

BlindShell 2 Baroque User Manual

BlindShell is a touchscreen phone for blind and visually impaired people. It is operated by simple gestures. Feedback is provided by the built-in synthetic voice, by vibration and by additional acoustic signals. BlindShell has been developed in close cooperation with the Czech Blind United (SONS). If you have any suggestions or other feedback regarding BlindShell, please do not hesitate to contact us at info@blindshell.com. Your feedback is very valuable to us and helps us to improve BlindShell.

Setting up the phone

The structure of the phone

Congratulations! You are now holding your first BlindShell phone. Before you start using the phone, we would like to introduce you to the device. Hold your phone in such a way that it is perpendicular and the rear side with the physically distinguishable camera is pointing away from you and the camera is located at the upper end of the phone. BlindShell has two buttons which are located as follows:

- The long button on the left edge is the volume rocker. Pressing the upper end will increase the volume, and pressing the lower end will decrease it. In any text field, a long press on the volume button will start the dictation function.
- The small button on the right edge has three functions. It turns your phone on, it locks the screen and it acts the home button. Pressing the button for half a second from anywhere within BlindShell will take you back to the main menu.

On the upper edge of the phone, you'll find two sockets. The one in the middle serves for charging the phone and also for connecting the data cable. The round one on the right side of the edge serves for connecting the headset.

Inserting the SIM card and the battery

All BlindShell phones are delivered with the phone itself, the charging cable, the power adapter and a headset. A SIM card is not provided with the phone. You need either a standard SIM card or a micro SIM card. Before you can turn the phone on, you need to insert the battery and the SIM card as follows:

1. Hold your phone perpendicular with the rear side pointing towards you and the camera at the upper end.
2. Hook your finger nail into the socket in the bottom part of the phone on the left side and pull the rear side away from the device until you hear a clicking sound. Move your finger around the phone through the little crack that has now appeared and remove the rear end completely.
3. Put your phone face down on the table so that the sockets are located on the upper edge.
4. In the upper third of the phone, you will find three card slots. The left slot is the standard SIM slot, the middle one is the micro SIM slot and the right slot is for a micro SD card which serves as an extension of your phone's memory. Remove the dummy SIM card from the slot which you are going to use, and replace it with your own SIM card. The standard size has a cut off corner on the upper left. The same applies for the micro SD card. The micro SIM card

has a cut corner on the bottom right. **In BlindShell you can use up to two SIM cards at once. Each SIM card can have assigned one of the following services: Outgoing Calls, Outgoing messages or Mobile data. Calls and messages can be received on both SIM cards at once. The setting of the SIM cards can be found in the Settings - Networks - SIM cards menu.**

5. Hold the battery perpendicularly and search the short edges for a slightly rough area. Turn the battery in such a way that the rough edge is located on the upper right edge. Now insert the battery until the upper edge touches the card slots. Press down on the protruding lower edge until it fully disappears into the phone.
6. Now put the lid back on the phone so that the camera protrudes from the whole, and carefully press down along the edges of the phone until the lid clicks back into place.

Operating the phone

Before you start using the phone, take a few minutes to familiarize yourself with a small number of gestures that enable you to control BlindShell.

BlindShell gestures

BlindShell is operated with just four gestures, so you will only need put in a little effort to be able to handle your phone.

The following gestures ensure full control over your phone:

- **A one-finger tap** is performed by tapping the screen once. It helps you to navigate through menus and lists. If you tap the left half of the screen, you will move backward, and if you tap on the right half of the screen, you will move forward.
- **A one-finger holding gesture** is performed by holding your finger on an item for about half a second. Depending on the context, the one finger holding gesture has the following functions:
 - Select a list or menu item
 - Accept an incoming call
 - Confirm a dialogue or question
 - Turn off the alarm
- **A two-finger tapping gesture** is performed by tapping on the screen with two fingers. It will allow you to read the item in focus. In a menu, this will be the selected item, in a text field this will be the complete text. The following functions are performed with a two-finger tap:
 - Read the item in focus
 - Read of a complete text in a text field
 - Read the contact name or the caller ID from an incoming call
 - Play or pause the book reader
- **A two-finger holding gesture** can be described as an escape or negation gesture. Place two slightly splayed fingers on the screen for about half a second to perform the following:
 - Go back one level
 - Answer no to a question
 - Decline an incoming call
 - Escape from tasks (creating contacts, writing messages, etc.)

Additional gestures

Access to status info

Slide one finger from the bottom to the top of the screen and you will receive back status info, e.g. time and date, cell coverage, etc.

Locking and unlocking the phone

Short press of the power button will either lock or unlock the phone, depending on the state in which the phone was before pressing the button.

Quick help

Slide one finger from the top to the bottom of the phone and you will get quick help, explaining the most important BlindShell gestures.

End a call

A short press on the power button will end a call.

Resetting the phone

If your phone becomes unresponsive or malfunctions, you can reset the phone by holding the power button down for ten seconds.

Main menu

When the phone is unlocked, pressing the power button for about half a second will always take you back to the main menu. If your phone is locked, pressing the power button for about half a second will wake it up.

Spelling the last utterance

If you perform the **two finger tapping gesture** twice in a quick succession, the last utterance will be spelled by characters instead of just read. The gesture can be used in keyboard as well when a precise control over input is needed, like with passwords.

Starting BlindShell

To start your phone, press the power button for about half a second. You will get a vibration feedback for confirmation. You will hear a short melody when BlindShell has booted up. The phone is ready to use when the first menu item (call 1 of 9) is read back to you. If you are asked for your pin, please enter it. The keyboard has the alpha numeric design used by old phones. Underneath the numbers you will find an additional row with three keys. The function of the middle key will vary depending on the context. However, the left and right buttons always have the following functions:

- Delete, on the right
- Send, Save or Call, on the left

To enter your PIN, find the requested number and hold your finger on it. Tap the screen anywhere with another finger. When you remove both fingers from the screen, you will hear the written number and a typing noise as additional acoustic feedback. In addition, the numbers are read in groups of three. For example when

you type 1, 2, 3, 4, each written number will be read back. However after typing 3, you will also hear 1, 2, 3. The function keys are used in the same fashion. **Note: If it is necessary to delete everything that you have entered, find the delete key with one finger, hold it down and tap anywhere on the screen until you hear "delete all". When you remove both fingers from the screen, you will be prompted to confirm that you really want to delete all. Confirm this with the one-finger holding gesture.**

After you have entered your pin and have selected Use, BlindShell is ready to use.

The virtual keyboard

The virtual keyboard handles the same way as the numeric keyboard that you operated to enter your PIN. However, the layout of the keyboard is different. On key two, for example you will find letters a, b, c and, of course, number 2. If you want to write the word hello, repeat the following steps for each letter:

- With one finger, find the G in the position of number 4.
- Hold your finger on the G and tap the screen anywhere twice with another finger. After the first tap, you will hear G, and after the second tap, you will hear h.
- Remove both fingers from the screen. A clicking sound confirms that the selected letter has been written. After you have repeated this procedure for each letter, the word hello will be read back to you after either a space or a punctuation. If you want to delete the last letter, hold Delete with one finger and tap the screen anywhere with another finger. Removing both fingers from the screen will delete the last letter that was written.

With the # key, you can switch between the numeric keys and the alpha numeric keys and manipulate capitalization. The first letter after any punctuation mark, except a comma, is automatically capitalized.

QWERTY keyboard

The QWERTY keyboard is an alternative way to write texts on BlindShell. Some people may find using QWERTY keyboard faster than the traditional one. You can select your preferred keyboard in Settings - Control - Keyboard - Keyboard style.

When you select the QWERTY keyboard, only keyboard screens used for entering the text will be affected, like the SMS or note writing keyboard. The dial screen or the screens for numeric input as well as screens for date and time input will continue using the traditional keyboard layout.

The layout

For ergonomic reasons, the QWERTY keyboard has a different orientation than most screens in BlindShell have - it's the screen oriented landscape. The longer side of the phone should be horizontal and the volume rocker should be pointing upwards.

The QWERTY keyboard layout has five rows and ten columns and is akin to the keyboard you might have encountered on a computer. The keyboard has three switchable modes (lowercase letters, uppercase letters and special characters).

The basic layout is the following:

- the topmost row contains numbers 1 to 0
- the second row contains letters only
- the third row contains mostly letters, the last key being reserved for a backspace
- the fourth row starts with the shift key and its last two keys of the row are reserved for arrow keys to navigate within the text
- the last row contains the special character key, spacebar, three punctuation keys and the okay button which submits the text and closes the keyboard

Usage

To use the QWERTY keyboard, drag one finger over the screen until you find the key you want to use. Release the key to type it.

In most cases, there will be no need to use the second finger.

There are two exceptions:

- the delete key can alternatively delete by word or delete all
- non-English versions use the second finger to enter accented versions of letters

To trigger the alternate characters or functions, tap your second finger on the screen like when using the classical keyboard. We recommend that you keep enough distance between the first and second finger - you can for example do the second taps with your other hand.

Modes

Since there are too many characters to fit on a single keyboard layout, the keyboard can be switched to different modes:

- the default mode is the lowercase mode, it contains lowercase letters and numbers
- the uppercase mode can be triggered by the shift key and contains a selection of most common special characters and punctuations as well as the capital letters
- the continuous uppercase mode can be triggered by the "special characters" key followed by the "shift" key
- the special characters mode contains the rest of punctuation and special characters
- the emoticon mode which contains a selection of smileys and emojis

Voice dictation

Instead of a keyboard it is possible to input text via voice dictation. While using a keyboard press either of the volume buttons for about half a second to start this function. After being prompted and hearing the beep cue you can start dictating the text.

Dictate the text in short sentences or in a few words. After each dictated segment the phone will slightly vibrate. At this moment you can either continue in dictating more text or close the voice dictation by long pressing either of the volume buttons, or long pressing the screen. If you don't close the voice dictation function manually, it will be closed automatically after a few seconds.

To use the voice dictation you need to be connected to the Internet.

Voice Assistant

This feature enables you to control the phone by voice commands. To turn on the assistant, long press one of the volume buttons for a duration of at least 1 second (those are the buttons placed on the left edge of the phone).

Through this feature you will be able to open any application that is present in the phone by simply saying its name. For example to open the application Messages, you can turn on the voice assistant and utter "Open the messages application", "Write a message", "Open messages", "Messages" and so on.

Full list of the applications currently supported by the voice assistant is following: Calls, Messages, E-mail, Weather, Alarm, Minute Timer, Calculator, Calendar, Notes, Internet Radio, Media Player, Books, Color indicator, Magnifying glass, Voice Recorder, Localization, Turning off the phone, Facebook, WhatsApp, Internet Browser and TapTapSee.

The most important applications of the BlindShell enable advanced control. Examples of such behavior can be found in the following list.

Calls

- Dialing a contact from the contact list. The voice assistant will search the contact list and dial the contact which you stated in the voice command. Examples: Call Michael Bloom, Dial contact Peter Phillips, Make a call to Michael Jackson.
- Dialing a number. The voice assistant will dial the number which was dictated. Examples: Dial 777555666, Call 123456789 and so on

Messages

- Sending a message to a contact. The voice assistant will search the contact list and open a new SMS for the contact that you stated in the voice command. Examples: Send a message to Mike. Open a message for Bob. Compose a message for Emily.
- Sending a message to a number. The voice assistant will create a message for a specific number. Examples: Send a message to 775755577. Message for 123456789.
- Composing a message. The voice assistant will create a text message with the text that was dictated which will be either addressed to a contact from the contact list or to a dictated number. Examples: Send the following message to John Doe: I will be late. Compose a message for William Brady Thank you for the call. Write a message to 123456789 Who are you?

Alarm

- Creating an alarm. The voice assistant will create an alarm for a specific time. Examples: Create an alarm for 8 am. Wake me up in two hours. Set alarm to 20:00 on Monday.

Minute Timer

- Creating a countdown. The voice assistant will create a countdown with the time that was dictated. Examples: Create a countdown for 10 minutes. Count down 5 minutes and 30 seconds.

Calculator

- Computing a simple formula. The calculator will provide a result of a simple mathematic formula and open a calculator. Examples: What is 5 times 9. How much is 200 divided by 10. 26 plus 95.

Calendar

- Creating an event with a specific date and time. The voice assistant will create an event in the calendar on the stated date and time. Examples: Create an event Football training on Tuesday 3pm. Add to a calendar April 4th 5pm.

Notes

- Creating a note. The voice assistant will add a text note to the application Notes. Examples: Take a note walk the dog. Create a note pass the butter.

Radio

- Play a radio station. The assistant will turn on the radio and start playing a specific radio station. Examples: Play the Rock Around The Block Radio. Open the Viking FM radio

Weather

- Weather forecast. The voice assistant will provide a relevant information about weather in your location for the day. Examples: What will be the weather tomorrow? What is the weather like today?

Localization

- Find your actual position. The voice assistant will start a localization process immediately and tell back the result. Examples: Where am I? Location.

Information about the state of the phone

- Check the current battery level. Examples: Battery. What is the battery level.
- The voice assistant will provide a relevant information about the carrier signal strength. Examples: What is the signal level. Signal strength
- The voice assistant will provide you with an information about the WiFi network which you are connected to. Examples: What WiFi network am I connected to. WiFi state.
- The voice assistant will provide you with an information about the current time. Examples: What is the time. Time. What time is it?
- The voice assistant will provide you with an information about the current date. Examples: What day is it? What is the current date.

Internet search

- Search the Internet for a query. The voice assistant will open the Internet browser and search for your query. Examples: Google the birth date of Elton John. Search the Internet for the recipe for the concentrated dark matter.

Jokes

On the light side. BlindShell knows a few jokes...

BlindShell functions

Call

- Press the Home button to get to the main menu.
- Find call by navigating the menu using a one-finger tap.
- Confirm your choice with the one-finger holding gesture.
- The call menu will open, and will offer the following options:
 - Select Call Contact to call a saved contact
 - Select Dial Number to dial a phone number that is not a saved contact
 - Select Last Calls to see the call history

Call contact

This option takes you to the contact list, where you can choose the saved contact that you want to call. If the selected contact has more than one phone numbers, you can choose between them and confirm your choice with the one finger holding gesture. The last option in any list is the find option for quicker access to the desired contact.

Dial number

If you select this option, you will find the numeric keyboard with the function keys at the bottom. Dial the number and hit send.

Call history

This list shows the most recent incoming and outgoing calls. Long press with one finger on a contact will bring up a menu with additional actions like Dial or Send Message

During a call

- To activate the tone dial (numerical keyboard used while calling), slide one finger from the bottom to the top during a call.
- Your phone will automatically switch to loudspeaker when you move the phone away from your ear. You can disable this behavior in Settings.

Messages

This option enables you to read and write messages.

- Press the Home key to get to the main menu.
- Find and select messages
- The messages menu opens offering the following choices:
 - Select Send message to contact to send a message to a saved contact

- Select Send message to number to send message to a number which is not in the contacts
- Select Send message to several contacts to send messages to saved contacts and to numbers not in the contacts
- Select Conversations to view your messages

Contacts

The contacts menu enables you to add contacts and edit your contacts, offering the following choices:

- Contact list, to see your saved contacts
- Add contact, to save contacts

Note: The last item in this list is a find function for quicker access to contacts.

Contact list

Holding one finger on a contact will give you the following options:

- Call displays a list with available numbers before you dial a selected number
- Send message offers the same list of available numbers before you can write a new message to the selected-number
- Edit contact to add or change contact info for a selected contact
- Send as business card sends the contact info to a third party
- Save as favorite for quicker access to important contacts
- Assign ringtone to assign an individual ringtone for faster identification
- Delete contact removes the contact from your phone

Add contact

This menu provides you with various contact info fields.

- Confirm the desired info with the one-finger holding gesture.
- From the menu, select the information you want to enter.
- Enter particular piece of information into the text field. Then use the long press with two fingers gesture to return back to fill in another piece of information.
- When you are done editing, use the long press with two fingers to get back. Confirm the dialogue prompting to save your contact.

Backing up and importing contacts

BlindShell allows you to backup and import contacts into/from a .vcf files.

Import contacts

- The filename of the file, from which the contacts will be imported has to be Contacts.vcf. Copy this file either to the root folder of the memory card or to the root folder of the internal storage of the phone.
- If Contacts.vcf is present in both storages, the file which is located on the memory card will be used.
- Select the option Import contacts to copy the contacts from the file Contacts.vcf into the contact list.
- Contacts in the Contacts.vcf file, which are identical with contacts which are

- already in your contact list, will be skipped during the import.
- After the import is finished the Contacts.vcf file will be renamed to Contacts-imported.vcf.
- The phone will announce an error if the Contacts.vcf file is not found neither on the memory card or in the internal phone storage.

Backup contacts

- Select the option Backup contacts to create a Contacts.vcf file with copy of contacts that are in the contact list.
- If a memory card is present in the phone, the file will be created in the root folder of the memory card.
- If no memory card is present in the phone, the file will be created in the root folder of the internal storage of the phone.

More Applications

In this folder, you'll find useful applications. The following choice is offered:

- Tools
- Email
- Media
- Books
- Android Applications
- Vision Aids
- Games

Tools

The following tools are available:

- Alarm
- Minute timer
- Calendar
- Notes
- Voice Recorder
- Calculator
- Weather

Alarm

In BlindShell you can use several alarms at once. For each alarm you can set time and days of the week on which the alarm will go off.

- To create a new alarm select the item New alarm in the Alarm menu.
- Fill in four digits in the Set time field. First pair of the digits represents hour and second pair of the digits represents minutes.
- Choose days on which the alarm will go off. If you skip this or leave the days empty, the alarm will ring every day.
- Save the new alarm with the Save alarm option
- After selecting a specific alarm you can delete or edit it.
- When the alarm rings, you have the following options:
 - Turn off alarm (Of course, this only refers to the current alarms. Your repetition settings remain untouched by this choice.).
 - Check the time with a two-finger tap.

Minute timer

Minute timer allows you to set a countdown timer in minutes. When the timer finishes, you will be notified by the application.

- Open the application to get information about current settings and information about whether the timer is active or not.
- To access timer activation, pause, cancellation and time setting features, long press the main screen with one finger.
- To dismiss the countdown notification, long press the screen with either one or two fingers.

Calendar

Easily add and edit appointments with the help of your calendar.

- Today shows you an overview of today's appointments.
- Month takes you to a list of the days of a selected month. Select a day to show you the appointments for that day, which you can edit by making a selection.
- Add appointment offers a dialogue to enter information for a new appointment.

To enter an appointment, perform the following steps:

- Select Add appointment
- Select a title and enter the name for this appointment. Confirm with Save.
- Do the same for the location.
- The date option opens a sub menu where you can select a start and an end date. This is performed by selecting the corresponding dates in the list.
- The time option allows you to set a start and end time. Enter the time in two digits for both hour and minute and use the Move between fields button to switch between hour and minute.
- Repetition offers you a choice of intervals.
- To save the entered appointment, move one level back with the two-finger holding gesture and choose with a one-finger tap whether you want to save or dismiss the appointment. Confirm your selection with the one-finger holding gesture.

Notes

The Notes function enables you to add, remove and edit notes.

- The Notes list shows a list of already existing notes. Select one note for the following options:
 - Edit
 - Send via text message sends the note as a text
 - Delete will delete the selected note
 - Delete all will remove all notes from your phone
- Add note opens a text message where you can enter a note and save it using the Save button on the bottom left.

Voice Recorder

As an alternative to notes, you can record voice memos.

- Open the Voice recorder application.
- Navigate to Start recording.

- Select the option with the one-finger holding gesture and record your memo.
- The repeated one-finger holding gesture stops and saves your recording into the recordings folder.
- The two-finger holding gesture will dismiss your recording.
- A two-finger tap will announce the elapsed time of recording and the remaining recording time.
- You can listen to a recording by selecting a recording in the recordings folder with the one-finger holding gesture.
- A two-finger tap will pause and continue your recording.
- A one finger tap on the left half of the screen will rewind the recording, and a one-finger tap on the right half of the screen will fast forward the recording.
- The one-finger holding gesture pauses the recording while opening a sub menu with the following options:
 - Rename recording
 - Delete selected recording
 - Delete all removes the content of your recordings folder.

Calculator

Calculator allows you to perform basic arithmetic operations: addition, subtraction, multiplication and division.

- Open the application.
- Slide your finger across the screen to choose the desired number or operation.
- To execute an input expression, choose the Equals button.
- To check an input expression, short tap the screen with two fingers.
- To erase a number or an operand choose the Delete character button.
- To erase everything, choose the Clear all button.

Weather

The weather application allows you to check the current weather in your location or the weather forecast up to three days ahead.

- Open the Weather application.
- The Main screen contains current information about the weather in your area.
- Short tap with one finger to navigate the menu to see the forecast for up to three days.
- Long tap with one finger for detailed weather information for the day.
- In the detailed weather information, short tap with one finger to move forwards or backwards through the detailed forecast with intervals of three hours.
- The last item in the main menu is a detailed three-day forecast, starting with the current time, with intervals of three hours.

E-Mail

BlindShell comes with an email client through which you can add, remove and edit one email account. If you have used an email client other than provider specific clients, you should require no further adjustments. However, some email providers (e. g. Google) require you to enable third party apps in the webmail application. Please make sure that IMAP access via third party applications is enabled. For gmail, the following links take you to the required section: <https://www.google.com/settings/security/lesssecureapps>.

If you use two-factor authorization, please make sure to generate a BlindShell

specific password here: <https://security.google.com/settings/security/apppasswords>.

- Open the email application.
- Select the New account option.
- Enter the information for e-mail address, SMTP server, IMAP server and password. Save all information with the save button on the bottom left.

If you enter an e-mail address with one of the providers listed below, the SMTP and IMAP server info will be filled in automatically:

- gmail.com including googlemail.com
- yahoo.com
- seznam.cz
- gmx.com
- outlook.com

In any other case, please enter the information manually.

- If you go back one level with the two-finger holding gesture, you will be able to access the various folders of your email account.
- Selecting an e-mail will automatically start reading the mail content to you. If you apply the one-finger holding gesture within an e-mail, you can choose to
 - reply to sender,
 - reply to all recipients
 - or delete the email.
- If you want to write an email,
 - select New e-mail in the main menu of the email application.
 - Select Recipient, enter the email address and save the entered address.
 - Proceed in the same way with the subject and the text.
 - Action will send your email.
 - Save to drafts will allow you to continue an email later. You will find the saved email in the drafts folder.

Media

In this folder, you'll find the following entertaining applications.

- Music player
- Audio book player
- Internet Radio
- FM Radio
- Camera
- Images

Music player

In order to use a Music player, you first have to store mp3 files either on your phone or on a memory card. The storage will be automatically scanned for music files, we recommend that you use a Music folder for your songs. You can also create subfolders as you like.

- Connect your phone to a PC.
- Your phone will be listed as an external device.
- If your phone contains a memory card, the memory card will be listed within the phone's folder.
- Put your songs in the Music folder on your phone or on a memory card.

- Open the Music player.
- Resume starts playback of the last played song.
- Songs list shows all songs sorted alphabetically.
- Artist allows browsing all songs or albums by artist.
- Albums shows all albums sorted alphabetically.
- Favorites allows quick access to favored songs. The song have to be classified as favorite in context menu which is available during playback.
- Playback can by paused by back gesture.
- A one-finger holding gesture on a playing song opens context menu that allows saving the song to favorites or moving in song.
- Move in song option in context menu allows rewind song back or forward by 10 seconds by one-finger tap on a side of the screen. After 10 seconds without tapping, rewind mode will be finished and one-finger tap gesture will start working as normally to switch between songs.

Audio book player

In order to use your Audio book player, you first have to store audio files either on your phone or on a memory card. Audio files must be stored in the BlindShell/books folder. If there is no memory card present, the Audio book player will load files from internal phone storage. If there is a memory card present, the Audio book player will load files only from the memory card and not from internal phone storage.

- Connect your phone to a PC.
- Your phone will be listed as an external device.
- If your phone contains a memory card, the memory card will be listed within the phone's folder.
- Open the Audio book player
- Resume continues or pauses the player
- Browse files brings you to the list of saved audio files.
- Saved positions opens a list of paused titles to resume from the exact pausing point
- Favorites offers a list of your favorite tracks. You first have to mark them as favorites e. g. in the track list.
- In play mode, you can rewind and fast forward with a one-finger tap. The two-finger holding gesture will stop or pause the music.
- In pause mode, a one-finger tap will enable you to move between titles.
- In pause mode, a one-finger holding gesture will open a context menu offering various options for a track, e. g. defining them as favorites.

Internet Radio

BlindShell offers an Internet radio function. Browse the stations, select your favorites and listen to the station of your choice.

- Open the Internet Radio application.
- Resume starts the playback of the last played station.
- Popular stations shows a list of the most played stations in a country according to the phone localization or selected country.
- Categories displays stations in a selected category.
- Country allows you to browse stations from another countries.
- Favorites allows quick access to favored stations. The stations have to be classified as favorites in the stations or category list.
- Search is used to search in all stations of the current country.
- If you have selected a radio station in any list, you can switch between stations with a one-finger tap.
- A one-finger holding gesture in list of stations starts playback of the selected

station.

- A one-finger holding gesture on a playing station offers the option to define it as a favorite.

FM radio

With BlindShell you can easily listen to FM radio and save your favorite stations.

- Open the FM radio application. The earphones must be plugged in, because they work as an antenna.
- Play radio starts playback of the last played station.
- Favorites allows you to list through stations that had been previously saved as favorites.
- A one-finger holding gesture while playing radio station opens context menu. In this menu station could be saved or deleted from favorites, audio output could be changed to speaker or headphones, tuning could be switched between automatic and manual mode. Automatic tuning list only stations with good quality signal, manual tuning increase or decrease frequency by 0.1 or the frequency could be entered manually. Entered frequency should be between 87.8 and 108.0 in format without decimal point.
- A short tap on the left or right of the screen will retune radio according to tuning mode.

Camera

The phone has a simple camera function that can be used to capture images. The camera function has certain accessibility features for low-vision or blind users.

- Orientation indication: photos can be taken in both portrait and landscape modes. The phone will announce when a change in the orientation is detected.
- Tilt indication: the camera has a function to help you shoot correctly leveled images more easily. After opening the camera, you will hear a continuous loop of two consecutive beeps followed by a period of silence. The pitch of those beeps indicates the phone attitude towards the ground.
 - A rising tone sequence indicates that the phone is tilted to the left (left part of the device is pointing more or less downwards).
 - A falling tone sequence indicates that the phone is tilted to the to the right.
 - If the tones are the same, the camera is properly leveled (the horizon will indeed be horizontal in the image)
- Face detection: the camera is continuously detecting faces and will announce a number of detected faces any time it changes.
- Blur detection: after the image is taken, it will be checked for a blur. If the phone thinks the image might be too blurred, you will be notified about this.

Basic operation of the camera is the following:

- Open the application
- Point the camera towards the object you want to capture. Use the assistive features described in the previous paragraph as needed.
- To capture the image, you can either long-press the screen or short press the volume button (the button may allow for a more stable grip).
- When you trigger the capture, the camera will first focus and then actually capture the image. Beginning of the focusing routine will be announced by a high-pitched beep. A characteristic "camera sound" can be heard when the capture is finished. The focusing process can take few seconds, depending on

- light condition. Hold the phone still during the whole process.
- After the image capture is done, you will be presented with a menu where you can view or save the image. The view option will just show the image on the screen, as captured. If you don't like the image, you can get back to the camera capturing mode using the long press with two fingers gesture.
 - When you select the "save" option, you will be prompted to record a short voice description of the image (up to 5 seconds). This description will later help you identify images in your image gallery.
 - After the image has been saved, the phone will return to the capture mode and you can capture more images. Use the long press with two fingers gesture to return to leave the camera function.

Images

A simple image viewer can be used to view images captured by the camera application.

- When you open the image viewer, a first captured image will be presented to you. The image will be shown on the screen and the voice description will be played back to you.
- You can browse the list of images using standard gestures (tap left goes to previous image, tap right goes to next image).
- A long press with one finger gesture will open a context menu, where you can view additional information about currently displayed image or delete it.

Books

The books folder offers four book reading applications from different providers. Depending on the provider, it may be necessary to register an account.

- With the bookreader, you can read any .txt file.
- Bookshare requires registration and offers a wide selection of books in various languages.

The bookreader

- Open bookreader
- Last books shows you a list of your last read books.
- Library brings you to the list of available books.
- You select a book using the one-finger holding gesture.
- If you have started listening to a book before, BlindShell remembers the position and resumes at the point where you stopped reading. Otherwise, the book will start at the beginning.
- In reading mode, you can adjust the reading speed with a one-finger tap.
- The two finger holding gesture pauses and resumes the playback.
- In pause mode, the reading app opens a context menu.

Bookshare

The bookshare application enables you to browse bookshare and save books to your phone.

- Open the bookshare application.
- Enter your e-mail address and proceed to the password input field by selecting Navigate between fields.
- Enter your password and save the login info.
- If your login is successful, you can search for authors, titles or browse various

categories. **Note: selected books will be saved in the library of the reading app.**

Librivox

Librivox is a service that offers public domain books.

- Open the application.
- Find books offers to search the collection for authors or titles. Enter your search and confirm it with the Search button.
- Select a book with the one-finger holding gesture, and decide whether you want to save the whole book or single chapters of it.
- Please wait until you hear the success report.
- To listen to a book, move back one level, using the two-finger holding gesture, until you find yourself in the librivox main menu offering the choice to search your library.
- Select a book.
- Select Show downloaded chapters to listen to selected chapters.
- Select Available chapters to see the available chapters and to download missing chapters.
- Remove this book removes the selected book from your library.
- In play mode, you can rewind and fast forward using a one-finger tap. The one-finger holding gesture will pause and resume the playback.

Android Applications

In this folder, you will find the following applications:

- Web Browser
- Facebook
- TapTapSee
- What's App

All applications have been tested with BlindShell and are considered to be usable. However, as all applications in this folder are third party applications, we don't guarantee full accessibility or functionality. There are two styles which can be used to control the Android applications: BlindShell gestures or Android TalkBack. You can switch between those styles in the menu Settings - Control.

BlindShell gestures

The first control style is based on the control of the BlindShell phone itself. Text is input via BlindShell keyboard and following gestures are used to control the applications:

- Short tap with one finger in the right side of the screen will move you to the next element on the screen
- Short tap with one finger in the left side of the screen will move you to the previous element on the screen
- Long press with one finger is used to select or confirm
- Long press with two fingers is used to go to the previous screen, to cancel a selection or leaving the keyboard
- Short tap with two fingers will read the last information or current selected element
- Swiping one finger from the top to the bottom of the screen will bring up a global context menu with other options (go to the top, go to the bottom, continuous reading, repeat last utterance, spell the last utterance)

- Swiping one finger from the bottom to the top of the screen will bring up a local context menu with other options (this function will be mostly used in the internet browser)

Voice call in WhatsApp and Facebook Messenger

Voice calls in WhatsApp and Messenger are supported. An incoming call can be accepted by a power button short press and rejected by the two finger long press gesture. A call that's in progress can be hung up by a power button short press or two finger long press gesture.

Android TalkBack

The second control style is a native screen reader of the Android OS - TalkBack. When you choose this control style a native Android keyboard will be used for text input as well. The TalkBack control style is described on the following support Google website: <https://support.google.com/accessibility/android/answer/6283677?hl=en>

Vision Aids

In this folder, you will find the following helpers that might come in handy.

- Color Detection
- Illumination sensor
- Banknote recognition
- Magnifier
- Localization
- Text recognition
- Object tagging

Color Detection

- Open the application and wait until you hear that the application is prepared.
- Hold the camera a few centimeters from the scanned object and start the recognition process with the one-finger holding gesture. **As color recognition is done with the help of the camera, note that several factors affect the result, e.g. ambient light, the angle of the camera, etc.**
- The color will be read out as soon as the recognition process is finished.
- A two-finger tap will repeat the color.

Illumination sensor

The illumination sensor is located in the top left corner of the device.

- Open the application.
- The ambient light intensity is indicated by the rate of clicking.
- A higher rate of clicking indicates brighter environment, a lower rate indicates darker environment.
- A short tap with two fingers will produce the illumination level as a percentage and a verbal description of the intensity.

Banknote recognition

- Open the application.
- To change the standard currency, use the one-finger holding gesture to open the currency settings.

- Follow the prompted instructions to scan your bill. As soon as the bill is recognized, its value will be read back.
- During the recognition you might be prompted to flip the banknote. In such case present the other side of the banknote to the camera.

Magnifier

When the magnifier application is in use, the phone will be continuously capturing the image from the rear camera and displaying a magnified version of this image on the phone screen.

- Open the magnifier application.
- You can adjust the magnification level with a single tap on the screen. Tapping on the top part of the screen will zoom out, tapping on the bottom part of the screen will zoom in.
- The one-finger holding gesture opens a sub menu offering the following choices:
 - Pause picture
 - Turn on/off the light
 - Color inversion
- The magnifier has an auto-focusing function. When the image is being focused a high-pitched beep can be heard. You can also trigger the focus action manually by tapping on the device body or giving it a gentle shake.

For more convenience, we have designed a special phone holder to be used with this function. It can be purchased separately.

Localization

The Localization app will help you find the address of your current location. It can use both Wi-fi and Mobile data.

- Open the Localization app.
- The localization process starts immediately saying Loading and may last up to 30 seconds.
- If the process is successful the address will be read back to you.
- The accuracy depends on a quality of your connection.
- In case of an error the app will read Service not available.

Text recognition

- After running the application, hold the phone in landscape orientation and point it towards where you expect the text.
- Optimal distance from the object with text is about 15-20 centimeters, but it may vary depending on font size and other factors.
- The application will announce any text it finds aloud, this is called orientation mode and will help you find the text you are interested in. During this mode, you can tap the screen to restart reading - this is useful when you move the phone a lot and don't want to listen to text previously captured.
- If the application detects some text but has a problem reading it, the text may be upside down. You will be notified about this situation and you can react by rotating the object by 180 degrees.
- Perform a one finger holding gesture or press the volume button for a short time to capture current text for thorough recognition. If the internet is available, more precise on-line recognition engine will be used. In the thorough mode, you will be presented with a list and you can browse the text line by line, like any other list in BlindShell.

Object tagging

The object tagging function can help you tag and later identify objects that are otherwise hard to tell apart by touch - like bags or boxes with spices, cosmetic and household cleaning products, bottles, cans and so on. For this function you will need coded tags that can be purchased separately from your BlindShell distributors.

The tags are squares stickers about one inch by one inch. They have to be peeled of the sheet and stuck on the object you want to tag. The tags are to be read by the phone's back camera lense. Each tag is unique and when you tag an object, your phone will associate that tag with your spoken or written description. Later on, when you read the tag again, the description will be played back to you.

Tagging a new object

- Pick an object you want to tag.
- Peel one square tag off the sheet with tags and stick it to the object. If possible, avoid sticking the tag on rough or curved parts of objects.
- Open the tagging application and select the "add tag" option. Periodic tapping starts, informing you that the detection is running.
- Point the camera of your phone towards the tag on your object. The recommended distance is around 20 to 30 centimeters or inches. It may take some practice to get it right.
- After the tag is read, you will be asked if you want to record or write a description. If you choose to record, the recording will start after a beep and will automatically finish after five seconds. If you choose to type, a standard keyboard will appear and you will be able to input the description this way.

Identifying an object

- Select the "read tags" option from the menu, the phone will start tapping periodically once the camera is ready for tag reading.
- Point your phone camera towards the tag like when tagging a new object
- Once the tag is read, the camera mode will be paused and the description will be read back to you
- Long press with one finger will return you to the camera mode for another tag. The description can be repeated with two fingers short tap.

Editing and deleting tags

The "list tags" option in the menu brings you to the list of your tagged objects. Here you can edit descriptions or delete a tag that is no longer in use.

Games

In this section you will find some games. The following choice is offered:

- Chess
- Pexeso

Chess

You can play chess game against the BlindShell.

- The Chess menu offers following choices:
 - New game to start a new game
 - Resume game to continue playing previously started game
 - Choose side to play as light or dark player
 - Difficulty to choose from five levels of difficulty.
- You will be told when the game starts.

- The chessboard is located in the upper part of the screen. Move your finger through the chessboard. BlindShell will read coordinates of a square where your finger is and also color and type of a piece located on the square. It will say empty if the square is empty.
- To pick a piece hold one finger on the piece you want to pick and tap with another finger anywhere else on the screen.
- To move the selected piece position your finger on the square to where you want to move the piece. Hold one finger on the square and tap with another finger anywhere else on the screen.
- Below the chessboard you will find three buttons which you can select in a similar manner as the pieces on the chessboard:
 - Undo to undo your previous move and try again
 - State to know the actual state of the game
 - Quit.

Pexeso

In BlindShell you can play a sound pexeso. The goal of the game is to match identical sounds in the least possible amount of steps.

- The Pexeso menu offers following choices:
 - New game to start a new game
 - Sound theme to choose from several sound sets.
- You will be told when the game starts.
- The gameboard is located in the upper part of the screen. Slide your finger across the board. BlindShell will read coordinates of a square where your finger is and whether or not the square is revealed.
- Hold your finger on the square you want to reveal and tap with another finger anywhere else on the screen. You will hear a sound. Now try to reveal another square and search for the same sound. If the sounds are different, the match is not found and both squares will be concealed again. If the sounds are identical, you found a match and both squares will be inactive for the rest of the game.
- There are eight pairs of sounds on the board.
- Below the gameboard you will find two buttons which you can select in the similar manner as the squares on the board:
 - State to know the actual state of the game
 - Quit.

Settings

In settings, you can make relevant settings to BlindShell. For example, you can customize ringtones, make settings to the screen or connect your BlindShell phone to a Wi-Fi. The settings menu is divided into several sub-menus:

- Control
- Sounds
- Display
- Networks
- Google Account log-in
- SD Card Format
- BlindShell update
- Time and date
- Turn off the phone

Control

Here:

- You can set the duration of the long press in 3 options (normal, longer, longest).
- You can make adjustments to the keyboard:
 - Repeating when writing characters will read back what you have typed. The available options are repeat after word after space, repeat sentence after space, repeat whole text after space, and no repetition.
 - Reading when deleting characters with the available options Read next character or Read deleted character.
 - You can turn off touch with second finger: If this option is activated, you don't need the second finger to confirm a typed letter. The letter will be written after one finger has been removed from the screen. This option requires that you find the letters while sliding one finger over the screen. The second finger is needed only to find the next letter on a key. For example, you have to tap P three times to find R, but if you just want to write P, you slide over the keyboard until you find it. When you remove your finger, P will immediately be written.
- Set feedback options
 - By default, you will always get spoken feedback and also vibration and tone.
 - Here you can choose whether you want feedback either exclusively by spoken feedback, by tone, or by both.

Sounds

Here you can make settings related to speaker, speech output and ringtones:

- Select a profile (available options are general, vibration or silent)
- Regulate the volume for ringtones and alarm tones on a scale between 1 and 7.
- Configure the missed events notification
- Adjust the reading speed on a scale from 1 to 5 and turn time and date information on and off.
- Deactivate automatic speaker phone: Setting this option will require you to turn the speaker on manually during phone calls.

Customizing ringtones and alarm tones

If you connect BlindShell to a computer, it will be recognized as an external storage system. Any mp3 file can be used as a ringtone, alarmtone or notification tone, provided that it has been copied into the corresponding folders:

- Ringtones in Phone storage - Ringtones
- Notification alarms in Phone storage-Notifications
- Alarm tones in Phone storage - Alarms

Display

Here you can make screen related settings, e.g. brightness and screen lock.

- Brightness setting (on a scale from 1 - 6)
- Set black text on white
- Set huge/normal text size
- Set huge text size

- Screen timeout defines how long the user may be inactive before the screen is locked.
- Activate/Deactivate gesture keyguard (If it is activated, you can no longer unlock your screen with the button. To unlock your screen, you have to draw a capital V on the screen.)
- Screen Password requires a password, which you have to enter every time before you can access the phone

Networks

In this section you can set up wi-fi, configure your SIM cards if you use two SIM cards at a time, or turn the mobile data on and off.

Wi-fi Settings

In this section you can enable or disable Wi-Fi, connect your phone to a Wi-Fi, or edit the list of known Wi-Fi networks.

- To connect to a network Wifi has to be enabled.
- Network list contains a list of all available networks. Select a network to connect to it.
- You will be prompted to enter a password if the network is password protected.
- You can also connect to a network using a WPS button on the network's router.
- If your network has hidden SSID, you can connect to it via the Connect to hidden network option.
- To remove a saved network from the list, go to the network list, select the respective network and choose forget network.

Wifi connection via text file

- Users can connect their phone to PC via a cable and create a plaintext file in the root folder of the storage.
- The name of this file is wifi.txt (case-insensitive) and it contains two lines.
- The first line of this file is the name of the network (case insensitive) and the second line is the password (case-sensitive).
- Every time an attempt to connect to an encrypted network is made from the BlindShell menu, BlindShell will check for presence and correct format of this file.
- If it's alright it will compare if the first line with the network name if it matches the network selected.
- If so, the password keyboard won't even be shown and the password from the file will be used instead.

Bluetooth

The phone supports certain Bluetooth devices, namely audio devices (speakers, headphones, handsfree) and external QWERTY keyboards.

A new device has to be paired before it can be used for the first time.

Warning: If you connect an audio device, your audio output (including the synthetic voice) will be played through that audio device. If the device fails to function properly, you might end up without any useful feedback. In that case you can always disconnect a faulty audio device by raising the volume beyond the maximum level, i.e. pressing the volume button few times in a rapid succession.

Turning the Bluetooth on and off

The Bluetooth function is off by default. This helps to save energy of your battery. We recommend that you turn Bluetooth off if you don't use it. You can turn Bluetooth on and off using the first option in the menu.

How pair a new device

- Enable the pairing mode on your device. Some devices are in the pairing mode by default when turned on and out of signal. Other devices have a special key or combination of keys that will trigger the pairing mode. This is device-specific and can be found in the manual of the device.
- Once your external device is in the pairing mode, select the "Scan for devices" option in the menu. The scan will take up to half a minute after which a list of nearby devices will be presented to you.
- A long press with one finger gesture on the selected device will trigger the pairing process. This will generally take few seconds.
- In some devices, usually keyboards, you may be asked to enter a verification code. If this happens, you need to type a code given by BlindShell on your external device and confirm it by the Enter key.

Connecting and disconnecting a device

A newly paired device should be generally connected automatically. However, this is not the case with all devices. Sometimes it's also useful to be able to connect and disconnect devices at will, without pairing and unpairing them.

To connect or disconnect a device:

- Select the "Paired devices" menu item, all paired devices will appear in this menu
- A long press with one finger on a device will open a menu where you can select an operation to do with your device (connect, disconnect, unpair)
- If you choose connect or disconnect, an attempt to connect or disconnect a device will be made. Once it succeeds, the device will assume it's function (the sound output will be redirected, the arrow keys on a keyboard will become available for menu navigation)
- If you choose to unpair a device, this device will become unavailable until you pair it again. Some devices may require this action before they can be connected to another phone.

Notes about Bluetooth

- Before you can connect a paired device, you usually need to turn it on by a switch on the device. Some devices may turn themselves off after a period of inactivity.
- You can use numbers on your Bluetooth keyboard for faster menu navigation. If you press a number key while in a menu, BlindShell will jump to the corresponding item directly.
- There is a vast number of Bluetooth devices on the market. BlindShell cannot guarantee compatibility with every device available. Your BlindShell vendor might be able to give you an advice or offer you a tested model.
- Due to possible radio interference and due to nature of the Bluetooth protocol itself, there is no guarantee that a device will be found during the scan procedure. If you can't see or pair your device, make sure it's still in the pairing mode and then try the procedure again. If the problem prevails, make sure there is no strong source of interference in your area, like another Bluetooth device, a WiFi router or some other radio device in a close proximity.

Mobile data

- Mobile data can be turned on and off by selecting the item.

Pin code

- You can activate or deactivate the request for PIN code at the phone startup in the PIN code menu. To change the PIN code you need to activate it first.
- If you enter the PIN code incorrectly three times in a row, your SIM card will be temporarily blocked and PUK code will be requested. If you enter the PUK code incorrectly ten times in a row, your SIM card will be blocked permanently.
- If you use two SIM cards, select the respective SIM card prior to changing, enabling, or disabling the PIN code.

SIM cards

- This option will be visible only when there are two SIM cards used in the phone.
- You can select preferred SIM card for outgoing calls, outgoing messages, or data transfers.

Google Account log-in

- By selecting this option you can login into an existing Google Account or create a new one.
- After logging in your newly added contacts will be automatically saved into your google account and you will have access to your Google contacts.
- Such contacts will be later available on other devices as well, when logged in with your Google account.

BlindShell update

In this section, you can check BlindShell for updates and install selected updates. The update process is read back to the user, so no sighted assistance is necessary.

- Check for updates checks for the latest updates
- Install update guides you through the installation process.
- Throughout the update process the phone will be using different voice.

Time and date settings

- Time and date are automatically set from the network, when SIM card is inserted in the phone. However you can change the settings here.
- Chose the item you want to set: hour, minute, day, month, year, and enter the required information. Please note that each information item, except for the year, has to be entered in two digits. The year has to be entered in four digits.
- All information has to be saved before the next option can be set.
- When leaving the date or time settings, you have to choose whether you want to save or dismiss your settings.

Phone shutdown

If you want to turn off your phone, choose this option and confirm that you want to do so with another long press.

Status information

Among others, status information supplies information about:

- Date and time (long press is a shortcut to calendar)
- Information about WiFi (long press is a shortcut to WiFi settings)
- Signal strength and mobile data info
- Battery state
- Information about Bluetooth (long press is a shortcut to Bluetooth settings)

You can access the status menu either by selecting "Status information" the main menu or by sliding one finger from the bottom to the top of the screen. You always exit the status info menu with the escape gesture, i.e. with the two-finger holding gesture.

Manual

BlindShell comes with a built-in manual which you will find in the main menu. If you need more specific help, slide one finger from the top to the bottom of the screen when you need help and you will be offered more context-based help.

Tutorial

Tutorial is launched on the very first start of the phone. It will teach you everything you need to control the phone. It will finish after completion of all the tasks. In case of need it can be finished manually by pressing the power button for three times in a row. Tutorial can be restarted from the Manual menu of the phone.

Favorite contacts

In the favorite contacts menu, you will find important contacts that you have specified as favorites. Selecting one of these contacts offers the same options as you would get if you were to access them through the contacts list.

Missed events

The missed events option is a log of missed calls and messages to which the relevant options reply, call back, etc. are offered.

Technical specifications

- Android 5.1 with BlindShell adjustments
- Camera: 8 MPX rear, 0.3 MPX front
- Battery: 2200 mAh, battery life: one to three days depending on usage
- Connectivity: WLAN, GPS, GSM, EGPRS, 3G, HSPA+
- Dual SIM (Dual Stand-by)