

Ringo usage guide

Checking for firmware updates

Download new software

In this little tutorial, you're going to learn how to get the latest updates for your Ringo.

Whether you've worked your magic and uploaded something of your own on your phone and want to return it all to how it was, or you just want to get that latest implemented feature, the process is the same (and pretty easy as well!).

There are two main ways to do this and they're all quite simple. One of those includes the use of the computer while one uses just the phone.

Two ways to do it are:

1. **Ringo's 'Check for update' option**
2. **CircuitBlocks' 'Restore Ringo firmware' button**

They are ordered from the simplest to the most complicated so if you're unsure which one to pick, try with the first one - it is pretty straight forward!

Ringo's 'Check for update'

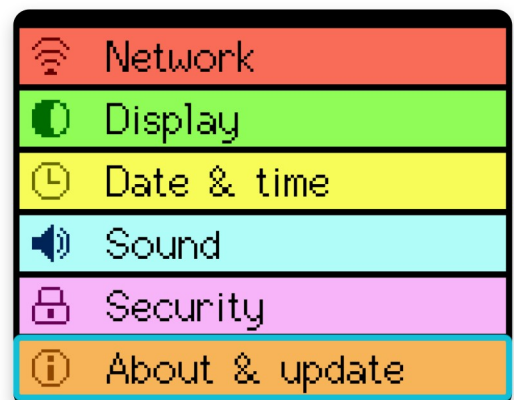
Let's start with the simplest.

1. Ringo's 'Check for update'

This one is as straight forward as they get.

Unlock your **Ringo** and scroll down to the '**Settings**' app. It should be in the bottom left corner when you unlock the phone.

In the '**Settings**', go down to '**About & update**' section and click the **A button**.



'Settings' menu

Now select the first option '**Check for update**' and click the A button again.

The phone will now take you to the **Wi-Fi connection screen**, where you must select your network and enter the correct password.

If you've done so, the latest update will automatically download and install (if it isn't already installed) and the phone will reset after the installation.

The '**Version**' label will also be updated and it will show the current version of the firmware you have installed.



'About and update' menu

CircuitBlocks 'Restore Ringo firmware' button

2. CircuitBlocks 'Restore Ringo Firmware' button

Our own IDE, called CircuitBlocks, has a very simple yet effective button – and it's located on the main menu!

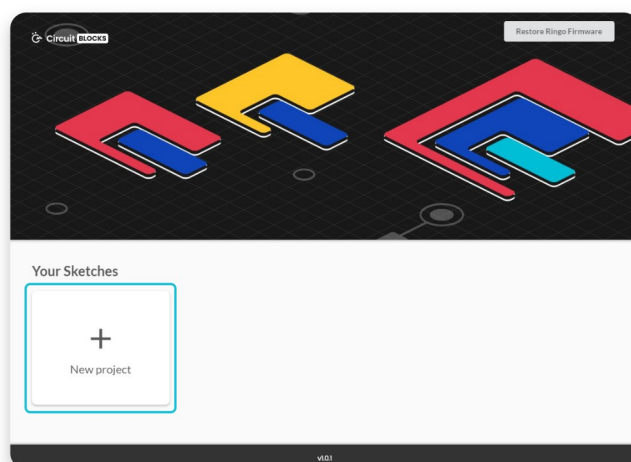
If you already haven't, you can download CircuitBlocks from [here](#) (there are Windows, Linux and Mac OS editions).

Here is the installation and usage [tutorial](#).

When you run CircuitBlocks, it should look something like this.

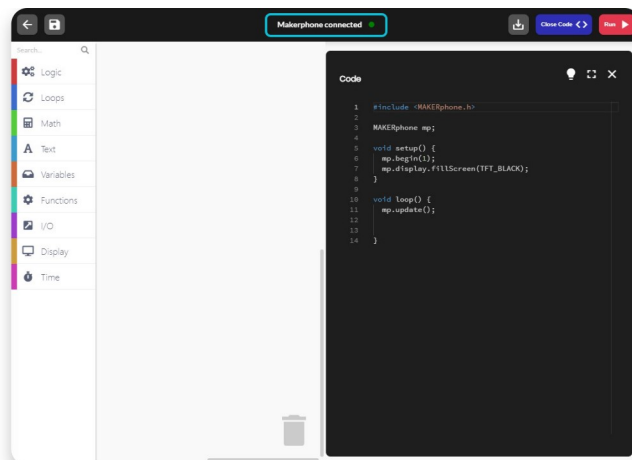
Connect your Ringo using the micro USB cable.

Now in order to check if Ringo is connected and recognized by our IDE, click on the '**New project**'.



If your Ringo is properly connected, there should be a label that says **'Makerphone connected'** along with the **green dot** on the top bar.

Now click the back button and go to the **main menu**.

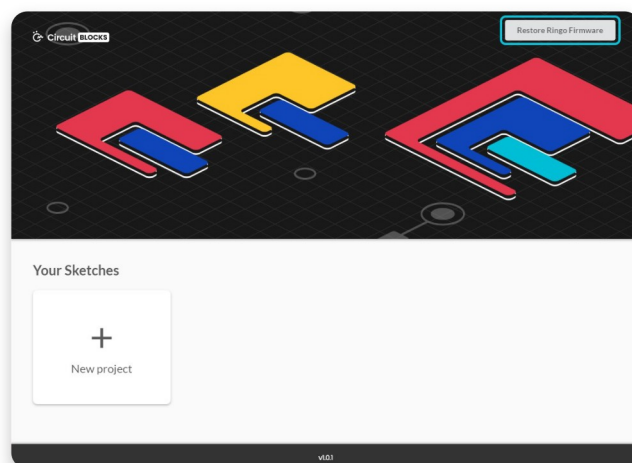


Now that you've made sure that the Ringo is connected, just click the **'Restore Ringo Firmware'** button.

Ringo should get the latest update and its software will be restored to ground zero.

The process should be completed in less than a minute.

After it's done, feel free to unplug your phone and continue the use.



Basic use

Overview

When you've successfully built your Ringo phone it's time to start using it!

It works pretty much like every other phone – it can make and receive calls, send and receive messages, play music, run games, and so much more!

All of these are made possible by multiple components which when put together, make all the magic.



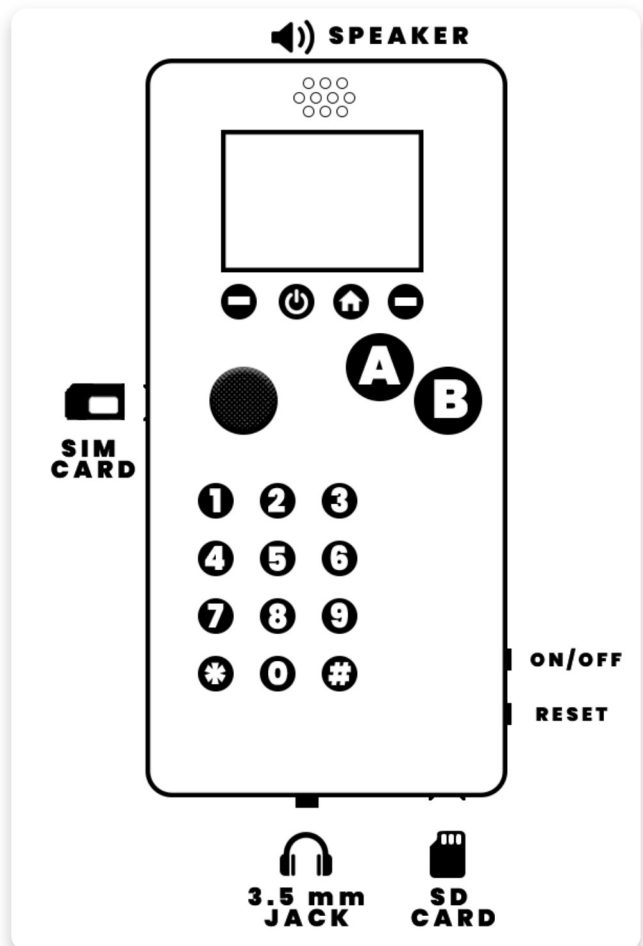
The coolest phone in the world!

Specifications

- **Size:** 150mm x 70mm x 20mm, 428g
- **Brain board:** ESP32, Xtensa dual-core 32-bit LX6, 160MHz, 4MB Flash, 520kB SRAM, SD Card support (up to 32GB)
- **SIM Module:** 4G Chipset – SIM7600 / 2G Chipset – SIM800
- **Display:** 1.8" 160×128 full color TFT LCD, 25 Hz refresh rate
- **Audio:** 2W class-D audio amp, 3.5mm jack, 1W speaker
- **Battery:** Li-Po 3.7V 1300mAh, USB micro-B charging port
- **Buttons:** 18 pressable buttons (10 numbers, Asterisk, Hashtag, two function buttons, A, B, Home, Power), Two-Axis Joystick, extern ON and RESET buttons
- **Lights:** 8 independent LED lights on the back with full RGB color capabilities

The phone has plastic casings on both the front and the back as well as two plexiglass covers for added protection.

- **Power – ON/OFF** -> Entering sleep mode, waking up, turning on and turning off the phone
- **Reset** -> Resetting the phone
- **Home** -> Returning to lock screen, opening settings in games
- **Left function** -> Erasing while inputting text, deleting games
- **Right function** -> Various functions, text input helper
- **A Button** -> Confirm/ Primary action
- **B Button** -> Back/ Secondary action
- **0 - 9 Buttons** -> Inputting text and dialing numbers, movement function in some games
- **Asterisk** -> Entering emergency call, SPACE while inputting text
- **Hashtag** -> Unlocking the phone, switching between upper and lower case letter



Setting up

Now comes the fun part – **finally turning the phone on!**

It can be done in two ways – either by holding down the power button that is located just below the screen or by holding down the ON button located on the side of the brain board. Once the phone is on, you will immediately enter the **'Setup wizard'**.

Before starting your work on it, you have to **charge the phone for at least an hour**. This is the first thing you will have to do after starting the **'Setup wizard'**.

We know that you just spent so much time building it up but you will have to hold on for a little bit longer!

'Setup wizard' will test your phone functionalities and whether everything is working properly or not. It might happen that you will have to disassemble the phone and re-solder/re-connect some of the parts. If that is the case, resolve the issues and come back once you've successfully completed the 'Setup wizard'.

Basic usage

You're located on the phone's **lockscreen** and that's where you will find the phone every time it's turned on or when you **wake it up from sleep**.

The lock screen shows all the basic data – **time, date, battery status, network connection, SD Card status, and any present notifications**. There are two commands that are available from there.

If you hold the **# button**, the phone will unlock.

If you hold the *** button**, the phone will enter the **emergency call menu**. From there you can only dial emergency numbers such as 911, 112, etc.



Unlocking the phone leads you to the main menu which by default has nine applications – **Phone, Contacts, Messages, Settings, Media Player, Clock, Calculator, Flashlight and Calendar + 4 video games**.



All other applications, such as video games located on your SD Card, will also be shown on the main menu underneath the default apps.

You can navigate the menu using the joystick, enter applications with **A button** and get back to lock screen with **B button**. You can also enter sleep mode anytime by pressing either **power button**.

One of the things you are going to have to learn (if you don't already know) is **how to type on Ringo**. It's done in an old fashioned way where every number button represents several letters/symbols as well as number which is written on it.

If you are not familiar with it, or just want a quick memory refresh, we prepared a **nice little tutorial** to help you get accustomed to it.

Typing tutorial

Remember when mobile phone keyboards used to look like this?



That was the standard more than 10 years ago and it was considered the most effective keyboard type. A similar layout can also be found on the CircuitMess Ringo, so we prepared a little guide to help you get used to it!

If you used these back in the day it will take you only a couple of minutes to remember how everything works and you will be ready to go in no time.

On the other hand, if you've never had experience with this layout it will take some getting used to before you master it.

Either way, we recommend going through the guide, so let's get started!

Getting started

Buttons on Ringo are a little bit too small to include letters below the numbers that indicate which number prints which character on the screen.

That's why we added a **HELP window** that you can access anytime you're inputting a text on the phone. **It shows all the characters (letters, punctuations, etc.) that you can write and a button they are assigned to.** It will definitely be helpful when looking for characters that you don't use very often.

1 +*/\:	2 ABC!;<	3 DEF%[=
4 GHI(\ <	5 JKL)]^	6 MNO@_ '
7 PQRS{	8 TUV}~	9 WXYZ' `
* +	0 #\$.?''&	# CAPS



Each button represents a set of different characters and functions. It's all located in an array. When you press the button once, it prints out the first character in that array.

If you press it again within a **small time interval** (approx. 350ms), it will change that character to the second one in that array and so on.

When it comes to the last position in the array and you again press the same button, it returns the very first character in that array.

That means that the character selection is **cyclic**.

If you don't press the same button fast enough, the selected character will be permanently written and you will begin a new character selection, again starting from the first one in the array.

If you press any other button within any time interval, it will immediately print out the currently selected character (assuming that you are in a different button's array).

Then it will start a selection in its own array and you will again be able to switch between the characters by fast pressing that exact same button.

Here is a full list of characters by arrays they are assigned to:

BUTTON 1: 1, +, -, *, /, \ :
 BUTTON 2: A, B, C, 2, !, ;, <
 BUTTON 3: D, E, F, 3, %, [, =
 BUTTON 4: G, H, I, 4, (, \, >
 BUTTON 5: J, K, L, 5,),], ^
 BUTTON 6: M, N, O, 6, @, _ , `
 BUTTON 7: P, Q, R, S, 7, {, |
 BUTTON 8: T, U, V, 8, ,, } , ~
 BUTTON 9: W, X, Y, Z, 9, ,
 BUTTON 0: 0, #, \$, ., ? , " , &
 BUTTON * : SPACE
 BUTTON # : CAPS



One more important function of the buttons is the long press.

If you hold down any **number between 1 and 9** a little bit longer (approx. one second), a number will immediately appear and you won't enter the character array selection.

If you hold the **number 0**, a **'+' sign** will appear instead.



Pressing the **# button** once will make all the letters in the future appear in **UPPER CASE**. Pressing the same button once again will start writing letters back in **lower case**.



The *** button** serves as a **SPACE** and it will leave one blank space after every press.



Erasing a character is done with the **LEFT FUNCTION BUTTON**, the most left one out of four

buttons right below the screen.

When you are in the numbers writing section (ex. entering a phone number), all of the number buttons will immediately write out a number they are assigned to.



That's about it! It really is a fast learn and if you had any experience with it before, you'll be ready to operate a CircuitMess Ringo as soon as you pick it up!

Inserting SD and SIM cards

In order to fully use phone functionalities, you're going to have to insert both **SD card and SIM card**. Nothing to worry about since this is pretty easy and an **SD card might already be inserted into your phone**.

SD card can only be inserted one way, **with the golden connectors facing upwards and the thick part of the card being in the back**. You should get a **notification when the SD card is properly inserted**.

SIM is necessary for connecting to the network, making calls and sending text messages. The slot for inserting it is located on the left side of the phone, right below the joystick.

The golden connectors part of the SIM card must be facing upwards while the cutout must be in the upper left corner, just like on the image.





NOTE: SIM can be inserted in multiple ways but it will only work if it's inserted the right way. After inserting the SIM card, restart the phone so that the SIM module can reload the card.

NOTE: US phones come with the 'Ting' SIM Card, which you first have to activate online in order to use.

NOTE: Now add some money to the card so you can use it properly!

Using applications

Making your first call

A phone's main feature! At least that's what it used to be. It still serves as one of the main functions of this device and is a rather simple thing to do.

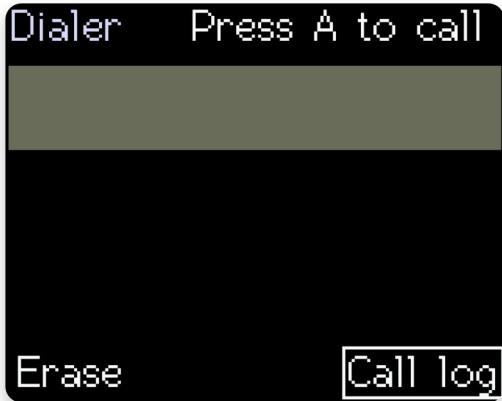
In order to make a call, you have to insert a SIM card, restart your phone and make sure you have a good connection to the network. That can be checked either by looking at the icon on the top left of the lock screen or by checking the **network** menu in the **settings app**.

Once you are certain your connection is good, proceed to make a call.

First, you have to navigate to the **phone app** and press the **A button**.



A screen like this will appear. If you have any contacts saved in your phonebook they will appear below the number input for a fast dial. You can also access **call log** at any time by pressing **right function button**, which will take you to your call history. From there you will be able to see all your previous phone calls as well as fast dial any of the numbers.



When entering a number, you have to enter it in a long-form (ex. x001 234 567 899) number that starts with a '+' (or 00, those two are equivalents). You can get the '+' sign by holding down the 0 button.

While making a call there is an option of bringing the volume up and down with the joystick which will increase or decrease the volume that is coming from the 'other side' of the speaker. **You can hang up a call by pressing B button.**

Sending your first text

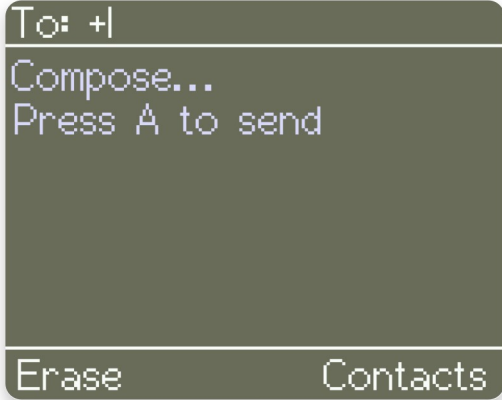
The second most important function of the phone (right after playing games, of course) is sending text messages. In order to do that you will have to be connected to the network via your SIM card. Also, we recommend getting to know the way you input text because it will really speed up the process of sending texts. So go check out our tutorial on one of the previous pages if you already haven't.

Navigate to **messages** in the main menu and press **A button**. It will get you to main messages screen, where you will have access to all of the previous messages sent and received. You can view those messages by pressing **right function button** and erase them by pressing **left function button**.

Sending a new SMS is done by navigating to the top of the order and pressing **A button**.



A new screen will appear from which you'll be able to enter a number of the message receiver (**must be in a +001 234 567 899 form**). You can also access contacts from there and choose desired number. Pressing your joystick down will move the cursor to the compose screen where the message text goes. You can access **text input helper** at anytime by pressing **right function button** which serves as a quick memory refreshment in case you forgot which button represents a certain symbol. If you make a mistake, you can erase single symbol by pressing **left function button**.



When both desired text and number are inserted press **A button** to send a message.

That's it! The message has just been sent and it will be received in a matter of seconds!

Saving contacts

Navigate to **contacts** in the main menu and press **A button**.

You will enter the main contacts menu from where you'll be able to view contact details, delete contacts and create new ones.

When creating a contact you have to enter a name and a number (**must be in a +001 234 567 899 form**).

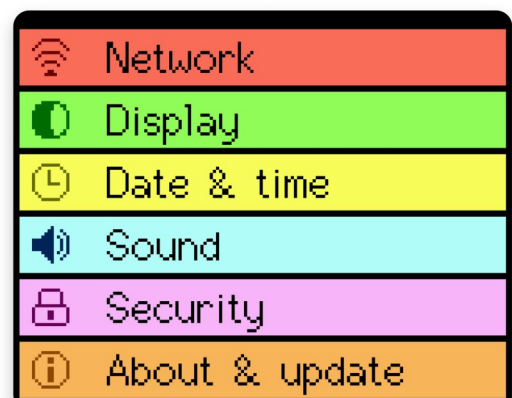
Once you create a new contact it can be accessed both from messages and phone app for faster calling and exchanging texts.

Also, every new received text and call from the number you saved will be shown as a name rather than a number.



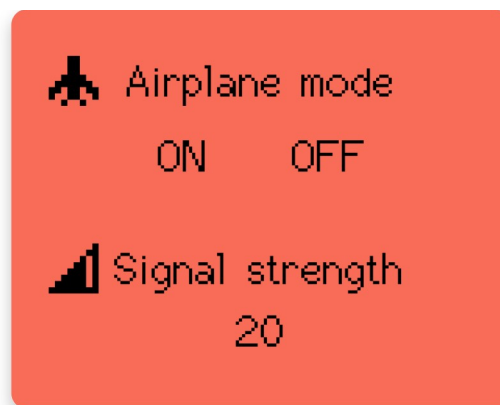
Adjust your settings

In the **Settings app**, you will be able to modify some of the phone settings to your liking as well as check for new firmware updates.



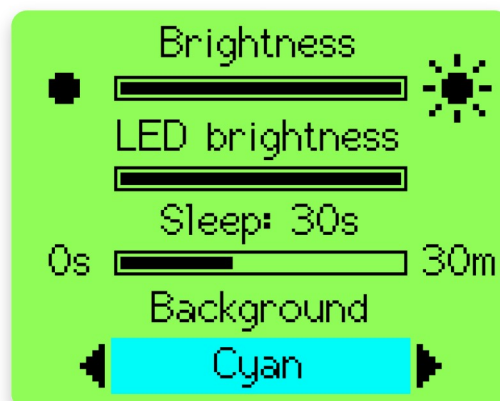
Network

In the first section called **'Network'** you can check out the strength of your network connection as well as turn on the airplane mode which will disable some of the phone's functionalities such as making/receiving phone calls and messages.



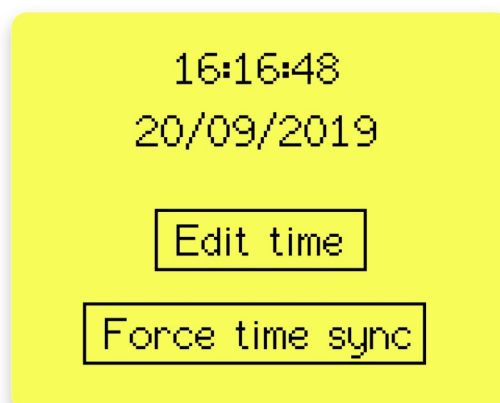
Display

In **'Display'** section you can change screen and LED brightness, default lock screen background color and amount of time it takes for your phone to enter sleep mode when none of the buttons are being pressed.



Date & Time

'Date & time' is pretty self-explanatory. From there you can manually set date and time or you can let your phone set it based on location using GSM.

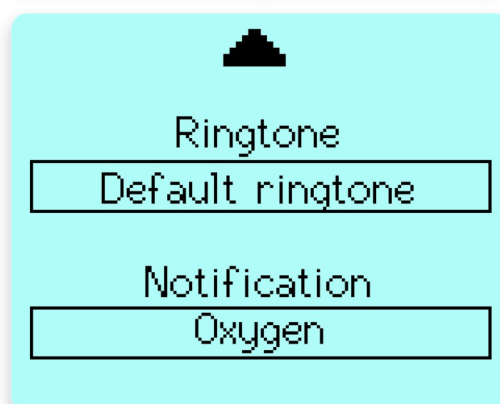


Sound

'Sound' section is where all the sound-related settings are located such as ring and media volume, which are set separately, and mic sensitivity, which regulates the amount of data microphone receives during phone calls.

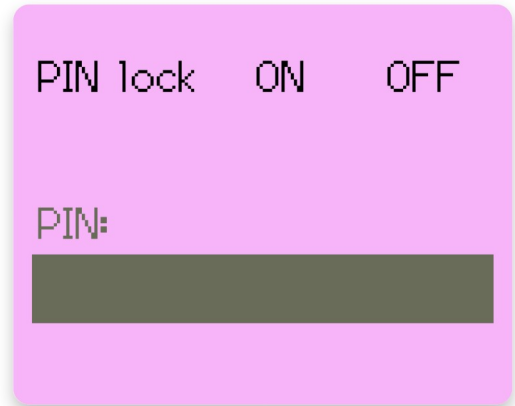


In the second part of the screen, you will be able to choose your ringtone and notification sound from a variety of different melodies we have created for you.



Security

In '**Security**' there is an option to turn on and off PIN lock when turning on the phone (set to OFF by default) and to manually set that PIN to any number you want.



About and update

Lastly, '**About & update**' section is where you check for new Ringo firmware updates.

You can also set the phone to factory settings and relaunch 'Setup wizard' which can be useful with checking if all of the phone components work properly. SIM module debug is a function that you will probably never have to use, but if you have any major problems with phone calls and messages, it might be useful to run it.



That's about it! Pretty much everything that can be changed in a phone can be found here and you will find it in no time!

There are also other applications and FOUR video games (Invaderz, Space Rocks, Pong and Snake) that are completely up to you to explore.

HINT: They are extremely fun!

Adding music and images to Ringo

Ringo phone is fully equipped to reproduce **several media type files**.

It comes equipped with a **3.5mm audio jack** and a **speaker** which lets you play audio files in **.wav** format.

Its 160×128 pixel screen may not be the biggest one, but it can show some very nice quality images.

Since the memory of the brain board is really small, all media files are located on a **micro SD card**.

We have already prepared some cool melodies that you can use as your ringtone and listen in the media app, as well as some images from some of our older products.

Through the media app, you will also be able to see all the screenshots taken while you were in games, as they will be saved in the same folder as all the other images.

Where is it all located?

By plugging in an SD card in your computer (you can do it by using our micro SD to USB tool) you will find several folders containing video games and files.

Folders we are interested in are **Music** and **Images**.

Music folder should at first be empty since all the default ringtones are located in the **Ringtones** folder, while Images folder should be filled with some of our images.

Name	Type	Size
Images	File folder	
Invaderz	File folder	
Music	File folder	
Pong	File folder	
Ringtones	File folder	
Snake	File folder	
SpaceRocks	File folder	
Video	File folder	
LICENSE	File	35 KB
README	MD File	2 KB

Images

Name	Type	Size
Images	File folder	
Invaderz	File folder	
Music	File folder	
Pong	File folder	
Ringtones	File folder	
Snake	File folder	
SpaceRocks	File folder	
Video	File folder	
LICENSE	File	35 KB
README	MD File	2 KB

Images folder on the SD card Select an Image

To add new image files to your phone, simply transfer **.jpg** type file to the Images folder.

Image files have to be in .jpg format, otherwise, they won't work.

In order to see the full image, you have to resize it to 160×128 resolution which can be done using one of the many [online tools](#) or some desktop software.

Name	Type	Size	Tags
box1	JPG File	15 KB	
box2	JPG File	15 KB	
MAKERbuino logo	JPG File	15 KB	
MAKERbuino1	JPG File	10 KB	
MAKERbuino2	JPG File	18 KB	
makerphone1	JPG File	14 KB	
makerphone2	JPG File	17 KB	

Default images folder on the SD card Select an Image

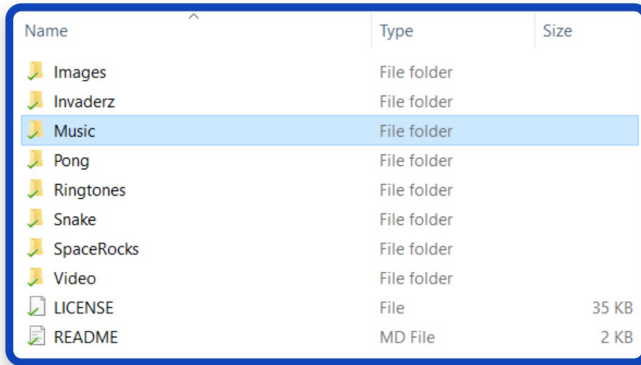
Music

Music folder on the SD card Select an Image

To add your music, simply transfer files from your computer to the Music folder (you can also use Ringtones folder).

Music files have to be in .wav format, otherwise, they won't work.

The sample rate needed is 44100Hz and it must be MONO channel. To convert your wave files to the proper sample rate there are hundreds of [sites like this](#) or [this](#) where you can set your desired sample rate when downloading.



Name	Type	Size
Images	File folder	
Invaderz	File folder	
Music	File folder	
Pong	File folder	
Ringtones	File folder	
Snake	File folder	
SpaceRocks	File folder	
Video	File folder	
LICENSE	File	35 KB
README	MD File	2 KB

When you insert the SD card back to your phone, all your files should appear in the media app.

If you can't find them, simply restart the phone and everything should be set.