LAZ

ECT

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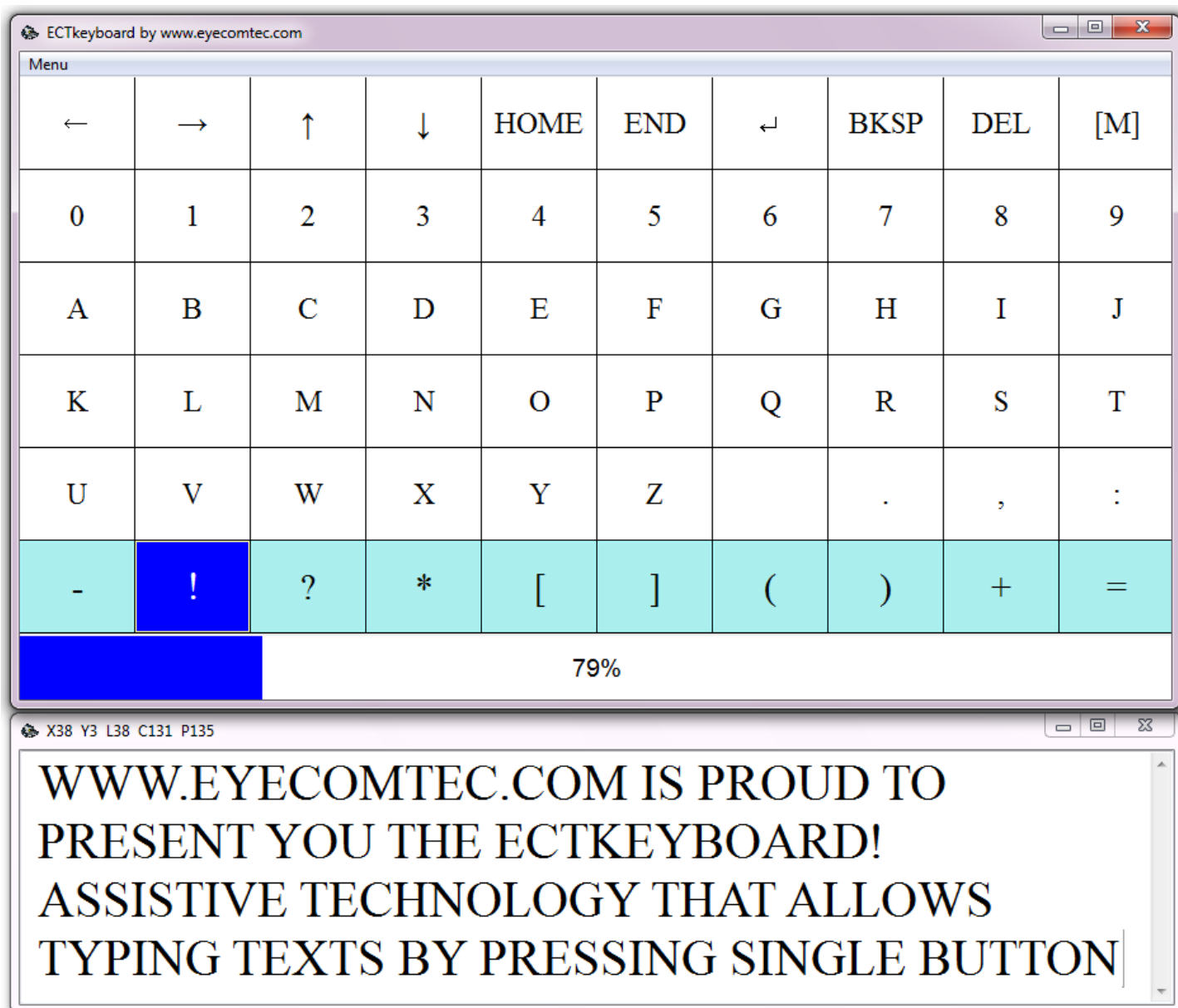KEYBOARD

ECT
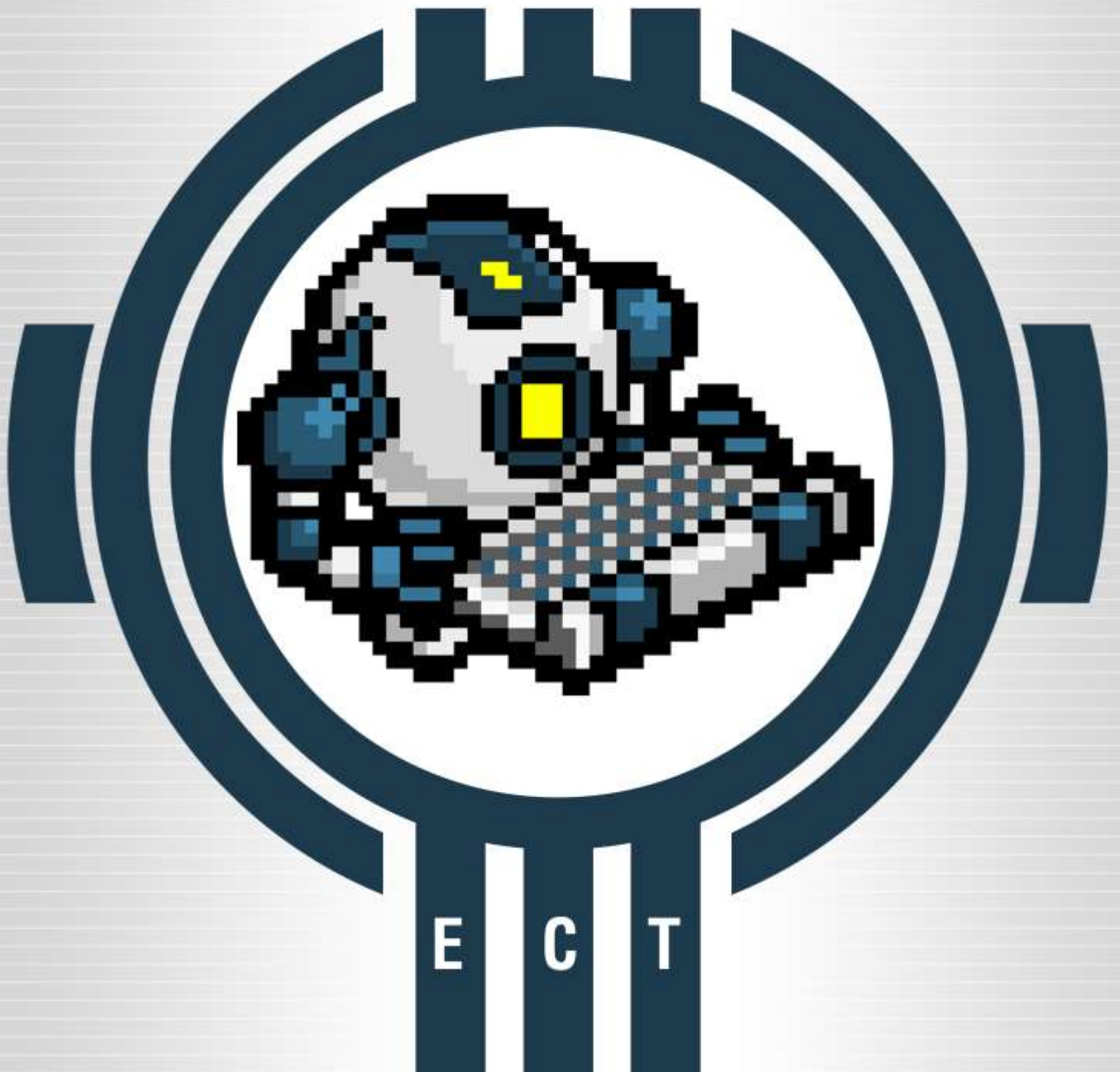
ECTkeyboard v31.x.x
User Guide

About ECTkeyboard

ECTkeyboard (EyeComTec Keyboard) is a program that allows individuals with reduced motor skills to type text letter-by-letter. The program works with eye tracking applications (for example, ECTtracker and similar programs), allowing to select characters in a text matrix through eye movements and blinking. It also supports direct input of characters from the virtual keyboard through contracting a muscle or a group of muscles, drawing the air or other means available to people with limited motor skills.

The main window of the program is a text matrix with a set of symbols or pictograms, the appearance and the order of which can be customized by the user. ECTkeyboard allows to enter text using different methods : Step by step- mode , in which the program highlights one character after another , and the user selects the desired character through blinking or other accessible action; Coordinate mode (when the selection is made horizontally and vertically) where the user first indicates the row or the column before selecting the desired character in them; Separating regime, where the entire text matrix gets divided in two, after being selected the part containing the desired letter splits in its turn, and so –on until a single character is selected ; Virtual keyboard mode allows to work with a mouse or another manipulator device. Operating modes are suitable for different groups of users with limited motor skills; all typed text is registered to a file.

ECTkeyboard has a simple interface, but at the same time a plurality of customizable settings. Almost any parameter can be modified - the number of letters in a row or column, matrix colors, colors and font style of a selected cell or to the entry delay, allowing to choose the most comfortable work pace, avoid fatigue and make working with ECTkeyboard as comfortable as possible. All settings can be imported to files allowing to quickly switch them.

←	→	↑	↓	HOME	END	↵	BKSP	DEL	[M]
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.	,	:
-	!	?	*	[	]	(	)	+	=

79%

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(Fig. 1. The main interface of the program; Main window, Output window)

Main menu

From the main menu (see Fig. 2) the user can quickly change the program operating mode, save and load the configuration file, reset the program to the default values, display or hide the program settings, the text output window, the ECTkeyboard help window, enable or disable the mouse, hide or display the main window, edging and title or exit the program. All menu items are conveniently grouped and accessible through hotkeys allowing rapidly configuring the program.
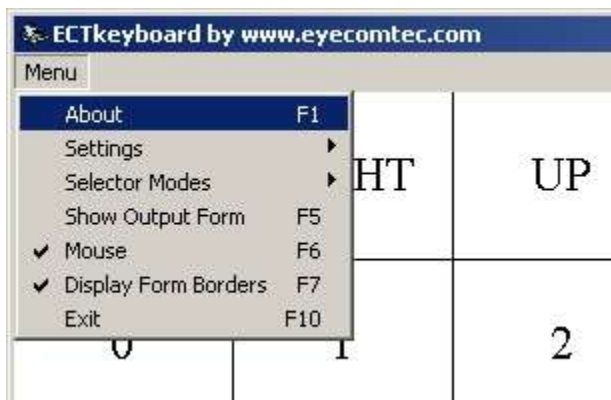

(Fig. 2. Main Menu ECTkeyboard)

About, hotkey F1. This menu item or the corresponding hotkey allow to display a reference window (see Fig. 3) containing basic information about ETCkeyboard version and build date, summary of the rights holders and the link to the website of the software.
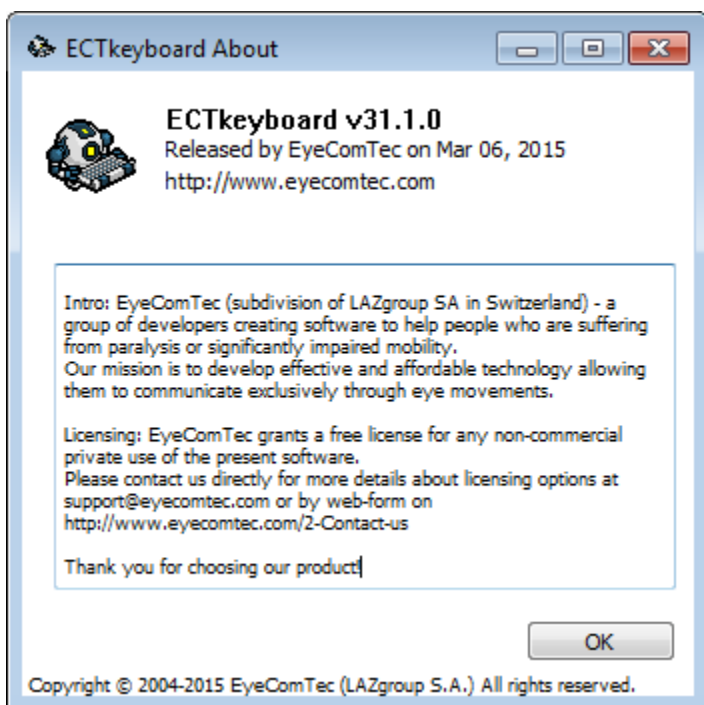
(Fig. 3. Reference window)

Additional Settings menu (see Fig. 4) allows the user to display the program settings panel, save download and the settings in the configuration files, reset all the setting values to Defaults
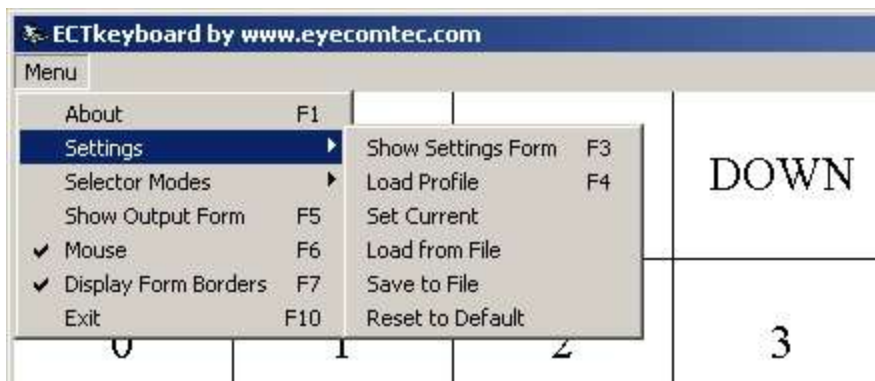
(Fig. 4. Additional Settings Menu)

ShowSettingsForm, hotkey F3. This menu item and hot key allow the user to display the program settings panel (see Fig. 5) which contains all the options whose values can be changed - the number of buttons in the row and column, their color and size, shapes, font size and style, delay, filenames with text characters, and other settings of the matrix. More details about each of the options can be found in the "Preferences".

LoadProfile, hotkey F4. Using this menu item or hot key, you can open a standard dialog box of your operating system (see Fig. 5) and load a previously saved configuration file containing all the ECTkeyboard settings.
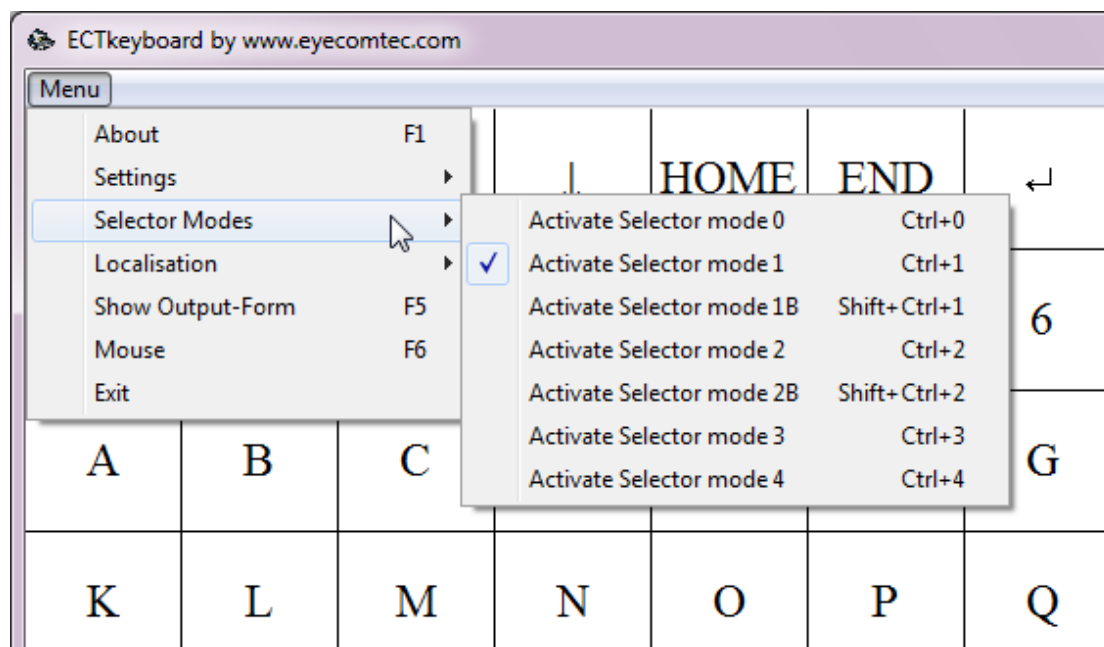

(Fig. 5. Dialog box to load profile settings)

SetCurrent. This menu item allows to apply settings downloaded using the option LoadfromFile to the main window of the program. (See notes in the end of the manual)

LoadfromFile. This menu command works in the same as LoadProfile, except that downloaded settings do not apply directly to the main window of the program, and they can pre-edit using the settings panel. (See notes in the end of the manual).

SavetoFile. With this menu command, you can save all the ECTkeyboard settings in a separate configuration file for subsequent fast loading. The program allows to create an unlimited number of configuration files, which is extremely useful when running the program on different computers from a portable storage device, as well as for working in alternance with several users on the same computer. Configuration files allow you to change quickly the appearance and the functionality of the text matrix, so that after the initial setup the change of the ECTkeyboard settings can be made very quickly.

ResettoDefault. This option is used in case if the user wants to return to its original ECTkeyboard settings. This item cancels all changes to the settings, loading the program settings profile built into the file launcher. (See notes in the end of the manual)

An additional **SelectorModes** menu allows quickly selecting one of seven possible ECTkeyboard modes (see Fig. 6).

(Fig. 6. Dialog box to load profile settings)

ActivateSelectormode 0, shortcut key Ctrl+0. Allows selecting the virtual keyboard mode, where the desired cell of the text matrix is selected by moving the mouse cursor and pressing the left button. Allows you to quickly select the desired characters with the mouse; the countdown timer is disabled in this mode.

ActivateSelectormode1 shortcut key Ctrl+1. Allows selecting the coordinate mode of operation; In this mode, first the line is highlighted in the text matrix (top-down), then after selecting the desired line – a character in it (left-right).

ActivateSelectormode 1B, shortcut key Shift+Ctrl+1. Allows selecting the coordinate mode of operation; In this mode, first the column is highlighted in the text matrix (left-right), then after selecting the desired column – a character in it (top-down),

ActivateSelectormode2, shortcut key Ctrl+2. Allows selecting the step by step mode of operation; In this step by step mode the cells in the text matrix are highlighted one by one - from left to right, with a subsequent transition between the lines. Step mode is the slowest of all the available.

ActivateSelectormode2B, shortcut key Shift+Ctrl+2. Allows selecting select the step by step mode. In this step by step mode the cells in the text matrix are highlighted one after the other - from the top down, with a subsequent transition between the columns.

ActivateSelectormode3, shortcut key Ctrl+3. Allows selecting the separation mode, in which the field of the matrix is divided into two alternately illuminated parts. When the user selects a portion of the screen containing his desired character, it splits again into two parts with alternating backlights and so forth, until a character is selected.

ActivateSelectormode4, shortcut key Ctrl+4. Allows selecting the coordinate mode by holding the cursor; It is meant to be used with various eye tracking applications.

ShowOutputForm, shortcut key F5. This menu item or the corresponding "hot key" allows displaying or hiding the output form, which contains all the text entered through the text matrix. (see Fig. 7).
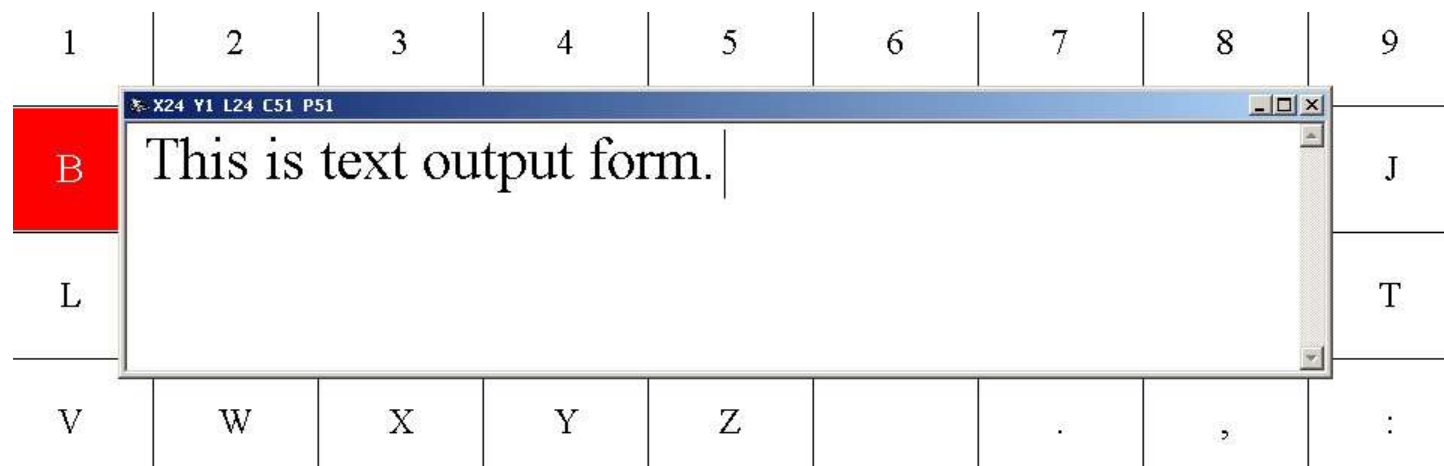
(Fig. 7. Form text output ECTkeyboard)

Mouse, key F6. This option allows enabling or disabling the mouse. Through the use of the mouse the text matrix can be used in any mode as a virtual keyboard for fast typing. When you select the mode selector 0 Mouse turns on automatically; when other modes selected it's automatically disabled, but can be activated manually. When the mouse option is enabled, the corresponding item in the main menu of the program is pointed out with a check mark, and the text matrix cells are highlighted when hovered over by the mouse cursor.

DisplayFormBorders key F7. This option saves the working window space allowing to disable and enable the display of the main program window borders. It is used when the program is running on computers with low-resolution monitor or when the screen area is occupied by windows of other applications.

Exit, key F10. Allows exiting the program while keeping all changed settings

ECTkeyboard - modes

The main window of the program ECTkeyboard represents a matrix with a loadable symbol table; the user can work with it in different modes and select the most convenient for him.

A countdown strip is situated under the text matrix; selecting the desired character (either row or column, depending on the mode) activates the timer; to confirm the selection the user should keep the button pressed for a while or let it go to highlight the next character.

Different operating modes in conjunction with a customizable response time allow a paralyzed person to use precisely the selection mode that suits him the best.

Modes are divided into:

- Step by step mode (where the highlighting moves vertically or horizontally);
- Coordinate mode (selecting a row or a column, and then the desired character in it);
- Separation mode (the selected text matrix area is divided in two each time);
- Cursor holding coordinate mode (holding down a key is necessary to select a character);
- Virtual keyboard mode.

Step by step mode (**mode 2**) is most simple and suitable for learning to work with the program mode, consequently it is also the slowest one. When this mode is selected, the highlighting of the characters moves line by line from left to right until the desired letter is selected. The second step by step mode (mode 2B) differs only in that that the highlighting moves by columns - from top to bottom in each column and left to right when changing the column. The step by step mode is more suitable for those who are just beginning to master ECTkeyboard, or prefer working slowly.

Coordinate mode (**mode 1**) allows a quick selection of the letters, but working with it requires a certain skill, since the user has to remember the approximate location of the symbols in the table to quickly locate desired ones. In this mode, the program highlights the lines one by one from top to bottom, and once the desired line is selected, the characters in it. The second version of the coordinate mode (**mode 1B**) operates the same way but with the columns, highlighting them from left to right, and once selected the characters they contain.

Separation mode (**mode 3**) is different from previous ones. This mode splits the screen in two- highlighting in turn the left and the right sides. When the user makes a selection, the selected matrix area is divided into two parts - upper and lower, and so on until the desired letter is chosen. Thereafter the entire matrix is afresh divided vertically in two, and a new selection can be started.

Cursor holding coordinate mode (**mode 4**). This mode is designed to be uses in conjunction with various eye tracking systems that respond to human gaze direction or head movements. In this mode, the timer is continuously activated, and the user must in the allotted time choose the desired letter in the text matrix through a gaze or a head movement. After that, the countdown starts over again, allowing him to choose the next character. Fine adjustment of the timer allows selecting the letters by keeping the eyes closed for a defined time, at the same the blinking will not cause false alarms or interfere with the work.

Virtual keyboard mode (**mode 0**) allows selecting the letters in the matrix by means of movements and mouse clicks; which allows the user to work rather fast. Here the timer does not activate each time to confirm each selection of a character.

The presence of several modes of working with a text matrix makes ECTkeyboard a quite universal program suitable for both fully paralyzed patients and patients with limited or insufficient physical activity. Various modes are suitable for different occasions and diseases, allowing the user to choose precisely the right type of input to suit each particular patient. The possibility to fine-tune all the delays, the order of characters in the matrix, the font size and color as well as the background color, can reduce fatigue and make working with ECTkeyboard comfortable and the input selection rate appropriate.

Program settings

1. The number of buttons horizontally (all modes)
2. The number of buttons vertically (all modes)
3. Button size horizontally (all modes)
4. Button size vertically (all modes)
5. Distance between the horizontal keys (all modes)
6. Distance between the buttons vertically (all modes)
7. The width of the button frame in pixels (all modes)
8. Text font name (all modes)
9. File name with buttons labels (all modes)
10. Field delimiter
11. Zero Keyboard - button frame color (all modes)
12. Zero keyboard - the color of the button (all modes)
13. Zero keyboards - the color of the text on the button (all modes)
14. Zero keypad - the font size of the text (all modes)
15. Zero Keyboard - the color of the keyboard background (all modes)
16. Field delimiter
17. First keyboard - button frame color (all modes)
18. First keyboard - the color of the button (all modes)
19. First keyboard - the color of the text on the button (all modes)
20. First keyboard - the font size of the text (all modes)
21. First keyboard - the color of the keyboard background (all modes)
22. Field delimiter
23. Second keyboard - button frame color (all modes)
24. Second keyboard - the color of the button (all modes)
25. Second keyboard - the color of the text on the button (all modes)
26. Second keyboard - the font size of the text (all modes)
27. Second keyboard - the color of the keyboard (all modes)
28. Field delimiter
29. Third keyboard - button frame color (all modes)
30. Third keyboard - the color buttons (all modes)
31. Third keyboard - the color of the text on the button (all modes)
32. Third keyboard - the font size of the text (all modes)
33. Third keyboard - the color of the keyboard background (all modes)
34. Key codes to activate a selected cell of the matrix (modes 0, 1, 1B, 2, 2B, 3)
35. Vertical movement delay (modes 0, 1, 1B, 2 , 2B, 3)
36. Delay horizontal movement (modes 0, 1 , 1B)
37. The minimum hold time (all modes)
38. Maximum hold time (modes 0, 1 , 1B, 2 , 2B, 3)
39. Text input direction (vertical / horizontal) (all modes)
40. OutFormVisible
41. Separation Symbol (all modes).
42. RenderedKeyboardFileName (all modes)
43. KeyboardIconsFileName (all modes)
44. IconPositioning (all modes)
45. TextPositioning (all modes)
46. IconTransparencyColor (all modes)
47. Outputfilename (all modes)
48. Fontname (all modes)
49. Fontsize (all modes)

50.   Field delimiter
51.   Progressbar - inactivecolor – Unfilled bar color (RRGGBB) (all modes)
52.   Progressbar - activecolor – Filled bar color (RRGGBB) (all modes)
53.   Progressbar - labelfontcolor 1 – Text color on top of the bar strip (RRGGBB) (all modes)
54.   Progressbar - labelfontname – Text font name (all modes)
55.   Progressbar - labelfontsize – Text font size (all modes)
56.   Progressbar - direction – Bar filling direction (0, 1, 2, 3) (all modes)
57.   Progressbar-inactivecolor 2 – Unfilled bar color (RRGGBB) (all modes)
58.   Progressbar - activecolor 2 – Filled bar color (RRGGBB) (all modes)
59.   Progressbar - labelfontcolor 2 – Text color on top of the bar strip (RRGGBB) (all modes)
60.   Progressbar - label font name 2 – Text font name (all modes)
61.   Progressbar-labelfontsize 2 – Text font size (all modes)
62.   Progressbar - direction 2 – Bar filling direction (0, 1, 2, 3) (all modes)
63.   The progress bar filling style (all modes)
64.   Maximum hold time Extended (modes 0, 1, 1B, 2, 2B, 3)
65.   Command on exceeding the maximum retention time (all modes)
66.   Automatic button scaling (all modes)
67.   ProgressBarHeight (The height of the progress bar) (all modes)
68.   MainFormPositionLeft (position of the main form, left margin) (all modes)
69.   MainFormPositionTop (position of the main form, top margin) (all modes)
70.   MainFormWidth (width of the main form) (all modes)
71.   MainFormHeight (height of the main form) (all modes)
72.   OutputFormPositionLeft (position of the out form, left margin) (all modes)
73.   OutputFormPositionTop (position of the out form, top margin) (all modes)
74.   OutputFormWidth (width of the out form) (all modes)
75.   OutputFormHeight (height of the form) (all modes)
76.   Horizontal shift in pixels (mode 4)
77.   Vertical shift in pixels (mode 4)
78.   External matrix fields when working in the coordinate mode while retaining the cursor (mode 4)
79.   DisplayAboutFormonStart (form display at startup from "About")
80.   Current selector mode
81.   Displaying frames of forms
82.   File to save current work to
83.   Auto save time interval
84.   Active language file
85.   Progress bar select sound
86.   Progress bar reject sound

ECTkeyboard program is fully customizable. The settings panel allows to change any used parameter - from the minimum and maximum delay time when selecting a character and the field location to the file names used in the program with a list of symbols and names of saved documents from the user-entered texts. Settings panel can be accessed through **ShowSettingsForm** menu item (see Fig. 2).
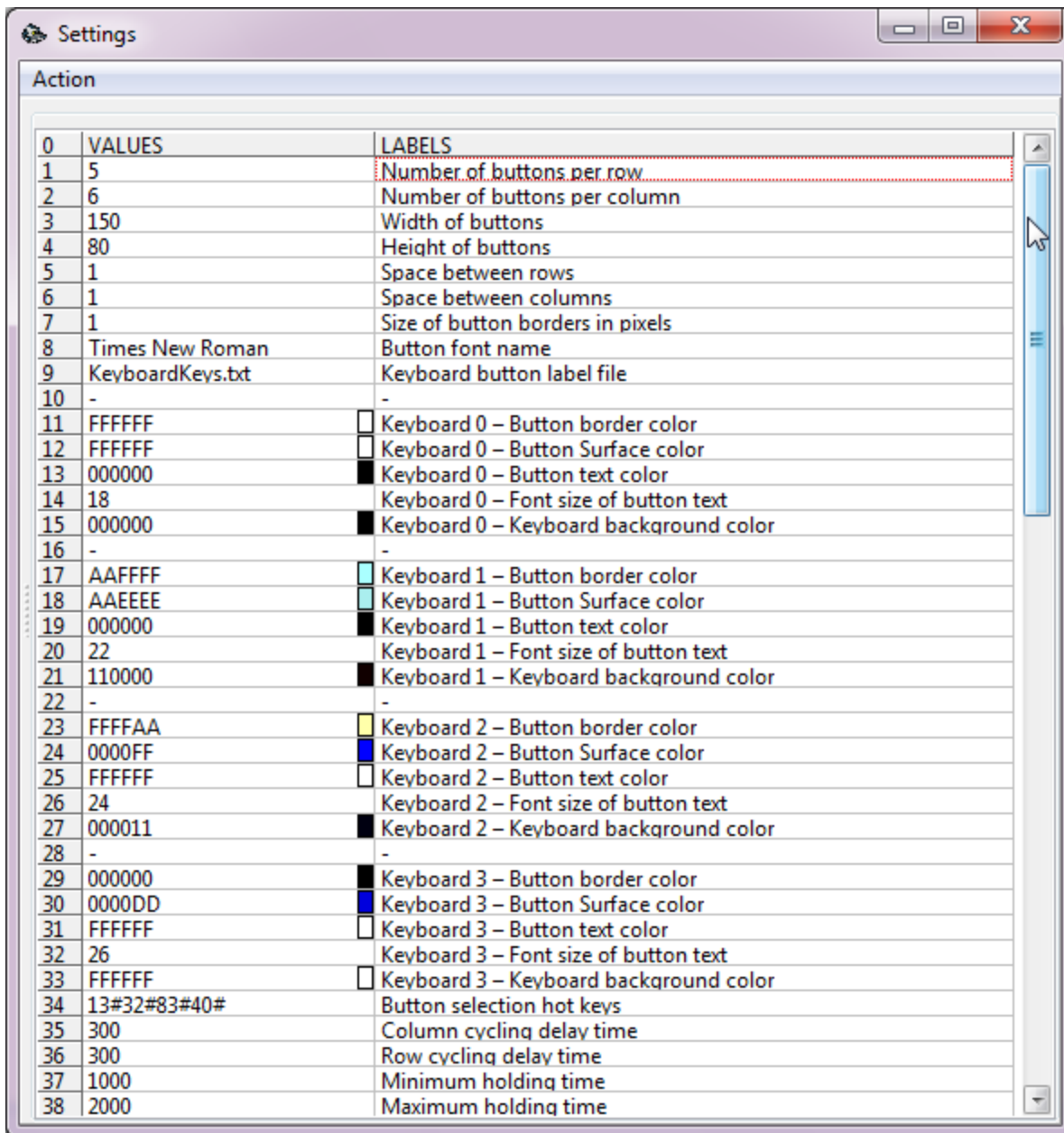
(Fig. 8. Settings panel program)

All settings (over 80) are grouped into several sections:

- General settings of the matrix - the number and size of the buttons, the font type, the distance between the buttons, the width of the used frame, the name of the file with a list of button labels;
- Adjusting color balance (font size and color, button frame, field and window background color). Settings can be adjusted separately for each highlighted column , selected button in it and all other elements of the matrix;
- Setting time delay when moving highlights and selecting the desired character, setting button text and icons, font type and size of the input form or names of the files with user saved text;
- Adjusting color and font used in the countdown strip, the size and the position of the base and text output forms; displaying the form "About" at startup ECTkeyboard and other settings.

These settings will allow completely changing the appearance of the text template and adapt it to the needs of different users and working with screens of different resolution; languages and keyboard layouts (see Fig. 9-11).

LEFT	RIGHT	UP	DOWN	HOME	END	ENTER	BKSP	DEL	SAVE
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.	,	:
-	!	?	*	[	]	(	)	+	=

(Fig. 9. Text matrix. Contrasting color scheme, English keyboard layout)

LEFT	RIGHT	UP	DOWN	HOME	END	ENTER	BKSP	DEL	SAVE
0	1	2	3	4	5	6	7	8	9
	.	,	:	-	!	?	*	[	]
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z	(	)	+	=
/	\	_	<	>	$	%	&	"	;
А	Б	В	Г	Д	Е	Ё	Ж	З	И
Й	К	Л	М	Н	О	П	Р	С	Т
У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь
Э	Ю	Я							

(Fig. 10. Text matrix. bright color scheme, English and Russian layouts)
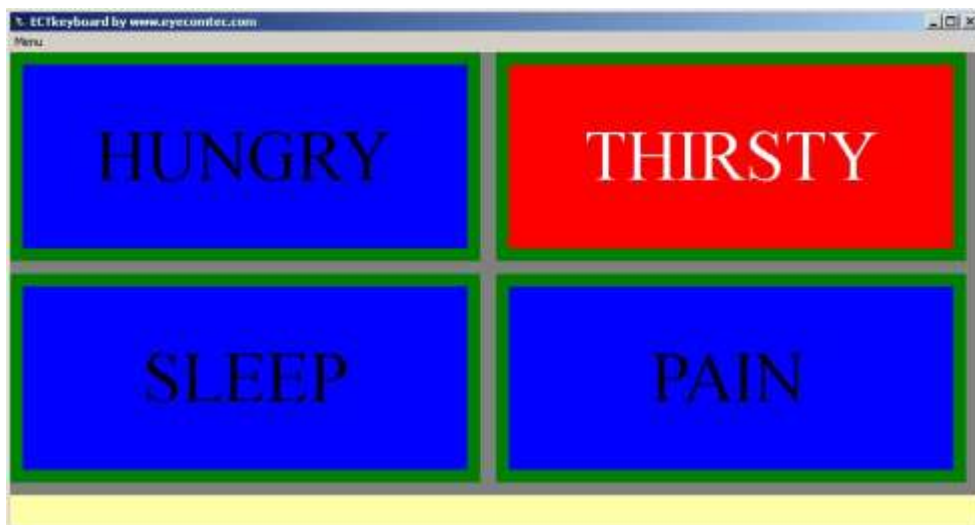
(Fig. 11. Text matrix. simplified view, enlarged keys and text)

The first column of the settings panel for ease of use contains the numbers of the settings, the second - the values of the variables that can be changed at will, and the third - a brief description of settings. In the square brackets following a brief description are listed the program modes for which this option is available.

After changing the settings, you must use the **Repaintkeyboard** menu item, to enable all the changes.

Let's take a closer look at ECTkeyboard settings.

General settings of the matrix (1-9)

1. The number of buttons horizontally (all modes). The number of keys in the matrix depends on the number of different characters and commands to be used. For example, the Russian alphabet consists of 33 letters; with the addition of the basic commands for working with text (moving a symbol on the right or the left, beginning and ending a line , moving to the previous and the next line, a line break , removing a character , and so on), the matrix will consist of approximately 43-50 buttons . If in addition we add uppercase, lowercase and latin letters, it will further increase the number of buttons by 26-33. The number of buttons on a vertical is only limited by the usability for the paralyzed person and the resolution of the monitor.

2. The number of buttons vertically (all modes). It is worth to observe a simple rule - the more symbols there are in the table, the greater must be the number of characters horizontally and vertically. When an approximate equality of rows and columns is achieved working with the program in the coordinate mode is the most rapid (1 and 1B). The final form of the table is only determined by the convenience of working with it and can be quite different for different users (see Figure 12-13).
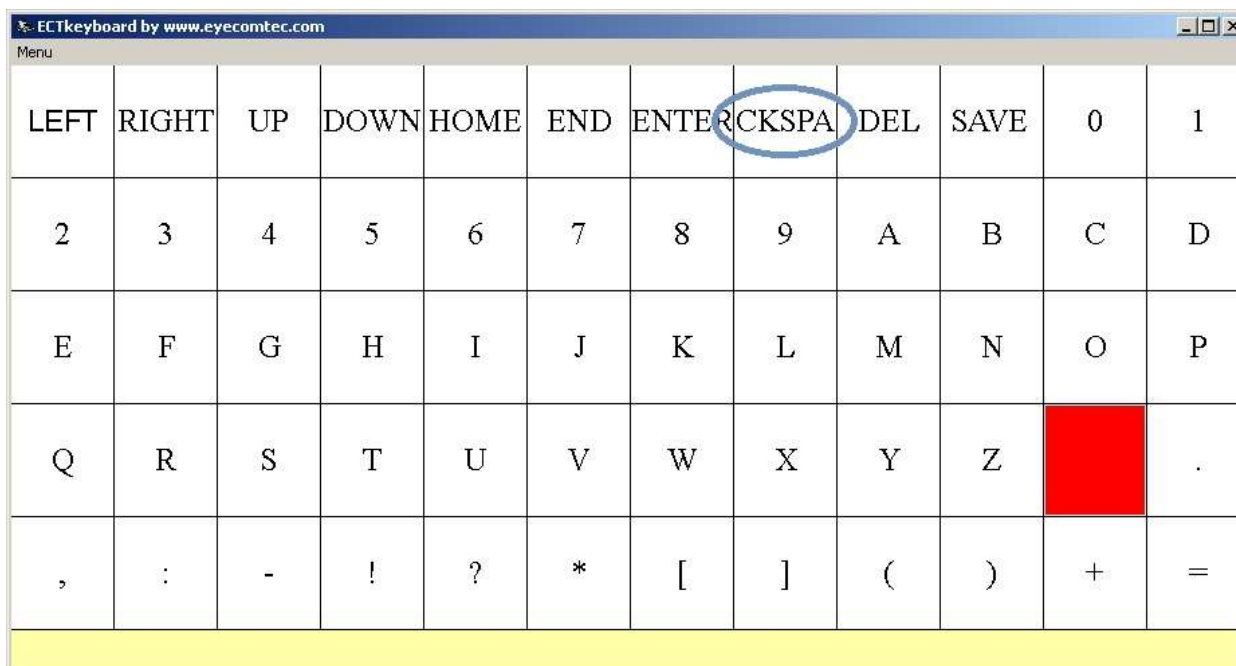
LEFT	RIGHT	UP	DOWN	HOME	END	ENTER	BKSPC
DEL	SAVE	0	1	2	3	4	5
6	7	8	9	A	B	C	D
E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z	🟥	.
,	:	-	!	?	*	[	]

(Fig. 12. Text matrix with 8buttons vertically and 7 horizontally)

LEFT	RIGHT	UP	DOWN	HOME
END	ENTER	BKSPC	DEL	SAVE
0	1	2	3	4
5	6	7	8	9
A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z	🟥	.	,	:
-	!	?	*	[
]	(	)	+	=

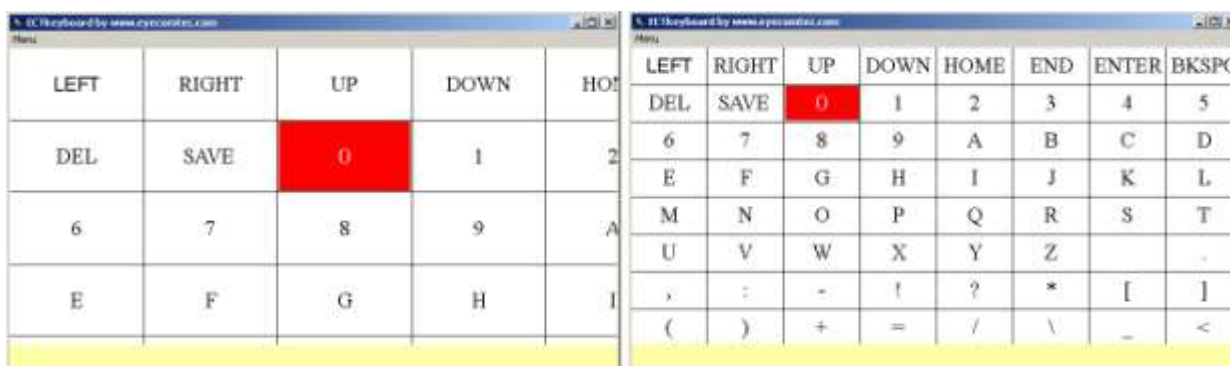(Fig. 13. Text matrix with 5 keys horizontally vertically and 12 vertically)

The proportions of the buttons are conserved when the window of the text matrix is resized, so it is not recommended to have a too large number of columns; in the same time a port of command names or long sentences will simply not fit in the space allotted to them on the buttons (see Figure 14). Automatic scaling can be disabled by changing the value of the parameter 66 in the settings panel from 1 to 0.

(Fig. 14. Text matrix with 12 buttons vertically and 5 horizontally. Backspace command are not displayed correctly, due to auto-scaling)

3. Button size horizontally (all modes). This parameter sets the horizontal size of the text matrix buttons in pixels. The size of the buttons should be increased only if their number in a matrix is low (see Fig. 5) or if the paralyzed is short-sighted or has other visual impairments. A large size of buttons in conjunction with a properly selected color gamut allows the patient to make fewer mistakes and get less tired when entering text. It should be noted that the number of displayed buttons is limited by the screen resolution and the size of the window. If we make the size of the buttons large, and open the program in a small window or on the screen with a low resolution, scaling will be performed in automatic mode (see Fig. 9). Automatic scaling can be disabled by changing the value of the parameter 66 (SetButtonSize) from 1 to 0.

(Fig. 15. At a large number the buttons are scaled automatically when the SetButtonSize value is 1)

4. Button size vertically (all modes). This parameter specifies the vertical size of the buttons in pixels. Since when using commands or words in the table, the size of the buttons vertically is usually smaller than horizontally, it usually does not make sense for the ease of reading and searching the desired character to significantly increase the row height. The width of the buttons vertically and horizontally is usually chosen by experience after a few sessions with the program.

5. Distance between the horizontal keys (all modes). This option allows setting some distance between the buttons and allows more clearly distinguishing them from each other and delineating the text matrix, making

thus the work with the program more comfortable. The horizontal spacing between the buttons separates the columns of the matrix.

6. Distance between the buttons vertically (all modes). This option allows setting some distance in pixels between the rows. A separate change in the distances between the buttons vertically and horizontally allows customizing the appearance of the matrix in accordance with the preferences of the user (see Fig. 10-11).

(Fig. 16. Left - the distance between the buttons 1 pixel horizontally and vertically. Right - the distance between buttons 5 pixels horizontally and vertically)

(Fig. 17. Left - the distance between the buttons 2 pixels horizontally and 10 vertically. Right - distance between the buttons 10 pixels horizontally and 2 vertical)

7. The width of the button frame in pixels (all modes). Framing buttons frames with fully customizable display and color scheme makes it possible to easily select a character in the table, reduces fatigue and improves performance. Picking out a button through a large frame or a contrasting color makes using the program easy for people with impaired vision (see Fig. 12).

(Fig. 18. Left - frame width of 1 pixel buttons in the center - 5 pixels to the right - 10 pixels)

8. Text font name (all modes).

9. File name with buttons labels (all modes). ECTkeyboard can use different sets of buttons - for example, in different languages, to include lowercase / uppercase characters, to use commands or switch to a simplified input mode. In this case, each created set of buttons should be saved in a separate file located in the same

directory as the program file launcher. This item of the settings panel allows quickly switching between different sets - simply type in the name of the file.

10. Field delimiter. The field delimiters are used to separate different groups of commands in the settings panel and make navigation much easier.

Settings color balance and font sizes (11-33)

The program allows adjusting the color of each individual element of the text matrix - buttons and their frames, the background and the font. Changing the font size is also possible.

The program uses a hexadecimal system of representation of color - HEX. Six characters of color coding are designated with the sequence RRGGBB, where RR - the proportion of red color in the palette, GG- green, and BB - blue. All other colors are derived from red, green and blue.

Each encoding symbol can have one of sixteen values: 0, 1, 2 , 3, 4, 5 , 6, 7, 8 , 9 , A, B, C, D, E, F. In this way the intensity of each of the three primary colors has 256 gradations , and the total number of shades of HEX-coding exceeds one million seven hundred and three thousand. The correct color rendition is the main problem when working with color tones, as it depends on various types of computers and monitors. There are sixteen basic and most frequently used colors:

- Aqua - # 00FFFF;
- Black - # 000000;
- Blue - # 0000FF;
- Fuchsia - # FF00FF;
- Gray - # 808080;
- Green - # 008000;
- Lime - # 00FF00;
- Maroon - # 800000;
- Navy - # 000080;
- Olive - # 808000;
- Purple - # 800080;
- Red - # FF0000;
- Silver - # C0C0C0;
- Teal - # 008080;
- White - # FFFFFF;
- Yellow - # FFFF00.

The coding of other colors can be found in special summary tables or third-party image editors.

The # symbol in front of RRGGBB- code is used to indicate the beginning of a color code in HTML- markup, if using a different sign is necessary, the latter can be set by changing the value of the "sign for HEX-transformation" (par. 41).

The order of the options in the settings panel:

11. Zero Keyboard - button frame color (all modes).

12. Zero keyboard - the color of the button (all modes).

13. Zero keyboards - the color of the text on the button (all modes).

14. Zero keypad - the font size of the text (all modes).

15. Zero Keyboard - the color of the keyboard background (all modes).

16. Field delimiter.

17. First keyboard - button frame color (all modes).

18. First keyboard - the color of the button (all modes).

19. First keyboard - the color of the text on the button (all modes).

20. First keyboard - the font size of the text (all modes).

21. First keyboard - the color of the keyboard background (all modes).

22. Field delimiter.

23. Second keyboard - button frame color (all modes).

24. Second keyboard - the color of the button (all modes).

25. Second keyboard - the color of the text on the button (all modes).

26. Second keyboard - the font size of the text (all modes).

27. Second keyboard - the color of the keyboard (all modes).

28. Field delimiter.

29. Third keyboard - button frame color (all modes).

30. Third keyboard - the color buttons (all modes).

31. Third keyboard - the color of the text on the button (all modes).

32. Third keyboard - the font size of the text (all modes).

33. Third keyboard - the color of the keyboard background (all modes).

Color buttons can be adjusted separately for each type of highlighting - selected row or column, active button or inactive button. All settings are grouped into four types:

- **Null keyboard** – colors and fonts of all non-active elements of the matrix;
- **First keyboard** – highlighting of the currently selected row or column;
- **Second keyboard** – highlighting of characters selected in a row or column;
- **Third keyboard** – highlighting a symbol in a row or a column in the cancel input mode (to read more about this mode, see "Setting the delay time and the output forms").

Each group of settings allows you to separately change:

- Button frame colors;
- The color of the button;
- The color of the text displayed on the button;
- The font size;
- The background color of the keyboard.

Let's consider these settings in more detail.

Button frame color allows selecting in the input mode the highlighted column / row with a more contrasting border. Unlike the parameters of the "spacing between the buttons horizontally" (par. 5), and the "spacing between the buttons vertically" (par. 6), which simply increase the spacing between the cells, the frame will highlight just the selected row / column, and cell in them, allowing the user to quickly orient himself in the matrix. The larger is the "button frame width" value (option 7), the more contrasting becomes the matrix when a specific area is highlighted, and the easier is the selection. Using matrixes contrasting with the general background and the color tones of the cells is advised (see Fig. 13).
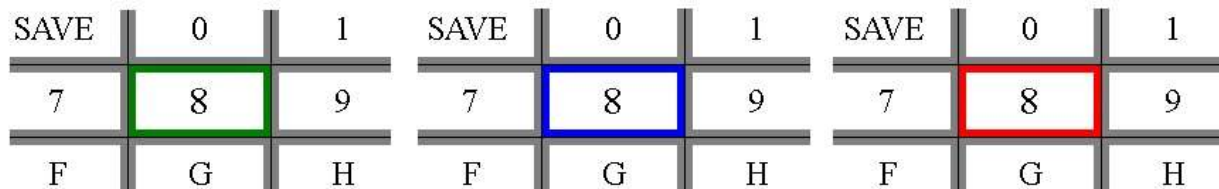
(Fig. 19. Various frame colors of highlighted buttons: green, blue, red. Inactive frame color - gray)

The button color changes the shape of matrix cells (see Fig. 14). Vivid color shades are recommended for patients with impaired vision or color perception problems, in other cases it is advised to choose less intense colors, in order not to increase the overall fatigue.
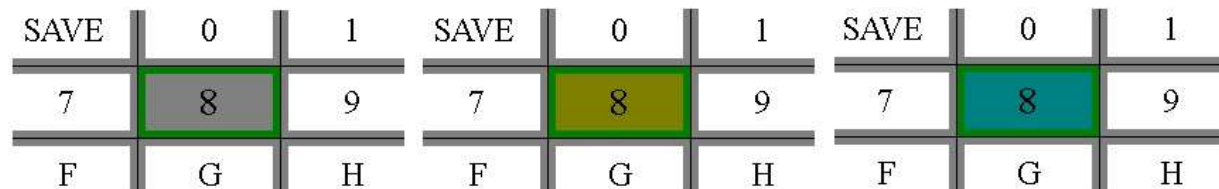
(Fig. 20. Various button colors of: gray , olive-green , gray- green. Inactive button color - white)

The color of the text on the button should be different from the color of the button. With light-colored buttons the text color should be black or any other dark color, and vice versa. Using contrasting colors gives greater picture clarity, which can be important in case of a distorted visual perception. If the picture "hurts the eyes", it is recommended to use a smooth, light, pastel colors for the buttons and dark colors for text. Various options are shown in the figure below (see Fig. 15).

SAVE	0	1	SAVE	0	1	SAVE	0	1
7	8	9	7	8	9	7	8	9
F	G	H	F	G	H	F	G	H

(Fig. 21. Using different font colors: black text on a silver background, gray text on a purple background, and more contrast scheme - bright green text on a black background)

The font size of the text directly affects the convenience of character selection in the table. The smaller are the matrix buttons the higher is the resolution of the screen, the larger font should be selected. In case of shortsightedness, astigmatism and other vision disorders it is recommended to use larger fonts which will allow the patient to work with the matrix in a more comfortable environment, stay longer focused and do not overextend the vision (see Fig. 22).

FT	RIGHT	UP	DOWN	HOM
EL	SAVE	0	1	2
5	7	8	9	A
E	F	G	H	I
M	N	O	P	Q

(Fig. 22. Matrix text with Arial font size 16, in the selected cell the font size is increased to 30 to improve the readability)

The background color of the keyboard is responsible for shade background underneath of the matrix buttons. If you increase the value of the "spacing between the buttons horizontally" (par. 5), and the" spacing between the buttons vertically" (par. 6), the distance between the buttons will be filled by the background. (See Fig. 23).

SAVE	0	1		SAVE	0	1
7	8	9		7	8	9
F	G	H		F	G	H

(Fig. 23. Dark blue and gray - green matrix background colors; The value of spacing between the cells horizontally and vertically is 10 pixels)

The ability to change the display settings of all cells in a matrix make ECTkeyboard easy to master, and to use.

Setting delay time and output forms (34-49)

When working in the coordinate (1 and 1B), step by step (2 and 2B), separation (3) and coordinate with holding the cursor(4) modes the program uses different delay types - vertically and horizontally moving highlighting delay and the parameters of minimum and maximum button holding delay. All these options serve the same purpose: making working with the program as comfortable as possible for the patient.

In that case, when the patient only begins mastering ECTkeyboard or fails to react to the highlighting position changes in the matrix it is advised to increase the delay of highlighting movement by few seconds. Conversely, if the patient is able to work quickly with a matrix and is used to the location of symbols in it, the movement delay should not be too long not to slow down the speed of typing. Also a balance between speed and fatigue should always be kept - the higher the speed of the highlighted field in the matrix is, the faster the patient gets tired and starts making mistakes. The patient should not try to work at his limits : the higher the initially set rate is, the harder it is to keep afterwards.

The most appropriate speed for each individual patient is usually determined empirically after at least one session with the program, and tends with time to a slight increase since the user gets familiar with the location of symbols in the table and finds the letters faster.

34. Key codes to activate a selected cell of the matrix (modes 0, 1, 1B, 2, 2B, 3). Various methods can be used to select a character in the text matrix. Contact closure keyboard can be used with patients who have retained some motor activity, in this case, the patient will be able to select through movements of muscles that preserved mobility, strong air suctions, pushing a dedicated button with the tongue, and so on. In the case when the contacts of the communication device are limited to the keypad it is advised to use the most rarely used keys. The given field of the settings panel can be set in succession with all the key codes, pressing which should activate the highlighted item of the text matrix. Key codes are specified with no space between them, using the separator (by default #, but can be changed using the parameter 41 of the setting panel).

35. Vertical movement delay (modes 0, 1, 1B, 2 , 2B, 3). Vertical movement delay setting is available for coordinate, step by step and separation modes.In this field, the user can specify the desired delay value of horizontal displacement and in milliseconds. (See notes in the end of the manual)

36. Delay horizontal movement (modes 0, 1 , 1B).36. Setting up a list of available modes similar to the previous item. This field identifies the delay value of horizontal displacement.(See notes in the end of the manual)

37. The minimum hold time (all modes) is needed to facilitate the work with the program for patients with different types of disorders. For example, if the patient can make selections only by closing his eyes and if he works with ECTkeyboard through eye tracking programs; Here it is necessary to distinguish the continued closure of the eyes from blinking and twitching of the eyelashes. In that case, if any muscle or muscle group remains unaffected by paralysis, its reduction can also be used with this application and distinguished from possible tremors, tics and other involuntary contractions. When air inhalation is used for input, it must be distinguished from the natural breathing.

In any of these cases, this option allows to separate the conscious input from involuntary actions. Operating parameter value is entered in milliseconds. Here is a simple example. If the patient works with the text matrix through closing the eyes and the setting of minimum closing time is set to a value 500 , then to select the desired letter the patient must close his eyes for half a second , while the shorter actions will not be taken into account . Thus when working with ECTkeyboard the interference of blinks is excluded.

When the patient selects a character in the table the progress bar under the matrix starts to fill up (from right to left by default). Filling direction of the progress bar can be changed through the parameter «BarDirection1- bar filling direction" (par. 56)Program Settings Panel. Also, the progress bar displays the remaining time of the selection time in milliseconds (see Fig. 24).

| E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]

Select in 591 ms.
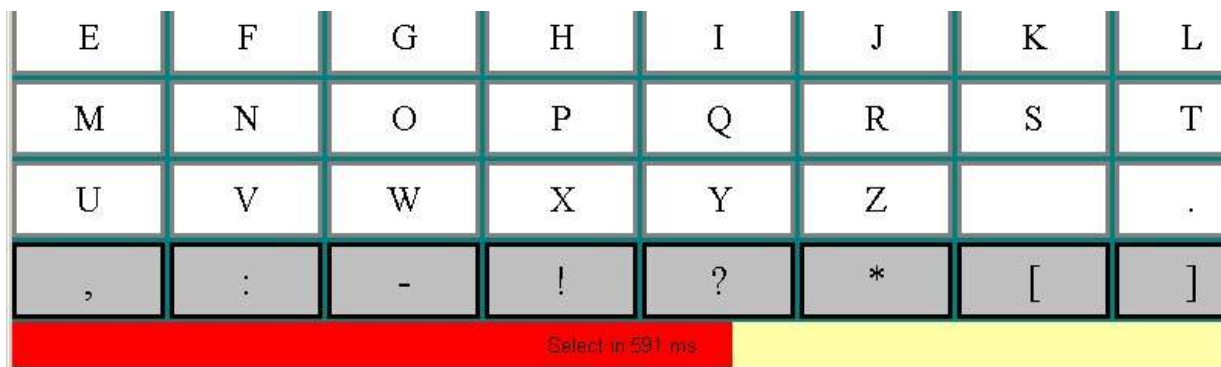
(Fig. 24. Progress bar countdown filling after a row in the matrix is selected)

38. Maximum hold time (modes 0, 1 , 1B, 2 , 2B, 3). This parameter is used to deselect a specific row , column, or character in it. When the user working with a matrix through eye closure keeps his eyes closed for longer than the minimum hold time , the progress bar starts to fill in the opposite direction (left to right by default).

So, to select the necessary row, column, or character, the patient should keep his eyes closed longer than specified in the "minimum hold time " setting, but less than in " maximum hold time", otherwise the selection process will restart.

Deselection progress bar filling direction can be changed using the menu item «BarDirection2- progress bar filling direction" (par. 62)ECTkeyboard settings panel. The time in milliseconds left until deselecting is also displayed (see Fig. 25).

When operating in the coordinate cursor hold mode (mode 4) deselecting and "maximum hold time" setting are not used.

E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]

Reset in 972 ms
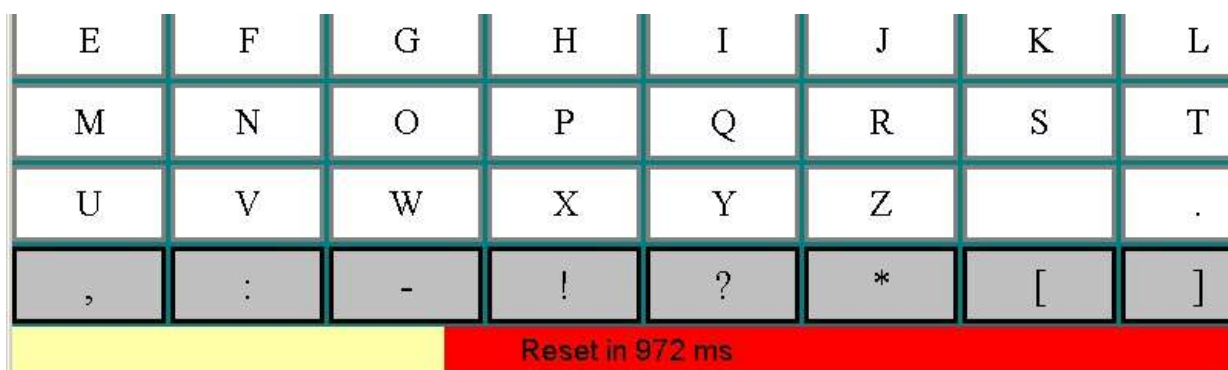
(Fig. 25. During deselection the default progress bar fills in the opposite direction - from left to right)

39. Text input direction (vertical / horizontal) (all modes) . The text input direction is used in the initial drawing of the text matrix. This parameter can take two values: 0 for vertical and 1 for horizontal. The horizontal input allows composing the table line by line - the buttons will be lined up from left to right and top to bottom (see Fig. 26). When vertical, the rendering will go column by column and downwards from left to right (see Fig. 21). Using a different order of filling the text and the ability to freely change the cell contents of

the text matrix, it is possible to display the table in accordance with the wishes of any user and greatly improve the speed and the efficiency of work and typing.

(Fig. 26. Horizontal text filling of the program matrix)

(Fig. 27. Vertical text filling of the program matrix)

40. OutForm Visible . The entire text typed by the patient in the current session is displayed in the out form. The option **OutFormVisible** allows to automatically display the output form when running **ECTkeyboard** (value is 1) or hide it (the value is 0). If the output text form is not displayed when you launch the program, it is possible display it by using the menu item **Show Output Form**.

The output text form is a simplified text editor that allows the user to enter text character -by-character (see Fig.

28). The given window is fully customizable, using the form settings, it is possible to change the font shape and size, the size of the form and its position on the screen.
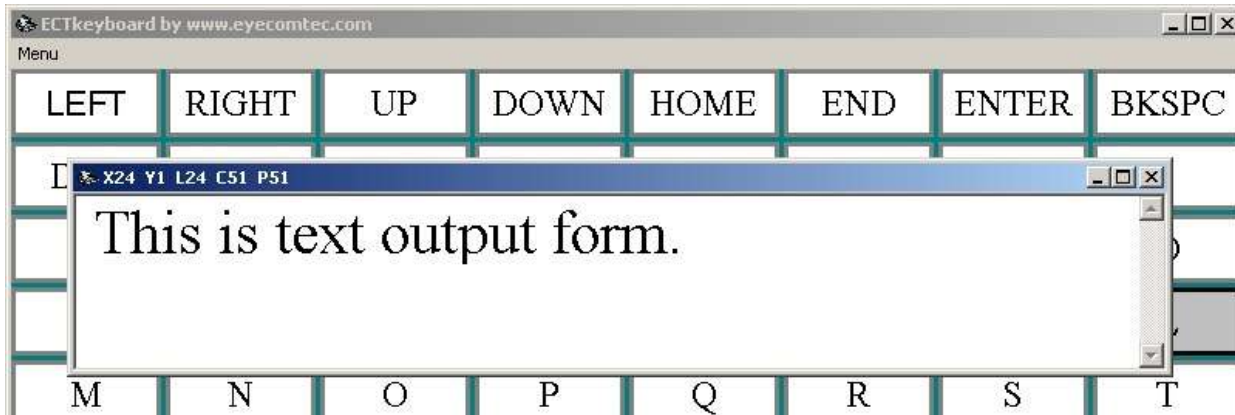
(Fig. 28. Text output form)

Title output form contains five values – X, Y,L, C and P. X being the current position of the cursor horizontally. For example, if the patient entered 15 characters, the value of X will also be equal to 15. Y is the current position of the cursor vertically, in other words - the line number. L represents the length of the line on which the cursor is currently. C - total number of characters contained in the output form. P - the current cursor position relative to the entire text.With the navigation buttons , the user can move from character to character, right or left, within a line (matrix commands **Left** and **Right**), move the cursor up and down between the lines (the team **Up** and **Down**), move to the beginning and end of the current line (**Home** and **End**). Line break is possible by pressing the key **Enter**. Backspace deletes the character placed before cursor, Del command deletes the character positioned after the cursor. Thus, the user can cleaning the input from the typed text, and the key Save is used to save the text typed in the file (see Figure 29).
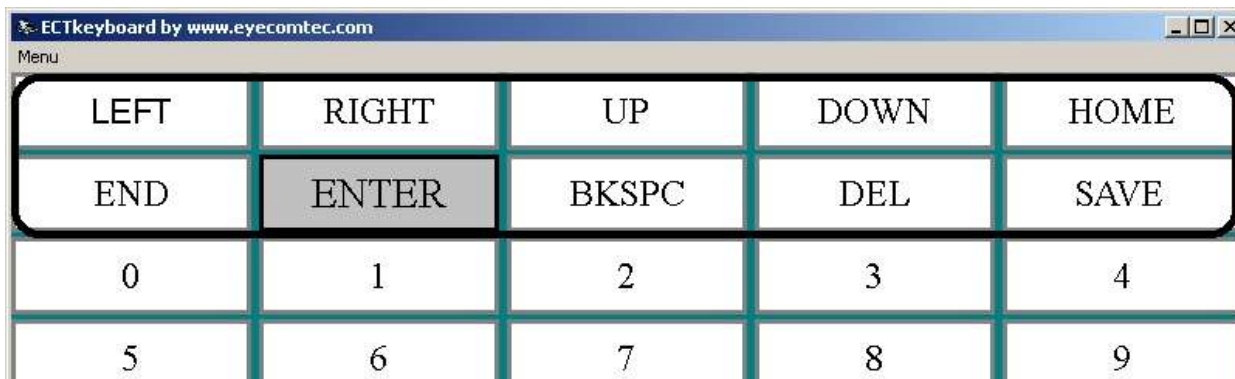
(Fig. 29. Text matrix commands for editing, cleaning, and saving the text)

41. Separation Symbol (all modes). 41. In this field, you can change the separator character (the character default is set to #). Separator character used in the parameter setting panel for 34 key codes with which you can make choices row, column, and character in a text matrix, as well as to separate the labels on the buttons on the instructions used (applicable in KeyboardIcons.txt, KeyboardKeys.txt files and other user-created files that contain a set of text matrix characters).

42. RenderedKeyboardFileName (all modes). To ease of program configuration, as well as to give the possibility to use the images in third-party image editors, ECTkeyboard provides keyboard image capture when performing certain actions. By setting specific file name (for example **RenderedKeyboard.bmp**), and then selecting the menu item **SaveKeyBoardstoBMP** (saving keyboard in BMP format), you can get 4 different images:

RenderedKeyboard0.bmp - "keyboard 0"- the view of all inactive buttons of the program (see Fig. 30);
RenderedKeyboard1.bmp – "first keyboard" - the view of keyboard when a particular matrix row or column in is highlighted (see Fig. 31);
RenderedKeyboard2.bmp – "second keyboard" - the view of keyboard when selecting a particular character in a line or column (see Fig. 32);
RenderedKeyboard3.bmp – "third keyboard" - matrix elements when canceling an input (see Fig. 33).

←	→	↑	↓	HOME	END	↵	BKSP	DEL	SAVE
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.	,	:
-	!	?	*	[	]	(	)	+	=

(Fig. 30. "Zero keyboard" view, all default settings)

←	→	↑	↓	HOME	END	↵	BKSP	DEL	SAVE
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.	,	:
-	!	?	*	[	]	(	)	+	=

(Fig. 31. "First key" view, all default settings)

←	→	↑	↓	HOME	END	↵	BKSP	DEL	SAVE
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.	,	:
-	!	?	*	[	]	(	)	+	=

(Fig. 32. "Second key" view, all default settings)

←	→	↑	↓	HOME	END	↵	BKSP	DEL	SAVE
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.	,	:
-	!	?	*	[	]	(	)	+	=

(Fig. 33. "Third key" view, all default settings)

43. KeyboardIconsFileName (all modes). Icon file contains the names of all pictographic icons displayed when the text matrix is used. They can be displayed with the text, or replace it completely (for example , contrasting images can be used if the patient has difficulty in recognizing text or schematic drawings and is unable to read) . Different sets of icons listed in the relevant files can be used; switching quickly between them is possible by entering the name of the file in the field **KeyboardIconsFileName** of the settings panel.

44. IconPositioning (all modes). Icons can be displayed on the text matrix buttons in a variety of positions. 9 arrangement options are available in total:

- 1 - Left side top edge alignment;
- 2 - Top edge centering;
- 3 - Right side top edge alignment;
- 4 - Left side center alignment;
- 5 - Absolute centering;
- 6 - Right side centering;
- 7 - Left side bottom alignment;
- 8 - Bottom centering;
- 9 - Right side bottom alignment.

All available location options can be easily memorized with the scheme below (see Fig. 28).

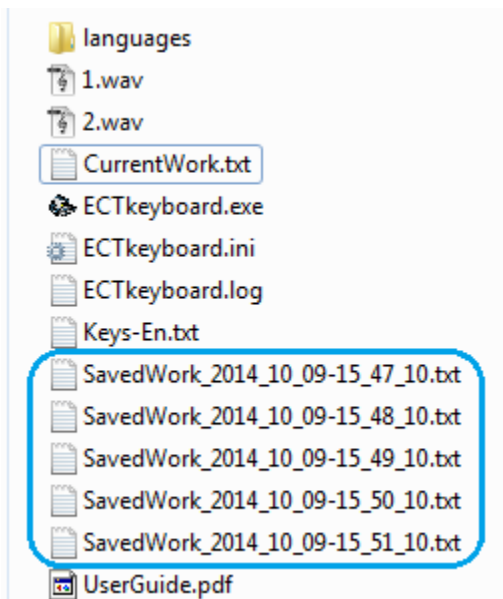(Fig. 34. Variants of icon and text positioning on text matrix buttons)

45. TextPositioning (all modes). Just like icons, the text on the matrix buttons can be disposed in accordance with user preferences. The positioning of the text and icons is set separately, which gives a variety of options for their placement, which complement each other (see Fig. 35)).

END	ENTER
_SAVE	_EXECUTE

END	ENTER
_SAVE	_EXECUTE

END	ENTER
_SAVE	_EXECUTE

END	ENTER
_SAVE	_EXECUTE

(Fig. 35. Various options for icons and text positioning on the matrix buttons)

46. IconTransparencyColor (all modes) . Transparency is used to correctly display the icons that have a shape other than a square.

47. Outputfilename (all modes). With each new session the entire text entered by patient is saved in a text file. A specific template name can be set to make working with these files convenient. The default is «SavedWork_*.txt», where the star will be replaced with the data-stamp (from parameter 50) which is by default: «YYYY_MM_DD-HH_NN_SS». Thus the filename contains the current year, month, day, and the exact time to better reflect when the file was saved (see Fig. 36).

languages
1.wav
2.wav
CurrentWork.txt
ECTkeyboard.exe
ECTkeyboard.ini
ECTkeyboard.log
Keys-En.txt
SavedWork_2014_10_09-15_47_10.txt
SavedWork_2014_10_09-15_48_10.txt
SavedWork_2014_10_09-15_49_10.txt
SavedWork_2014_10_09-15_50_10.txt
SavedWork_2014_10_09-15_51_10.txt
UserGuide.pdf

(Fig. 36. Files created with Auto-saving feature set to 60 seconds)

48. Fontname(all modes). For convenient work of the patient with the program ECTkeyboard gives the possibility to change the font type of the text in the output form. Various font options allow to choose the convenient for the patient style. In the field 48 of the program settings panel the name of the desired font should be entered; Font-dialog item of the menu can be used to simplify the selection - this will display a standard window with a list of installed and available for use fonts (see Fig. 37).

(Fig. 37. Operating system window with a list of fonts)

49. Fontsize (all modes). The font size can be changed just like the font style. A bigger font size should be used with patients with impaired vision, and for prolonged use. Small fonts can be used with good vision and to easy the navigation when working with large text (see Fig. 38). When choosing the font type and size in the options panel, the latter change automatically in the output form.
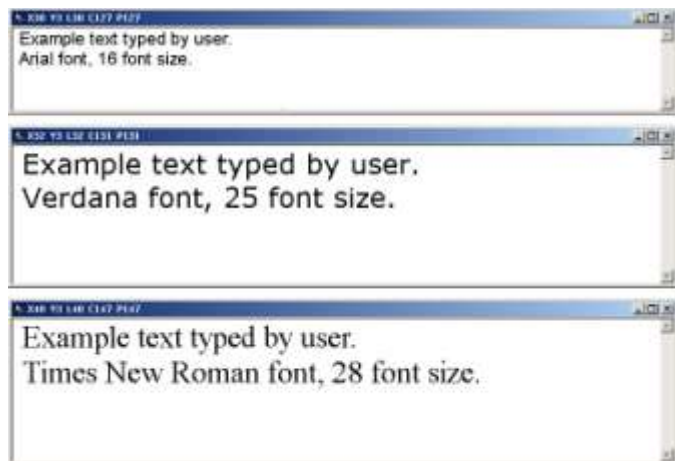
(Fig. 38. Using different fonts in the output form of the program)

50. DateTime format. It is a formatting string for current date and time (data-stamp forma) that is used in file name when program saves the user typed content with Auto-saving feature.

The progress bar and window positioning settings (51-79)

The progress bar located under the cells of the text matrix is intended to facilitate the process of character selection in it. When the user makes a selection, the progress bar starts to fill with a different color (from right to left by default), and displays the remaining time before the confirmation or the cancellation. The progress bar, like other elements of the program is fully customizable: its color, size and font style can be changed, as well as the direction of the bar filling.

The order of the options in the settings panel:

51. Progressbar - inactivecolor1 – Unfilled bar color (RRGGBB) (all modes).

52. Progressbar - inactivecolor – Filled bar color (RRGGBB) (all modes).

53. Progressbar - labelfontcolor 1 – Text color on top of the bar strip (RRGGBB) (all modes).

54. Progressbar - labelfontname – Text font name (all modes).

55. Progressbar - labelfontsize – Text font size (all modes).

56. Progressbar - direction – Bar filling direction (0, 1, 2, 3) (all modes).

57. Progressbar-inactivecolor 2 – Unfilled bar color (RRGGBB) (all modes).

58. Progressbar - activecolor 2 – Filled bar color (RRGGBB) (all modes).

59. Progressbar - labelfontcolor 2 – Text color on top of the bar strip (RRGGBB) (all modes).

60. Progressbar - label font name 2 – Text font name (all modes).

61. Progressbar-labelfontsize 2 – Text font size (all modes).

62. Progressbar - direction 2 – Bar filling direction (0, 1, 2, 3) (all modes).

The settings 51 to 56 are progress bar settings when a row, a column, or a cell are selected. The settings 57 to 62 are the same settings but for the cancellation of a selection. The unfilled bar color is determined by the hue fill of the entire progress bar, before the selection of the desired character by the user, or only by the hue fill of the inactive area of the progress bar once the selection is made. The color of the filled bar is related to the shade of the filling bar during the selection.

To make the comprehension of these settings simple, let's consider an example. The user controls the program through closing his eyes for some time. Assume the minimum hold time setting (37) is set to a value of 1000, and the maximum hold time (38) is 1500. This means that in order to select the desired row or column , and then a character in it, the user must keep his eyes closed for longer than a second , but no more than 1,5 seconds (otherwise the selection will be canceled). Let's say the color of the unfilled bar is silver (# C0C0C0) and the color of the filled bar - gray- green (# 008080), and for the cancellation - gray (# 808080) and dark blue (# 000080).

When the user does not make any selections, the progress bar is completely gray and does not display the selection countdown (see Fig. 39).

M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]
(	)	+	=	/	\	_	<

(Fig. 39. In the absence of action the progress bar is inactive)

When the user by closing his eyes selects a row, a column, or a character, the progress bar changes its color completely (in the chosen example – it becomes gray- green), and starts the countdown. The bar displays the remaining time until the completion of the selection in milliseconds (see Fig. 34). In this case, the bar strip is filled from right to left with the inactive color (in this example - silver) (see Fig. 40).

M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]
(	)	+	=	/	\	_	<

Select in 639 ms ⬅

(Fig. 40. The progress bar starts getting filled when a character is selected)

If a user keeps his eyes closed longer than the minimum hold time (1 second in this example), then the countdown reaches 0 and the progress bar gets completely filled with inactive color, after what begins the countdown for user's actions cancellation. The progress bar becomes dark blue (selected active color when deselecting), and gets filled with gray (selected inactive color when deselecting). The progress bar also displays the remaining time - if the user doesn't make a selection before the end of the countdown (do not open the eyes), then the action will be canceled (see Fig. 41).

M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]
(	)	+	=	/	\	_	<

➡ Reset in 409 ms

(Fig. 41. At long hold the deselection mode is activated)

The color of the text over the bar strip is recommended to be contrasting with the color of both the active and inactive bar. For example it can be dark color text on dim and bright color progress bar. **The text font name**, allows setting the text font style and size, or increasing and decreasing it (see Fig. 42).

(Fig. 42. Various text font types and sizes in the progress bar)

The ability to separately customize the appearance of the progress bar in the input selection and cancellation mode allows a convenient use of the program and to use different color options (for example, to use softer shades in the selection mode and more contrasting shades with enlarged fonts in the cancellation mode).

When working with a progress bar it is possible to adjust separately for each case the direction of its filling (see Fig. 43). This can be done through the settings **BarDirection1** (56) - responsible for the direction of the filling in the input mode; **BarDirection1** (62) - the direction of the bar filling in the cancellation mode. The following values are available:

- 0 - Filling from right to left;
- 1 - Filling from left to right;
- 2 - Filling top down;
- 3 - Filling bottom-up.

(Fig. 43. Various progress bar fillings)

63. The progress bar filling style (all modes). As shown in the explanations for this setting, the program has three different progress bar operation modes. If the variable value is equal to 0, the progress bar will not contain any text. The color filling will be the only indicator of selection. If the variable is equal to 1, the progress bar displays the selection delay in milliseconds, and if the value is 2 the remaining time in percentages (see Fig. 44).
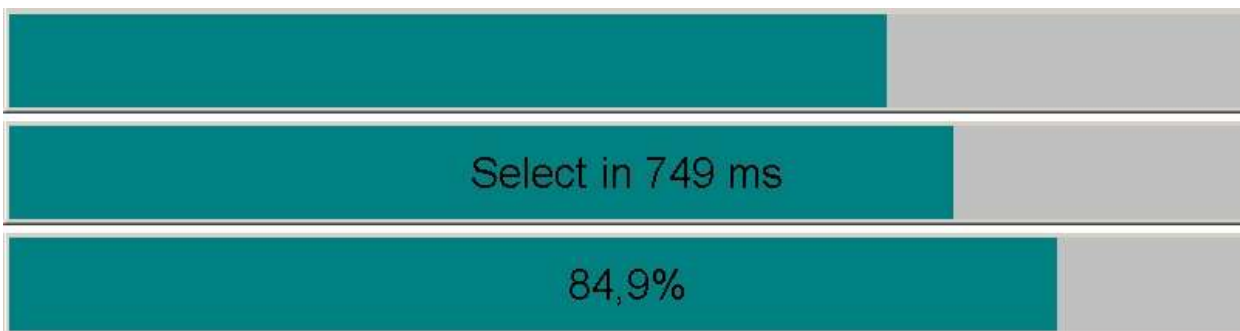
(Fig. 44. Different versions of progress bar text notifications)

64. Maximum hold time Extended (modes 0, 1, 1B, 2, 2B, 3). Different situations may arise when working with the program. For example, the patient is asleep or keeps his eyes closed for too long, the lighting

conditions in the room changed and the image caption program cannot determine whether user's eyes are open or closed. In the case of any long retention of the selection the program controls the time.

65. Command on exceeding the maximum retention time (all modes). In case the retention time exceeds the time specified in the setting n° 64 an additional command can be used (for example, triggers an automatic calibration of the camera or an external audio signal to call the medical stuff).

66. Automatic button scaling (all modes); This variable can take two values - 0 and 1. If SetButtonSize is equal to 1 the automatic scaling of all text fields of the matrix is enabled, to make them fits within the limits of the window. This is useful in cases when a quick change of the size of the matrix of letters is necessary, removing the needs to manually select the width and the height of the cells. Automatic scaling is enabled by default, when the program is launched for the first time.

If the value of SetButtonSize is equal to 0, the size of the buttons vertically and horizontally, as well as the distance between them and the width of the button frame is clearly within the defined values (see Fig. 45).
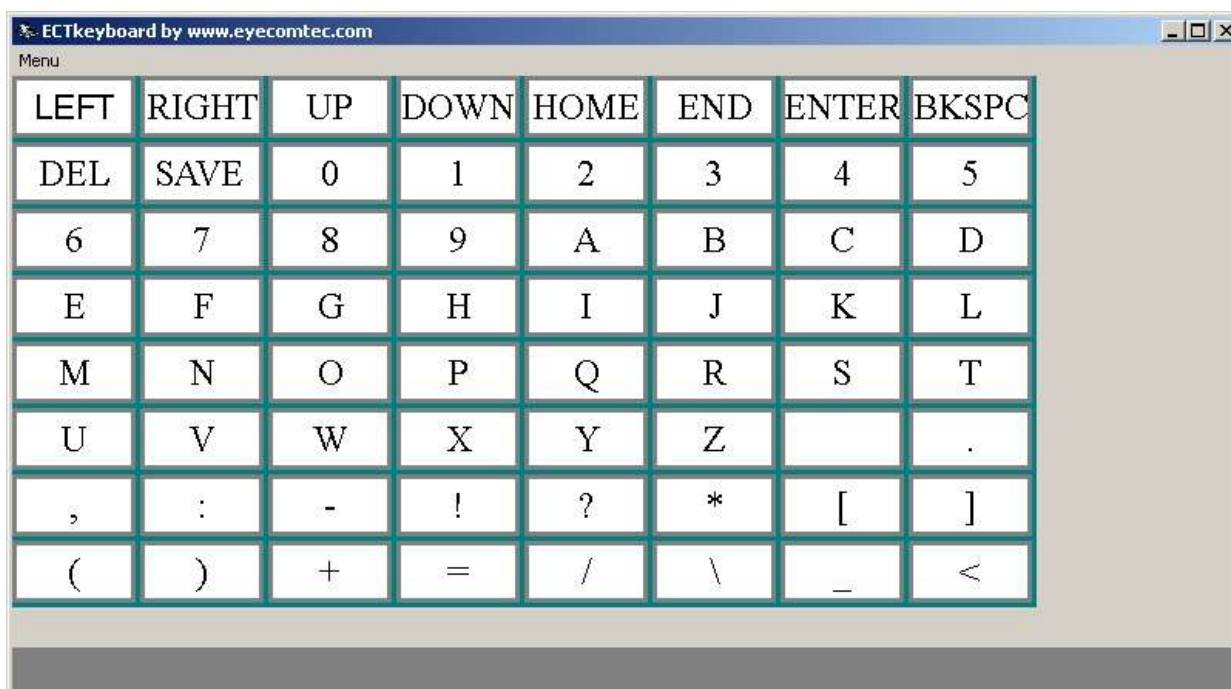

(Fig. 45. Text matrix with disabled Automatic Scaling)

67. ProgressBarHeight (The height of the progress bar) (all modes). Another setting of the progress bar that can be changed is its height in pixels. The height of the progress bar should be increased when it is set to be filling bottom up or top down and if the resolution of the monitor allows it or in cases where the patient needs a large text to be displayed in the progress bar (see Fig. 46). Conversely, for low resolution monitors or small size program windows it is recommended to reduce the height of the progress bar. In this case, the text font on the progress bar can be reduced or even disabled (see Fig. 47).

M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]
(	)	+	=	/	\	_	<

Select in 231 ms
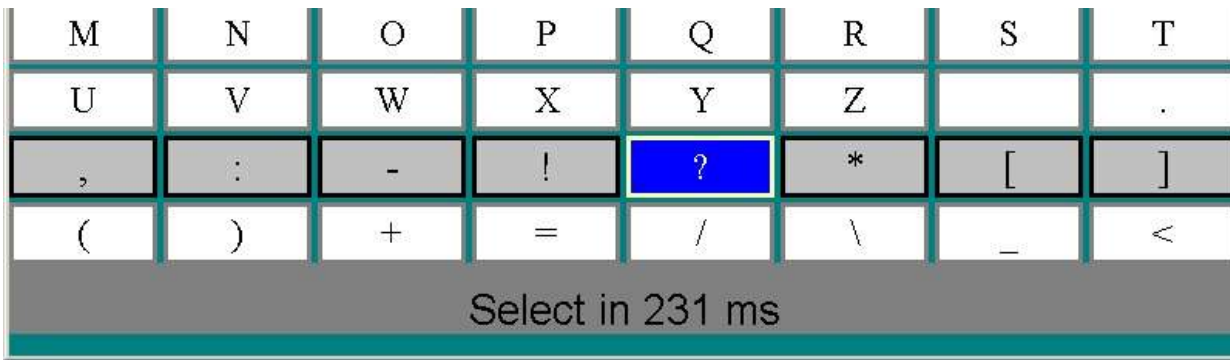
(Fig. 46. Program window with an enlarged progress bar and vertical filling color)

M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z		.
,	:	-	!	?	*	[	]
(	)	+	=	/	\	_	<
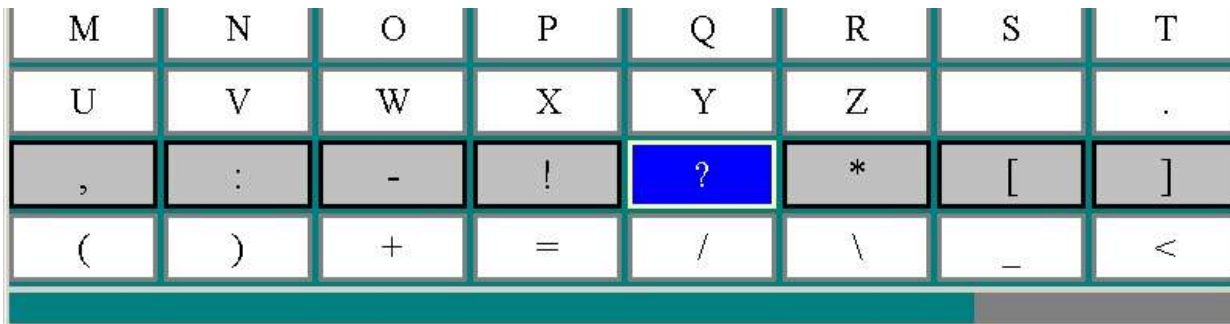
(Fig. 47. Program window with a reduced progress bar and horizontal filling color)

The position and size of the windows can also be changed in the settings panel. 4 parameters are to be set individually for the main form and the output form: the width and the height in pixels, the margin in pixels vertically and horizontally from the upper left corner of the screen.

The order of the options in the settings panel:

68. MainFormPositionLeft (position of the main form, left margin) (all modes).

69. MainFormPositionTop (position of the main form, top margin) (all modes).

70. MainFormWidth (width of the main form) (all modes).

71. MainFormHeight (height of the main form) (all modes).

**72. OutputFormPositionLeft (position of the out form, left margin)** (all modes).

73. OutputFormPositionTop (position of the out form, top margin) (all modes).

74. OutputFormWidth (width of the out form) (all modes).

75. OutputFormHeight (height of the form) (all modes).

Working in coordinate mode by holding the cursor is different from other operation modes of the program. In coordinate mode, the holding operation is carried with the cursor keys, each pressing moves the special pointer in the desired direction - to the right, left, up or down (see Fig. 48).
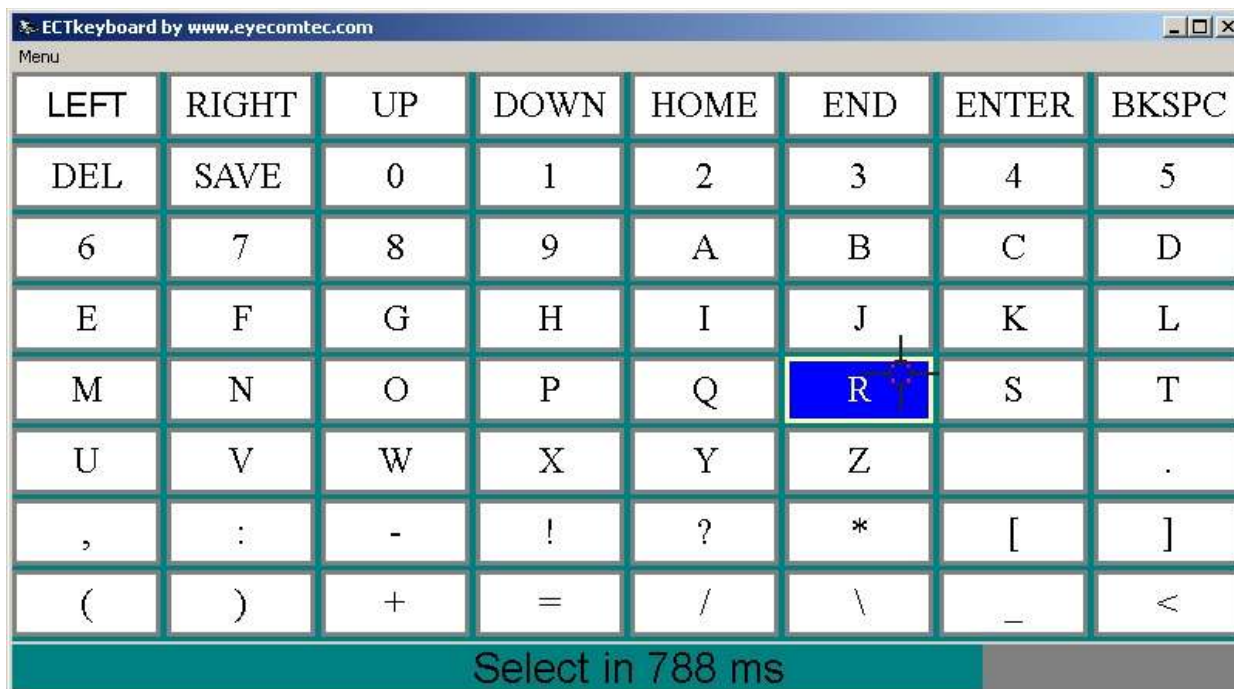
(Fig. 48. Using the coordinate mode with holding the cursor)

The pointer shift size vertically and horizontally can be changed separately. The greater the shift is the faster will the pointer move from one cell to another. Lower the shift is, the higher is the accuracy of the program.

76. Horizontal (step shift in pixels on the axis X) (mode 4).

77. Vertical (step shift in pixels on the axis Y) (mode 4).

78. External matrix fields when working in the coordinate mode while retaining the cursor (mode 4). This option allows setting the outside text field limits of the matrix, and disabling the cursor from moving outside of them. The value 0 corresponds to the visible region of the matrix. If the value FieldEmptyBorderCells is increased, it will become possible to move the cursor outside of the set keyboard limits - this function is useful for large pointers or with irregular shape. If FieldEmptyBorderCells value is negative, the invisible outer keyboard boundary will be reduced by this value, preventing the center of the pointer moving beyond the defined limits.

79. Field separator.

Automatic settings at startup (80-81)

At startup the program can automatically activate the user-defined selector mode, or hide if necessary the frames of the main form of the program.

80. Current selector mode. This setting allows you to launch ECTkeyboard and automatically choose the selector mode used before the previous closing of the program. This eliminates the need to choose the mode for using the main menu commands or keyboard shortcuts on each start.

81. Displaying frames of forms. This item of settings panel allows running ECTkeyboard with hidden or displayed frames and header of the main window - depending on whether they were hidden or displayed in the previous session. Thus, once it is enough to customize once the appearance of the program window, and it will be restored at the next session.

82. File to save current work to. When a user closes the program but has unfinished text, the data will automatically save to a file and be loaded the next time ETCkeyboard runs. This setting allows the user to save the file under a user specified name.

83. Auto save time interval. This setting allows the user to change the time between each auto-save in seconds. Upon saving, the program will create a time stamped file, and will create a new file everytime the program auto-saves.

84. Active language file. This setting allows the user to select and change the language in which the program will operate. This can be done by performing the following:

ECTkeyboard → Menu → Localisation → Set Language File

To return to the language default, English, perform the following:

ECTkeyboard → Menu → Localisation → Reset to Default

85. Progress bar select sound. This setting allows the user to select a sound notification to be played when confirming a character selection, in addition to the progress bar.

86. Progress bar reject sound. This setting allows the user to select a sound notification to be played when rejecting a character selection, in addition to the progress bar.

Macroses

Being the forward thinking company that we are, EyeComTec is always pushing the envelope develop new products and enhance existing ones. Our latest enhancement comes in the form of our ECTkeyboard and the addition of support for custom macroses within the existing platform. We feel that the addition of macrose capability is a giant leap forward in helping those with physically limiting disabilities break through the communication barriers and let their voices be heard. Let's take a closer look at just what the macroses update means for our users.

This new technology is cutting edge and can provide a unique user experience giving the user much more control over their communication and providing them with functionality beyond compare. The introduction of macroses in our version 31 of the ECTkeyboard is beneficial in enabling the user to communicate more effectively and with much less effort than previously thought possible.

If you have used previous versions of the ECTkeyboard, you will remember that the program would automate all work using typed text inputs. You would have to save the file when closing a program and reload the file when the program is started back up. Also, you had to save current work on a regular basis to ensure no work is lost and that there is a filename for the work. There was also no possibility of choosing a file name for the saved text as the program would predefine the application's settings allowing only the administrator to make any changes. Now, with the introduction of macroses, the user can save the typed text to file with ANY desired name and load any file into the text filed and work with it while executing various external applications.

While the technology is advanced, using macroses is not complicated at all. In fact, it's easier than you think. With the latest macroses enabled version of the ECTkeyboard, all the user needs to remember is to type content between tow square brackets being sure to separate any additional parameters with a comma. When typed into the text field, macros can be accessed using the "**[M]**" button on the keyboard.

Currently, we have the following macroses enabled on the ECTkeyboard:
- **[o,SomeFileName.txt]** – Load file's content into the text field. The filename parameter is optional, the macros can be called by typing "[o]" and default filename (defined in program settings) will be loaded.
- **[s,SomeFileName.txt]** – Save text field content to file. The filename parameter is optional, the macros can be called by typing "[s]" and date will be saved to default filename (defined in program settings).
- **[c]** – clear all text in the text field.
- **[font,22]** – This macros will set the font size of the text filed to 22. The user may set any other size that he finds comfortable. Note that it is a temporary change, it will not be saved to program settings.

All of this and more can be done with the ECTkeyboard without having to go to the program's main menu, using the mouse or pressing anything except space-bar on the physical keyboard. This groundbreaking functionality and technology is slowly catching on in the industry making future programs without macroses virtually obsolete.

File Structure of the program

For its initial start **ECTkeyboard** only requires **ETCkeyboard.exe** startup file, all text matrix default settings are included in the start-up file and configuration files containing customized settings are created at program closing.

- **ECTkeyboard.cfg** – the main launch file of the program through which you load ECTkeyboard with default settings;
- **ETCkeyboard.log** – It is the program log file that contains information about the application launch and close time, the selected modes of ECTkeyboard and other information useful when you run the configuration files to monitor or debug the program.
- **Files with.cfg extension are configuration files** containing information on the number of fields in the matrix, their location, type and size; the style and the color of the font, the color of the buttons with the words and of the background field; the panel of the countdown, the color of its fill and font, all delays used in the program and so on. The use of different configuration files allows to quickly switch between different modes, color schemes and styles of the program, and adds the necessary versatility and ease of use. The program works with command line of the operating system, using the key **–p** you can run ECTkeyboard with a specific configuration file (see Fig.1) or create a shortcut;
- **Files with the extension .txt** – files with labels and set commands (if any) for the text matrix buttons. Different order of characters can be set n different files (in alphabetical order or by frequency of use, user friendly arrangement, and so on). Usually the file is named **KeyboardKeys.txt**, but the archive may contain other files with a list of fields of the matrix. Changing a file containing a describing of the matrix characters is available in article 9 of the panel settings (for details , see "Preferences");
- **KeyboardIcons.txt** – a file with a list and links to pictorial drawings used in the text matrix;
- **Files with .lnk extension, Cmd, Bat (and other launcher shortcuts)** – files to run the program with previously saved configuration file.
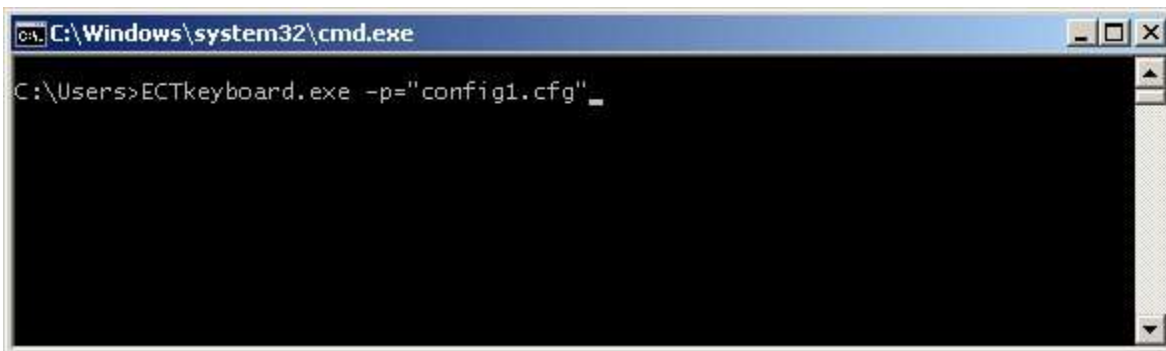
(Fig. 50. Program launch from the command line using the key "-p=")

Updates

The latest version of ECTkeyboard can be downloaded directly from our site:
http://www.eyecomtec.com/ECTkeyboard.zip

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