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VIBRAIMAGE SYSTEMS OPERATION FOR PARTNERS AND USERS

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Annotation: *Vibraimage technology is difficult for understanding by unprepared users. User should to learn basic principles of Vibraimage operation by concrete Manual before operation. ELSYS Corp. developed PRO, medium and lite versions for special purposes to facilitate operating with VibraImage program. For these versions is necessary to read the corresponding Manuals before operating with system. At this report basic structure of Vibraimage Manuals is considered. It can help users to navigate and look for answers to questions about the operation with programs. Author gives the most common errors when working with VibraImage systems and them solutions. The article is intended primarily for partners engaged in the promotion of vibraimage technology, the installation of vibraimage systems and the training of end users of vibraimage systems.*

Keywords: *vibraimage technology, Vibraimage Manual, description structure, user's errors, vibraimage partners.*

Introduction

VibraImage systems are based on vibraimage technology [1]. It is intended for psychophysiological parameters monitoring and detection, emotion recognition, lie detection, monitoring of person physiological parameters, analyze and research of psychophysiological state of person (PPS), suspicious person detection in real time. Evaluation of human psycho-emotional state of person is needed in all areas related to human activities. The system will be useful for consumers of products or services, workers, employers, researchers of human psychology, sociology, medicine, etc. There are many variants of vibraimage technology application. Some versions (medium, lite) are developed for specific applications, for example, Aggression VI allows to record, save and research the influence of various factors on the aggressiveness of the tested person. Lite versions are similar in structure and can be purchased in one VibraLite package. In other hand, for example, detection of deception can be used both for interrogation in the police, in the lending, in a job interviewing. In this case, the evaluation of the psychophysiological response to the stimuli requires more experience with the VibraImage system from the interviewer, however, for example, it does not require knowledge of how the VibraImage system works with the electroencephalograph. Middle version VibraLie was developed for lie detection Also there are middle versions combined other large application areas: VibraMed for measurement PPS of 1 person in quasi-stationary state, VibraStaff for psychophysiological diagnostics and psychological researches of human operators before the work shift, VibraMid for object's security, VibraMI for determining the area of the leading human abilities etc. Professional version VibraImagePRO [2] includes all functions medium and lite versions that allows you to carry out any research related to vibraimage technology.

Features of the application VibraImage systems define the specifics of the program, and, accordingly, the description for it. So descriptions of VibraStat programs for statistical processing of VibraImage results and descriptions for mobile versions of programs differ from other.

Description structure of middle versions

The structure of all information answers the following questions, grouped generally at the following way:

1. Introduction, system requirements

What are basic theories for program?

What is the program for?

What are the requirements for a video, a camera, a computer, a net?

What does the system consist of?

2. Installation and first start of program

How to install a program?

How to activate?

How to reinstall?

How to set up camera?

3. Menu and toolbars

What does the multifunction window consist of?

What do the items, buttons in the main menu mean?

4. Basic principles of operating

5. How to save and analyze results?

How does the file with the results look like?

Where is it stored? how to open?

What do the charts and tables mean?

6. Warranty

Further description's structure will be showed on middle version's description of VibraMI (version 10.0) [3].

At the first part of all middle version's descriptions in the introduction links on basic theories for program are given. For VibraMI system this is the vibraimage technology, the theory of the vestibular-emotional reflex and the extended theory multiple intelligence by G. Gardner.

After a short introduction, a subsection with the purpose of the system is given. That lists the main tasks can be solved with this program. For example, one of the tasks for VibraMI is profiling and disclosure of the personal characteristics.

The next subsection is the characteristics of the system, which include the requirements for the camera, the computer, the network, the installed software for the correct operation. So for the camera, the frame rate is at least 30 frames per second and the noise level is less than 0.1 bit. To process the results of the program, you must have installed Microsoft Office Excel 2010 or later.

In section "Package content" all the system elements necessary for operation are described, including software and hardware, a security key.

The following section provides step-by-step instructions for installing the program, activating and reinstalling to another computer. For medium versions, it is possible to activate the program in DEMO mode 5 times. At the end of this section, you will find information about setting of camera at the first start of program. Setting a camera is one of the most difficult elements of operating with the system. To simplify this procedure, a column “Quality” was introduced in the latest versions of the programs, displayed the quality of the image during the testing.

The third section is devoted to a detailed description of the assignments of the segments of the main window, the items of the main menu and buttons on the toolbars.

The next section includes the basic principles of the system. For VibraMI, this is a description of the types of multiple intelligence, the principles of calculating conscious and unconscious response when answering questions.

After describing the basic principles there is a section with the results of the measurement, the most informative charts with their brief analysis.

The last section in all descriptions provides information about the warranties and responsibilities of the developer.

Description of the professional version

The full version VibraImagePRO includes all possible variants of system operating included in the medium versions and working with external devices. The possibilities of customize setting in the professional version are much more than in the medium versions. Accordingly, the main differences in the description of the full version from the descriptions of the medium versions in a more detailed consideration of all operation modes (section 4), the section of work with external devices (section 5), the section of more general principles of the vibraimage technology.

Errors when operating with system

Table 1 shows the most common errors when working with the VibraImagePRO system and how to resolve them. Items related to the video settings are common to all versions and cause the most difficulties for users.

Practical testing vibraimage system showed that real time control of three main errors 1, 2, 3 is necessary and sufficient to ensure the required reliability of the PPT results.

Table 1

Signs of inoperability	Cause	Elimination method
During the program installing display error message	The computer software is not installed Microsoft.NET FrameWork 2.0 and 3.x	Check the installation of the necessary software (Description section 1.3.3.)

Table 1 (continue)

Signs of inoperability	Cause	Elimination method
<p>When you run the program display "Security error" message</p>	<p>Do not set the security key</p>	<p>Plug the dongle key into the computer</p>
	<p>Not installed dongle drivers Installed driver dongle to a different operating system</p>	<p>Install the security key driver for your OS (Description section 2.2.4.)</p>
	<p>Expiry of your security key period</p>	<p>For the extension of the protection key period, contact your dealer</p>
<p>After opening the VI program Image area is white</p>	<p>There are no connecting camcorders or video Selected the wrong camera settings. The video recorded codec is not supported</p>	<p>Check the camera connection to the computer. In the "Settings" menu make a selection of a video camera or video file (Description Section 2.4.) Supporting Programs Amcap.exe check the camcorder operation</p>
	<p>On the computer does not install DirectX 9.0 software</p>	<p>Check the installation of the necessary software (Description section 1.3.3.)</p>
<p>After connecting the camcorder to computer the picture of it does not transfer into the VI program</p>	<p>The VI program only uses WDM compatible cameras or IP cameras</p>	<p>Check the camera connection to the computer. it is recommended before you start working with the VI program check the camcorder operation with use supporting programs Amcap.exe Check the connection of the IP camera (Description Section 5.3.)</p>
<p>The picture on the screen is updated slowly</p>	<p>The computer is too busy. After starting the VI program the computer CPU loading should not exceed 60%</p>	<p>Close unnecessary applications on your computer</p>
	<p>Low input frame rate of the video camera</p>	<p>Check the camera settings. (Description Section 2.4.)</p>

Table 1 (continue)

Signs of inoperability	Cause	Elimination method
After starting the program the working window are missing or there are extra windows	In the previous session made changed program working modes	The informational column, make a selection of the operating mode (Description Section 3.5.7 page 115). In the "View" menu close / open the appropriate window (Description Section 3.3.)
Appearance of the program is different from the "acquaintance"	In the previous session made changed program working modes	The informational column, make a selection of the operating mode (Description Section 3.5.7 page 115). Download to the program of their own previously saved system settings (Description Section 3.2.1)
When the program is run then continuously increases the counter "Stream errors"	The video stream from the camera is unstable and it contains errors.	Replace the camera. Check the connections and settings of your camcorder (Description Section 2.4)
	Computer settings do not meet the requirements.	Check the current configuration of your computer (Description section 1.3.3.)
The input frame speed from the camcorder is less than 25 frames / sec (less than 30 frames / sec in the "lie detection" mode)	The computer is too busy	Check the current configuration of your computer (Description section 1.3.3.). Close unnecessary applications on your computer
	The camcorder is not suitable for the required parameters	Replace the camera. Check the connections and settings of your camcorder (Description Section 2.4)
The processing speed of the frame in the "Fast processing" field does not match the speed of the input frame	The computer is too busy Computer settings do not meet the requirements	Close unnecessary applications on your computer. Check the current configuration of your computer (Description section 1.3.3.)

Table 1 (continue)

Signs of inoperability	Cause	Elimination method
<p>The processing speed of the frame in the “base processing” field of information column at least 5 frames / sec</p>	<p>The computer is too busy. Computer settings do not meet the requirements</p>	<p>Close unnecessary applications on your computer. Check the current configuration of your computer (Description section 1.3.3.)</p>
<p>When program operating in the video image dark horizontal stripes are visible</p>	<p>In camcorder settings does not use the suppression of flickering fluorescent lamps mode</p>	<p>The video settings window switch on “Flicker” mode (Description Section 2.4.2.)</p>
<p>Micro or LD mode When you have activated the “quality test” mode on the screen display the message “Error 1”</p>	<p>The person size in the frame image is too small</p>	<p>It is necessary to move the person to the camera or zoom camera vice versa. (Description section 2.4.5.)</p>
<p>Micro or LD mode When you have activated the “quality test” mode on the screen display the message “Error 2”</p>	<p>There is an increased noise in the image</p>	<p>The reasons for the error may be low light, incorrect camera settings or the vibration of the camera itself (Description of the sections 2.4.5., 4.3.1.)</p>
<p>Micro or LD mode When you have activated the “quality test” mode on the screen display the message “Error 3”</p>	<p>Too low speed of image input from a camera to a computer or network transfer of video from network cameras</p>	<p>Close unnecessary applications on your computer. Replace the camera. Check the connections and settings of your camcorder (Description Section 2.4 and 5.3)</p>
<p>When you start the video recording does not record</p>	<p>Computer HDD disk is full</p>	<p>In the information column of the program, determine the video file size and the amount of free disk space (Description Section 3.5.8)</p>
<p>Macro mode When operating in the “Face detection” mode the program is lacks the same person several times</p>	<p>Invalid selected the “Auto capture image” time</p>	<p>The informational column, increase the time in the “Auto capture image” field (Description Section 3.5.7 page 113)</p>
<p>Macro mode When operating in the “Face detection” mode the program is select person, but the picture is not added to the database</p>	<p>Invalid selected the “Auto capture image” time</p>	<p>The informational column in the “Auto capture image” field, set a value other than 0 (Description Section 3.5.7 page 113)</p>

Table 1 (*the end*)

Signs of inoperability	Cause	Elimination method
Macro mode. When operating in the “Face detection” mode the program is not allocated a single person	The Inefficiency of the installed face recognition algorithm and / or algorithm settings	Choose other algorithm for face recognition (Description Section 3.2.1). Change the settings of the current face recognition algorithm (Description Section 3.5.7 page 113)
	Wrong place the camera settings. The object of observation must be positioned frontally with respect to the camera and to be available for analysis for at least 3 seconds	Change the camera position relative to the object of observation (Description Section 4.2.2)

Conclusion

For correct work with the program it is necessary to understand the basic principles of working with the VibraImage system. If there is no possibility of training by ELSYS Corp. it is necessary to read the description before using the program. Most users of problems arise due to the incorrect configuration of the system in general, and especially cameras. In the descriptions there is a special section on setting up the camera. Also for the user the function “Quality test” which allows to automatically determine the video quality and determine the nature of setup errors was created. In descriptions there are answers to all the questions that may arise when working with the system from installing the program, assigning buttons and menus to the modes of operation and theoretical foundations of the program. VibraImage system is difficult only for unprepared users and requires the using of descriptions at work.

The main task of providers of vibraimage systems is to make the system extremely simple for the end user's work. This task is absolutely realistic, but it is feasible only if the installer or system vendor is well versed in the vibraimage technology and clearly represents the task facing the end user of the vibraimage systems.

References:

- 1 *Minkin Viktor*. Vibraimage. St. Petersburg: Renome Publ., 2017. — 108 p.
- 2 Behavior Detection System Manual, Version 10.1. St. Petersburg: ELSYS Corp., 2018. http://www.psymaker.com/downloads/VI10_ManualEng.pdf
- 3 Psychophysiological profiling system VibraMI Manual, Version 10. St. Petersburg: ELSYS Corp. 2018. <http://psymaker.com/downloads/VibraMIEng.pdf>