the colorful metronome (the round indicator) is used. When the metronome is growing, breath in, when it is shrinking, breath out. The inhalation and exhalation phases can be separated by a sound (you can set the volume or turn it off completely).

Breathing metronome phases

Inhalation

Exhalation

STRESSLOCATOR PRO