



SonicShare User Guide

Document version: 1.0

Last update: 06/12/2021

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1. Introduction

This Application intends to illustrate data transmission using sound waves as a communication channel between devices. The demo environment integrates the CopSonic technology for ultrasound communication (hereinafter called “US”).

The SonicShare application allows sharing data in offline mode between two smart devices or more, just by using their existing speakers and microphones. The data is transmitted safely through ultrasonic waves.

This demo also illustrates the ability of the CopSonic technology to control the transmission range by giving the choice between either “short distance” (about 50 cm) or “long distance” (several meters).

The smartphone application has been developed for Android,iOS and Web environments. It is NOT a final product or a service. This application must be considered as a valid support to enable testing.

In addition to this user guide, a general introduction to ultrasounds will help you understanding the fundamentals of this approach. This document is available on the following link:

➤ [Ultrasound General Introduction](#)



2. The use case

The illustrated use case is to broadcast a text message or a pin code from one device to another.

On the “sending” device (also called the “Host”), the user enters the message and presses the button “Send”. The message will be modulated inside a unique US which will then be broadcasted using the existing speaker.

On the other end, once the “Receive” button is activated on the “receiving” device(s) (also called the “Client”), the smartphone will capture this unique US, demodulate the information that is hidden in it and display the message.

To perform this demo between 2 smartphone or more, you will only need the "SonicShare" application which carries the CopSonic technology. This App needs to be downloaded and installed on each of the devices that will be used for the test



Once the App is installed, this demo does not require any internet connection. It works in offline mode.

As to extend the exploration to other potential use cases, we will also offer to test this feature between a smartphone App and a Web App.

In this case, you will need to use the WebApp feature on at least one of the devices. The WebApp can either be the Host or the Client (provided that the web browser supports the use of the microphone).

















3. Installation

This demo is available for Android, iOS and Web browsers.

Compatible Operating System versions for the smartphone applications:

Smartphone OS	Android	iOS
Version	4.0+	8.0+

Web browsers compatibility:

											
Chrome	Edge	Firefox	Internet Explorer	Opera	Safari	WebView Android	Chrome Android	Firefox for Android	Opera Android	Safari on iOS	Samsung Internet
											
57	16	52	NO	44	NO	57	57	52	43	NO	7.0

To know your browser version, please use this link:

➤ <https://lehollandaisvolant.net/tout/tools/browser/>



3.1 Step-by-step installation procedure for Android

1- Download the demo application using the following link:

Google Play Store:

<https://play.google.com/store/apps/details?id=com.copsonic.demos.sonicshare>

CopSonic Store:

<https://apps.copsonic.com/ApplicationDetails.aspx?ApplicationId=362>

2- Launch the downloaded .apk file to start the installation process.

Before installation from CopSonic Store, your smartphone may inform you that the source is unreliable as it is not downloaded from an official App Store. See more about this issue in the following link:

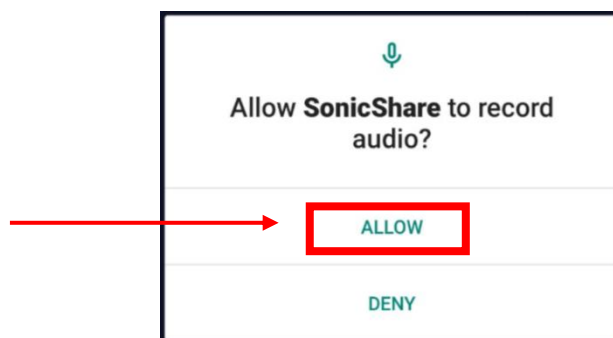
➤ [Allow the installation of external applications.](#)

Once installed, this icon will appear on your device:



3- When starting the application, necessary permissions will be requested::

- Record Audio: Since the application needs to receive the audio signals through the microphone, this permission must be added.



The CopSonic technology is capable of generating ultrasonic audio signals with messages modulated within them, as well as detecting and reconstructing these messages after recording and analysing the audio samples that contain them. The messages are encoded using very high inaudible frequencies and the App just scans those frequencies. So, even though the recorded audio covers the whole spectrum of frequencies, CopSonic only analysis the inaudible bands once and the system does not keep any kind of record of any of the processed audio recordings.



3.2 Step-by-step installation procedure for iOS

1- Download the demo application using the following link:

Google Play Store:

<https://apps.apple.com/fr/app/sonicshare/id1598124541>

CopSonic Store:

<https://apps.copsonic.com/ApplicationDetails.aspx?ApplicationId=365>

If the app is installed from the CopSonic store, when trying to run it, a warning might appear (if it is the first time that you are running CopSonic demos). This message will say that the certificate is not reliable since the App has not been downloaded from Apple's App Store.



The steps to solve this issue are described in the following link:

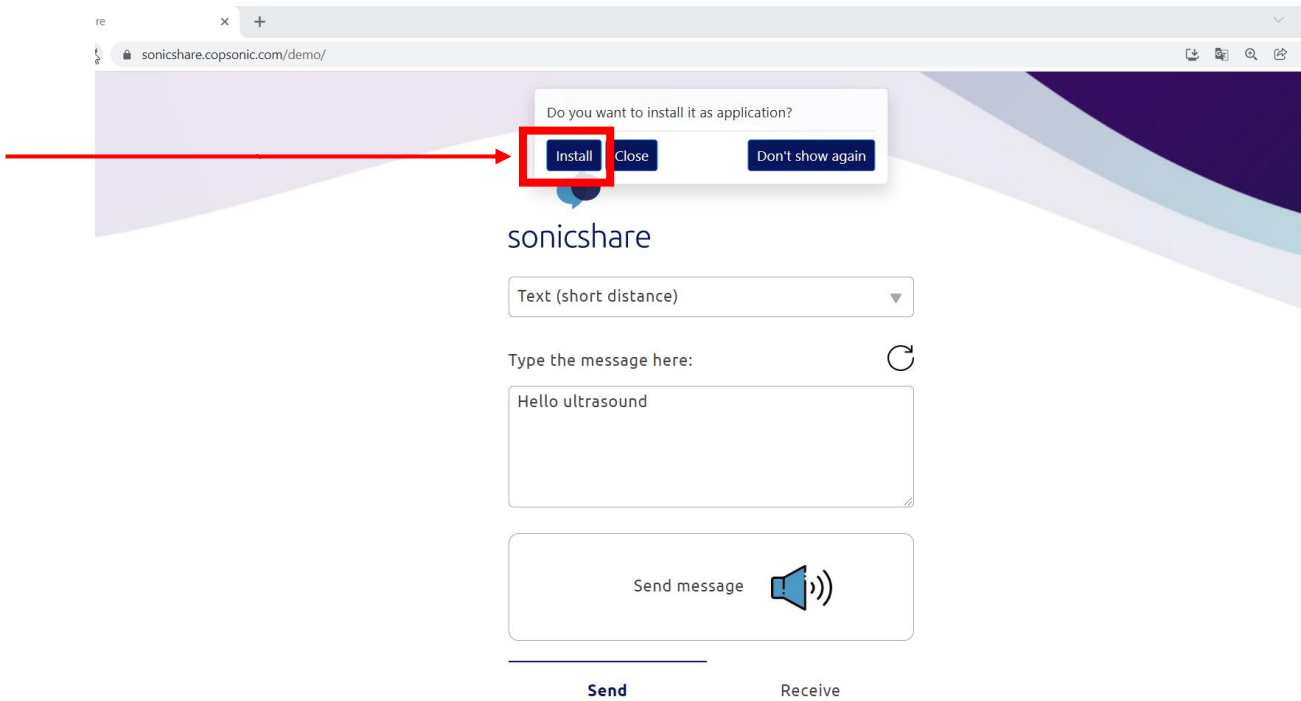
[Allow the installation of external applications "Activate Trusted Certificates"](#).

The required permissions are the same as for the Android application. [See the description in the previous section.](#)

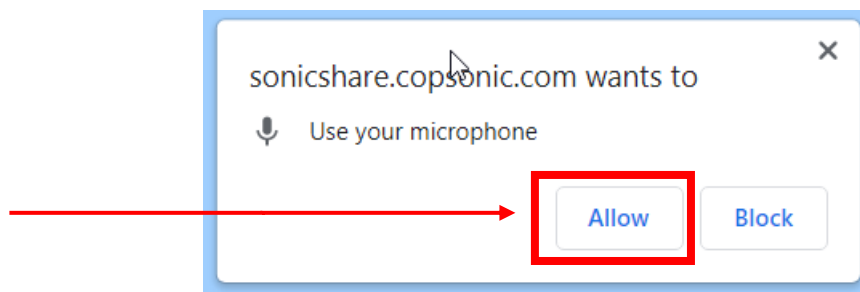
3.3 Web browser App

Within your web browser, open <https://sonicshare.copsonic.com/demo/>

This demo has been developed as a progressive web application (PWA), and it can be installed as a new application using the options at the top:



When starting the reception, the record audio permission will be requested. Since the web application needs to receive the audio signals through the microphone, this permission must be granted.





4. How does it works

The SonicShare application allows sharing a text message or a pin code using ultrasounds. The message is shared in a one-to-many mode, with one application broadcasting the data and one application or more receiving it.

This demo also enables testing the transmission range by giving the choice between either “short distance” (about 50 cm) or “long distance” (several meters). For demo purposes, the “Text (short distance)” mode is limited to a maximum of 24 characters and the “Pin (long distance)” mode allows a maximum of 8 digits. To get further information on this, please contact the CopSonic support teams.

NB: To carry out this demo successfully, all devices must have the same mode parameter selected: either “Text (short distance)” or “Pin (long distance)”.

4.1 Preliminary considerations

US technology requires a loudspeaker in the emitting source and a microphone in the receiving device. On the other hand, the source must emit sound, so “mute” must be cancelled and have an acceptable volume.

For an optimal experience, it is required to set the volume around 80% (depending on the speakers) in the device used to broadcast the message. It will allow among others to achieve the maximum transmission distance.

If the emitting source is connected in HDMI to a projector, please make sure that either the projector is in capacity of handling the broadcasting of US or the channel is set back to the device itself.

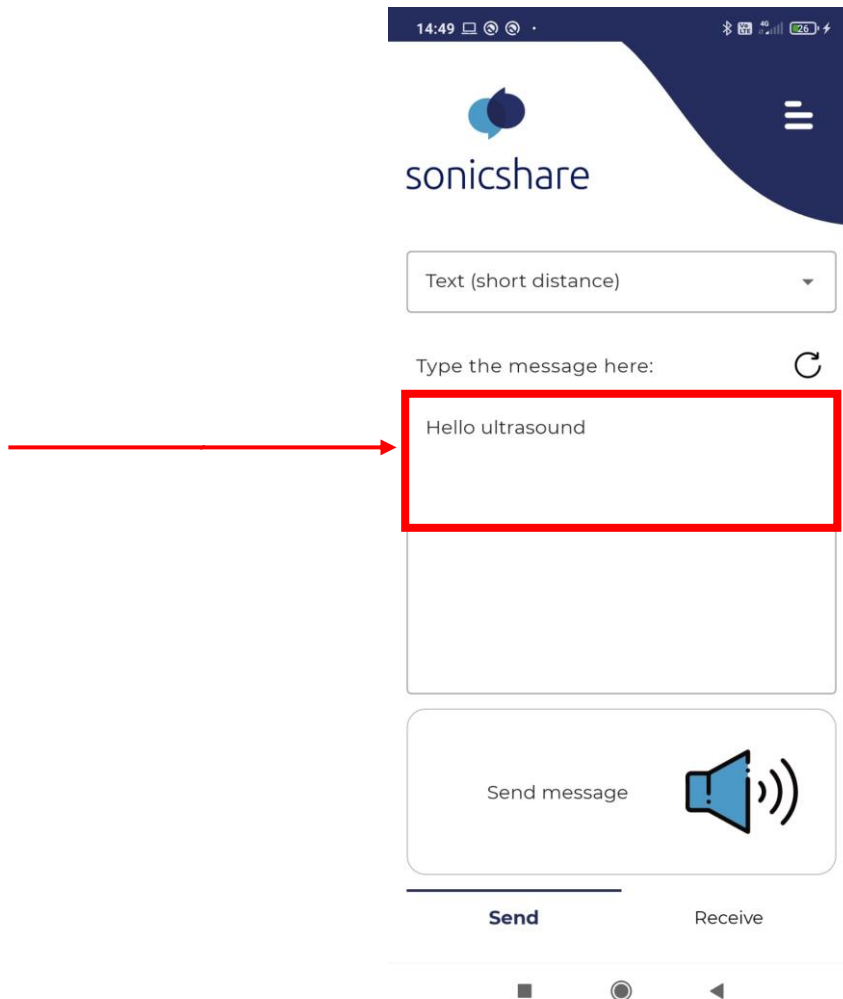


5. Reproducing the demo

This chapter describes the steps to follow to carry out the demonstration after the installation process according to the environment of the devices.

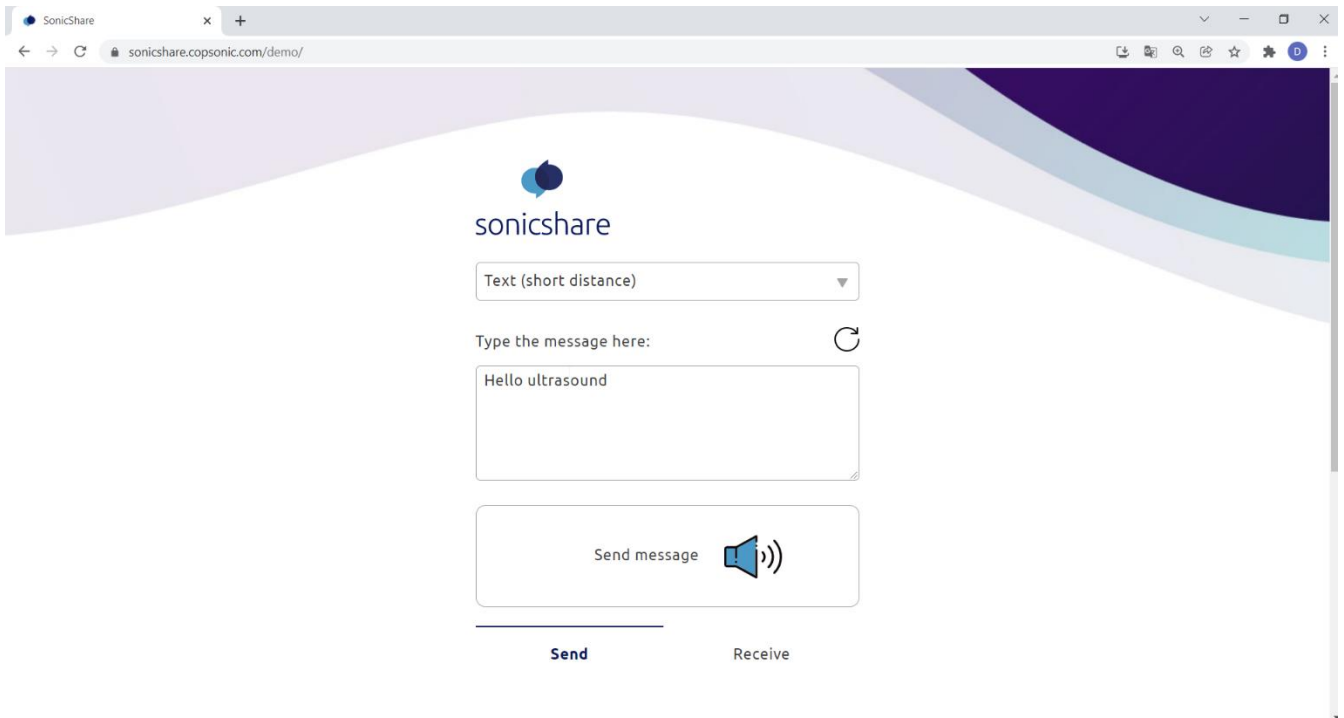
- 1- Once the application is installed, just launch it.

Smartphone app:





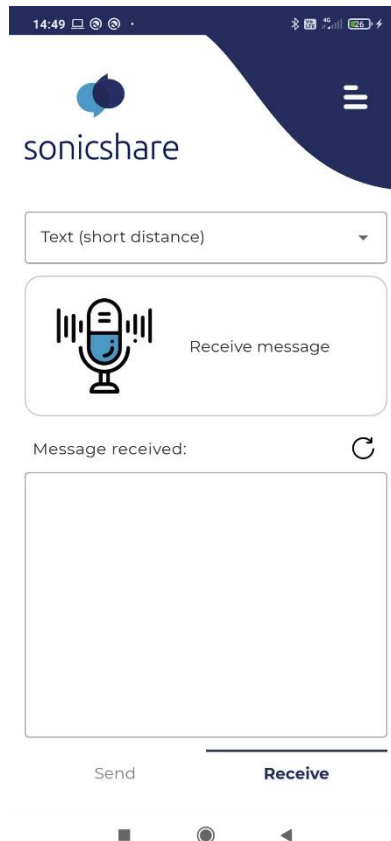
Web browser app:



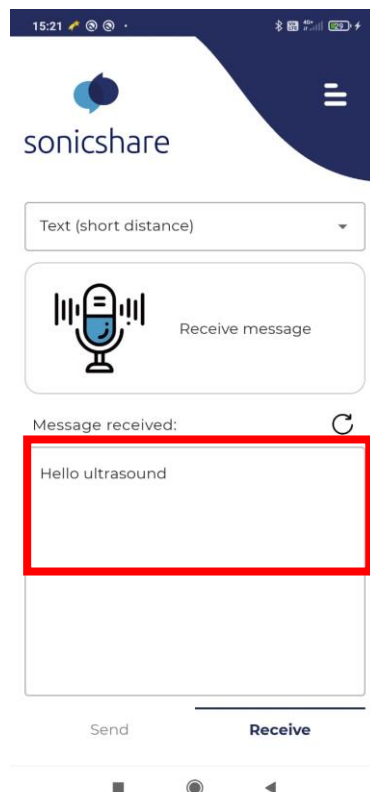
- 2- On the “sending” device, enter the message and click the “Send message” button
- 3- On the “receiving” devices, select the “Receive” option. Check that the mode parameter(text or pin) is the same and click the “Receive message” button.



Receive screen:



The detected message will be displayed:





7. Support and F.A.Q

Do not hesitate to contact us for assistance on this demo environment or any further information:

- By mail: support@copsonic.com

- By phone: +33 563 67 81 20

The Smartphone App does not catch the ultrasounds:

1- The US technology requires a loudspeaker on the emitting source. The source must be able to emit, so "mute" must be canceled and have an acceptable volume.

a) Check the broadcasting source is not on mute.

b) Check the volume of the speakers.

c) Check if you have headphones connected.

2- All devices must have the same mode: either "Text" or "Ping".

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