



Manual

The App "Smart Letter Board"

enables fast communication when eye control is unavailable or not working. Then usually a letter board is used on a cardboard carton. Especially ALS patients with a trachestoma or simply without a voice, who cannot move more than the eyes, know these moments. The eye control, which is usually the "voice", does not work once again, especially outside on an excursion, but you want to say something. Then you have to do without it or start a guessing game or a letter board is rummaged out. The time it takes to move your finger across the rows and columns is really only good for one or two words. Then you're doomed to silence again! With the app, communication is much faster and more convenient. As the name implies, an intelligent alphabet board for the smart phone or tablet with an Android operating system. So the most used devices besides the Apple devices.

There are two ways to use the app. If you can only move your eyes, the communication partner operates the app. If you can still move your fingers a little, but can no longer operate a keyboard safely, then you can use it in "self-operation mode".

In the First mode the speech disabled, further called user, looks for it on the back of a Smart Phone/Tablet at which a special letter board is attached or held or elsewhere is attached. This shows the directions of the letters into which the user

must look. The communication partner, further called operator, presses the keys in the directions the user sees.

Basics.

This manual is written for non-self-operation mode. All described functions are also valid for the self-operation mode. The deviations are described at the end in a chapter.

An eye operation must be defined for yes and no. Most people have certainly already done this. I use "wink" for Yes and "close your eyes" for No.

At least Android OS 2.3 is required.

The program is designed in such a way that the operator can operate the program "blind" with a little practice and can concentrate fully on the other person's eyes, the user. All necessary information is spoken by the app's voice output. Therefore, an installed voice is required on the device. Most devices already have a voice installed. However, if this is not available or the quality is insufficient, a good "TTS voice" can be downloaded from Google Playstore, for little money or for free, for example ([Google Voice Output](#)).

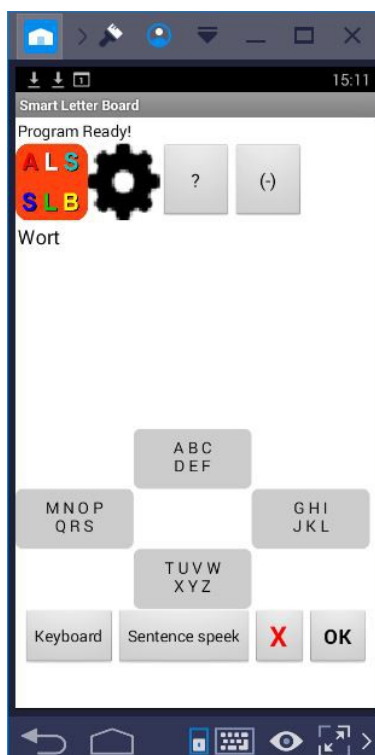
Installation

After downloading the app from the Internet, simply tap the icon. Then the program installs itself. You may be asked if you really want to install the app, as it was not loaded from the Google Playstore. You may also need to make a setting to install "unsafe" programs. That's about it. Then the app can be started immediately.

First Start

If the program is started for the first time after installation, a language must be selected first. To do this, the

program automatically switches to the settings screen. Please select the desired language and confirm with OK.



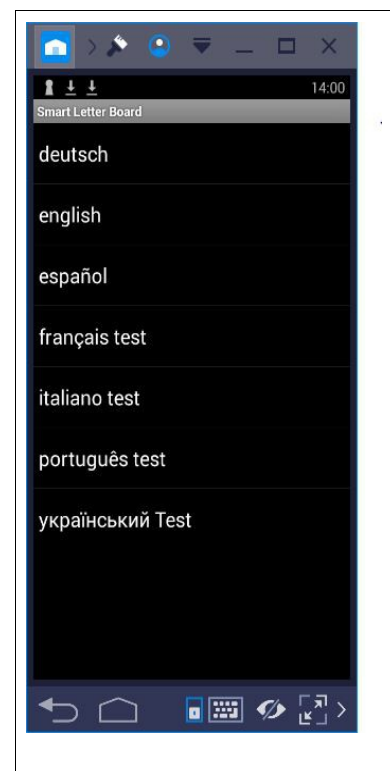
Start screen

The upper buttons are from left to right.

Settings, marked with a gearwheel.

This is where basic things are laid down. For example, speech or voice output.

Help function. Marked with a "?"



Disable the app, marked with (-)
This allows the app to be switched off.

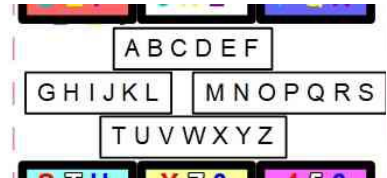
Then comes a line for the currently recognized word.
Then a line for the record created so far.

Then follows the input field for the letters and the actual function.

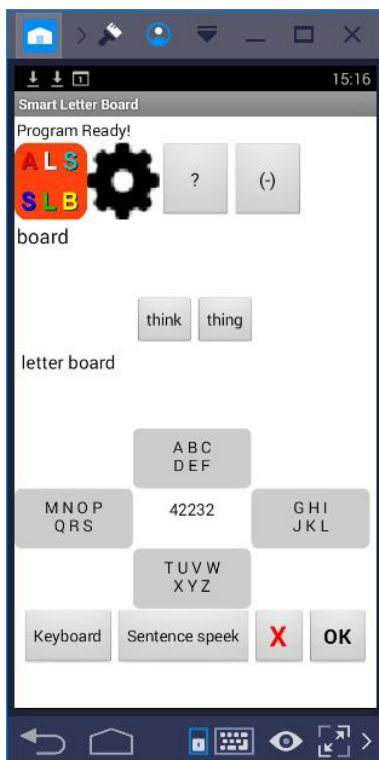
There are four fields, each with 6 to 7 letters. The fields are arranged as the user sees them. There are two templates on one sheet. This can be loaded here. The size is for a 7 inch tablet and for a 5 inch mobile phone or larger. Please print and bend or cut out the red dotted line. It's good to stick it on a cardboard carton that sticks out a little bit at the top. Then you can fold this overhang and hang it into a tablet or mobile phone cover. With a transparent protective cover, it can be inserted directly.

The program is fixed on an upright operation. So don't flip over with your phone when it's rotated. It can also be used while lying on the side.

There are three areas on the letter board. In the middle are the letters in black and white in 4 fields which are usually used. The arrangement is also the direction in which the user should look to show the operator which field to tap on. The colored fields above and below are needed for the "keyboard" later!



The letter fields have a number in the order of the user. The number is automatically read aloud when touched. In this way, the user can recognize an incorrect entry and be corrected immediately with a no of the eyes. I'll come back to that later. The user can now look in the direction in which the first letter is located.



The best way to do this is to hold the mobile phone/tablet directly in front of the user. For the word "TEST" first downwards, then upwards, then right and finally downwards.

Then a "yes" with the eyes, in the middle position. This means the word is over and the operator presses the OK key below the letter field. The words found and saved so far are then searched for and displayed in a selection list and read aloud. If a little powerful device is used, a late display may occur. Then please switch to the settings page and remove the tick in "Read aloud word suggestions". Then please read the suggested words slowly and then select the one where the user says yes. If the word is not listed in the suggestions, please select "None of these words". Afterwards you will be asked automatically if you want to switch to the keyboard.

There are four word default fields below the word field that automatically fill with the most likely words after entering 5 letters, regardless of the actual length of the word. From

this, the operator can select a word independently before the word is completely spelled out when the word appears meaningful. The more letters are entered, the fewer words are found. If no more words appear, the entry was incorrect or the word has not yet been stored. The system then automatically generates a query asking you whether you want to switch to the keyboard.

The selected word is then copied to the sentence

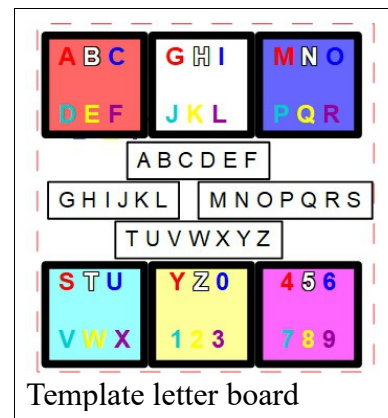
If an error occurs during an entry, you can correct it with the "X" key. So the last typed letter or the last word. Depending on the last entry.

The words proposed are from a memory of the most common 2000 words of the english language. To reduce the proposed words, this restriction is necessary.

What happens if the required word does not exist, for example a name? This is then reported by the program and you are asked whether you want to switch to the keyboard.

Keyboard Screen

This keyboard can also be operated with the eye directions. But with now 6 directions and the selection of two directions per letter. This lettering board is also on the prepared printout for the back of the Smart Phone /Tablet. These are the colored fields above and below the black/white fields used so far. The first direction in which you have to look for a letter is the direction in which the letter is shown and the second direction is the position in the field. To make it easier, the colours are marked differently. For example, for a "B" first to the top left and then to the top in the



Template letter board

middle. Of this the operator has to type as well. The number is announced for the first field and the letter for the second direction. This allows the user to "say" a "no" at any time and the operator can use the X key to delete the last entry, just as he did on the first page.

The end of the word is confirmed again with the OK key. Then you are asked if you want to save this word so that it is available later for a quick input.

You can now use the "Keyboard" to move the input forward or return to the fast input mode. All you have to do is press "Back". The words entered so far are transferred to the sentence on the other side.

The word field is also a text field that is written to with the keyboard of the device. You can use this to correct or finish the word. You can also use this to enter words and especially names in preparation alone. Make sure that only one word is entered!



Keyboard screen

When a sentence is finished, the user must express it with a "Yes" through his eyes. Then you can press "speak sentence" and the operator will be asked if you want to delete the sentence. So an unwanted selection is not tragic.

You can also switch directly from the start page to the keyboard if you want to enter a number, for example. This is only possible with one word on the start page and so cumbersome.

Spelling

If the input of unsaved words via the "keyboard", from the previous chapter, seems too complicated or the eye movement in the necessary 6 directions only works badly, then the spelling mode is a good and simple alternative.

To change the mode to active, please go to the settings page via the gear at the top of the start screen. Check the spelling box and confirm with OK.

The "Keyboard" button in the lower left corner of the start screen will then no longer be displayed.

If no corresponding word is found via the normal fast input, the app asks if you want to change to spelling. If this is confirmed, the black/white letter fields in the middle of the template are to be used further. If a letter field is selected, the corresponding letters are read aloud. With a yes with the eyes, the affected person can select the desired one and thus gradually put the word together. Confirm with OK at the end of the word. Then you are asked whether the word should be saved if it does not yet exist.

After that the app changes back to the fast normal input.

Own words / shortcuts

Own words and abbreviations are words entered by the user or operator that are not included in the words provided with the installation of the app. The words can be entered via the "Keyboard" screen, see above. You can delete your own words and abbreviations if incorrect entries have been made. This is possible on the settings screen. Press "Own words / Abbreviations". Now three more buttons



become visible. The first is for entering abbreviations, see next chapter. The second button is for saving to the device's SD card. The third button for reading in your own data, see extra chapter. The next button is for deleting individual words and abbreviations. All entries are listed here. You can scroll down with your finger or search for an entry in the filter field at the top. If a letter is entered here, all entries beginning with this letter are displayed. If an entry is touched, it will be deleted!

With the button "Delete all own words" all own entries are deleted at once! This may be necessary especially at the beginning of using the app, because too many wrong entries were made in the test phase.

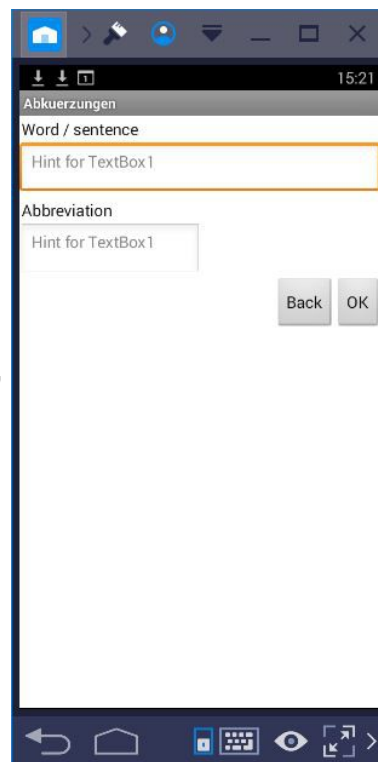
Shortcuts

Shortcuts enable faster communication. In the app it is possible to call up a word, a word sequence or an entire sentence with one or a few characters using an abbreviation.

This is especially important if you often want to speak the same word or complete sentences. For example, for needs or wishes, such as positioning in a wheelchair. Thank you and please are also a possibility. Thus it is possible to abbreviate "Thank you" with "t" and "Please" with "p". Sentences such as "Please turn head to the right" can be abbreviated with "thr".

These are only examples and can all be stored in the app. You can also assign several words or sentences to an abbreviation. You should start with a few abbreviations and then gradually add more. The best way is to write the abbreviations to be saved in a list with an eye control or tell them to the communication partner with the app. This can then be accessed in the settings and there with the button "Own words / shortcuts" and then with "Shortcuts" on the screen, on which the shortcuts can be entered.

Enter the word or sentence in the first line using the on-screen keyboard and the desired abbreviation in the second line. Press OK to complete the entry. Press "Back" to return to the start screen.



Voice response

If a device is used by a user who does not speak the native language of the person / user concerned, a different country setting is usually set in the device. As a result, voice output may have an accent or may not be understandable at all. In this case, the country setting can only be changed for the app. This has no effect on the other use of the device. Since I have almost only Czech caregivers, this option was necessary.

If you want to change the language setting for the app, go to the settings page and press the "Voice output" button.

A list of possible country settings is displayed. At the top is a search field in which you can enter a "d" and all entries starting with d are displayed. If you tap on an entry, it will be used for the app and the voice output should be understandable! This has no other effect on the device and is only valid when using the app.

Own data

You can save your own data, i.e. words, short cuts or sentences you have entered yourself, on the SD card of the device via the settings page of the app. This should be done at regular intervals. In the event of a device defect, the data can simply be transferred to a new one.

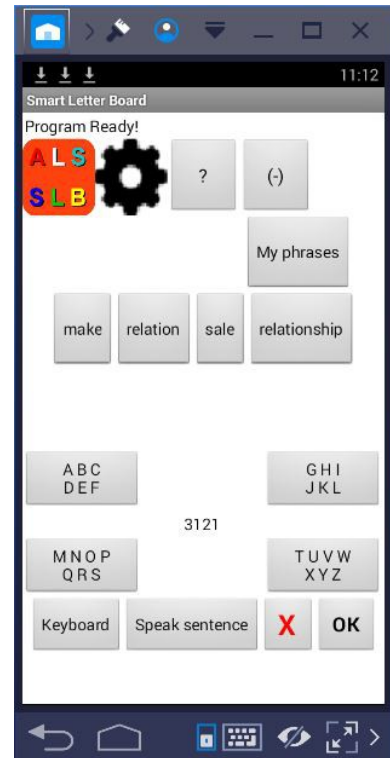
If you want to transfer the data entered so far to a second device, for example to the device of a nurse, you can send the files ownwords.csv for your own words and ownsentence.csv for your own sentences from the SD card via email or a messenger to another device and read in and use them there after saving on the SD card via the app

Self-operation

If you can still operate the smartphone/tablet yourself, but have difficulties using the keyboard, you can use the app well, because almost everything can be written with the four large keys and the written words can be read aloud with the integrated voice output.

On the settings page there is a selection box where you can select the mode. After that, the app turns off many unnecessary speech output and only the complete words and sentences are read aloud.

The keys are arranged more ergonomically and the letters are now arranged in the normal order. The word suggestions are now activated from the first entry and writing becomes even faster.



In addition, a button for my sentences is displayed next to the word field. If you click on it, a new window will appear.

On the upper right is a button for sentence categories. There are already four registered. However, these can be changed and extended by up to 9.

Below are 16 buttons for the sentences in the respective category. Here too, there are already a few entries that can also be changed and supplemented. Click on a sentence to read it aloud.

If you want to change or add a sentence, write it first with the app. Then return to the "My sentences" page and click long the desired button. After a confirmation prompt, the block is saved.

A new category is created by first writing the name of the category with the app and then clicking on the category button and in the displayed selection list on new category.

The category name can be changed by a long click on the button.

End

Well, that's about it. Good luck and enjoy the first use.

If something should not work, please report it, because it is a test version so far. I am grateful for wishes and suggestions. Since I am only a hobby programmer and have to program everything with the eye control, a reaction is not as fast as with a professional!

Have fun Jörg Baumbach