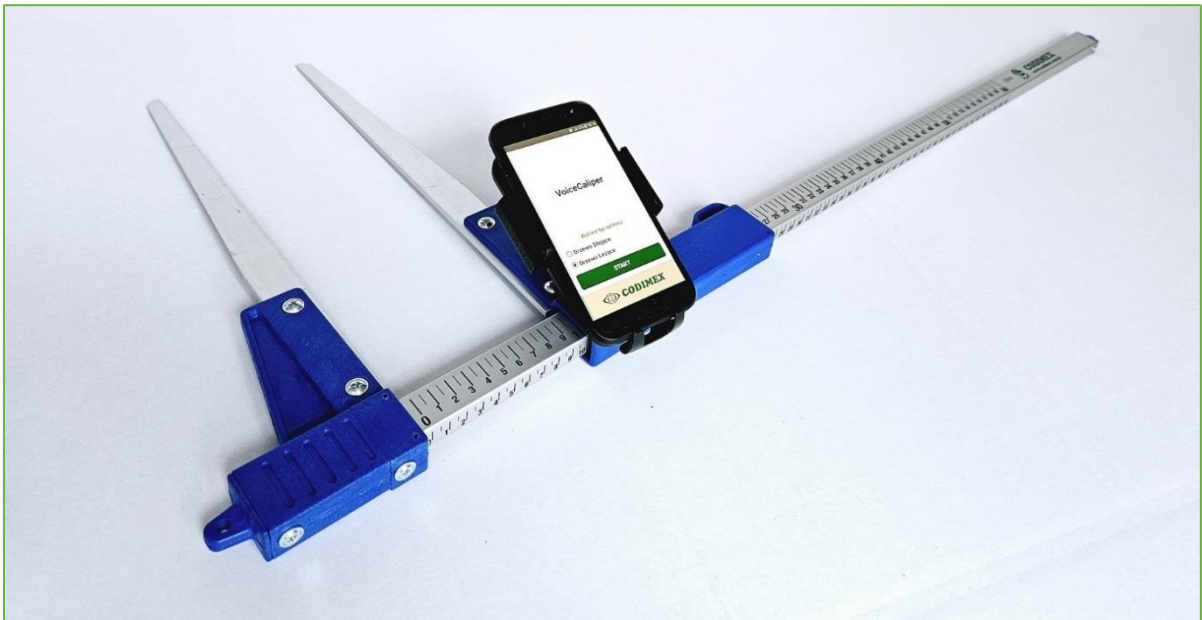# Set:

- Manual caliper CODIMEX-C
  40-150 cm, 16 – 46 in

- Smartphone
- VoiceCaliper mobile application

User manual

CODIMEX

Contents

1. Introduction

The set is used to record the measurement of the diameter at breast height of a standing tree and the diameter of a lying tree. The VoiceCaliper app, very easy to use is a new product offered by CODIMEX. It is user friendly and provides data transmission with processing capabilities. The user records measurements on the smartphone using voice commands.

The components of the set are:
1. Caliper Codimex-C 40 - 150 cm
2. User's smartphone
3. VoiceCaliper mobile application.

The manufacturer provides:
1. Caliper Codimex with smartphone holder
2. VoiceCaliper mobile application.

On request, any smartphone (Android OS) may be supplied for an additional fee.

The user measures the tree diameter with a CODIMEX caliper, and sends the measurement result to the VoiceCaliper application by using the voice command − by simply read the result to a smartphone. TheVoiceCaliper app's voice assistant confirms the result and waits for the next reading or parameter change.

The **VoiceCaliper** application can be installed on any Android device.
In the application, the user can configure and edit the recorded inventory elements:
- species;
- quality index;

Measurement data is stored in the smartphone's memory and can be exported as a CSV file. Exporting the file from the smartphone can be done by sending via Bluetooth or e-mail and directly copied via USB cable to a computer.

2. Manual caliper Codimex – C
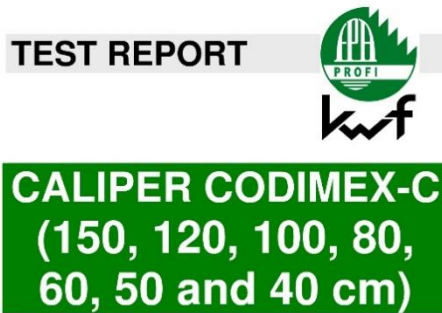
Codimex - C is a universal caliper designed for standing and lying tree measurements. It is based on a rectangular ruler with scales carried on three sides.

Especially appreciated by users advantages of caliper CODIMEX - C are:

- durability,

- wear-resistant scale,

- accuracy,

- user-friendly ergonomics.

Calipers CODIMEX - C are certified by KWF

Application field

Diameter determination of round timber

Test item	Test results
Reading precision	Marking on both sides and above, line scale with 0.5 cm graduation interval and number of centimeters. Labeling on both sides and at the top, line scale with 1mm, 5mm, centimeter division interval and centimeter numbers. Available with various scale versions, including inches
Stability	Stable measuring bar and measuring arm, guide slider with mechanical protection.
Handling	Good grip design, measuring legs interchangeable, fixed with 2 screws each. Sliding resistance adjustable with 6-sided screw
Maintenance/Care	Low maintenance and care effort, easy-to-clean surfaces

Construction

Anodized light metal measuring bar made of square hollow profile with black centimeter graduation and inscription on three sides. Measuring arm made of light metal with plastic handle. Available on following colors: blue, black and red.

Technical data

Length version [cm]	40	50	60	80	100	120	150
Total length of measuring rail [mm]	707	808	905	1105	1307	1506	1770
Cross-section of measuring rail [mm]	15 x 25						
Scaling measuring rail [mm]	5 (pitch interval) / 10 (cm - specification)						
Wall thickness measuring rail [mm]	1,5						
Cross section measuring leg tip [mm]	5 x 5						
Cross section of measuring thigh middle [mm]	25 x 5						
Arm depth (inside dimension) [mm]	257	329	329	428	529	629	779
Diameter eyelet (rail end / head) [mm]	5,8 x 5,8						
Measuring arm exchangeable	yes						
Sliding resistance measuring arm [N]	yes						
Total weight [g]	535	590	625	720	845	980	1165

3. Smartphone_____

The VoiceCaliper mobile application can be used on smartphones running on Android.

3.1. Requirements_____

Minimum Requirements:

- Android system: 4.0.3
- Processor: 1 core, 1 GHZ

Recommended specification:
- Android system: 4.4
- Processor: 4 cores 1.0 GHz or 2 cores 1.4 GHz
- RAM: 512MB

3.2. Mounting a smartphone on caliper CODIMEX – C_____

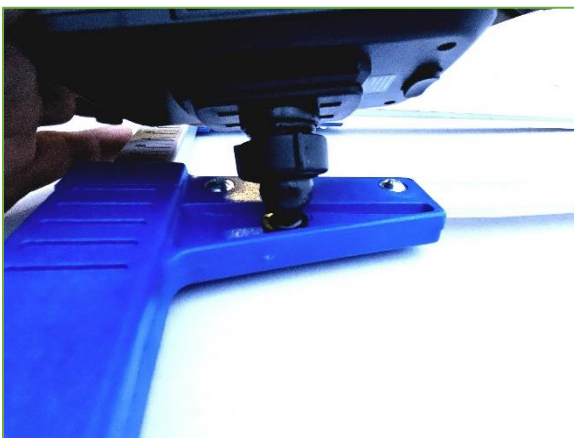Before measuring, fix the smartphone on the holder on the caliper.

Instruction for mounting the smartphone holder on the caliper

The ball handle for mounting the smartphone holder is screwed (with a screw) onto the moving jaw of the caliper.

Place the holder as shown on the picture. Then with a left motion unscrew the plastic nut almost all the way

Put the holder on the ball handle on the caliper. Then move to the desired position and with a clockwise motion tighten the nut to stabilize the holder.

4. VoiceCaliper mobile application

The VoiceCaliper mobile application is used for voice recording (in English) on a smartphone of the results of standing tree breast height diameter or lying tree diameter measurements. It also provides manual recording or voice recording of tree height/length, as well as change of species and quality parameters. In the case of a lying tree, it also calculates its volume. Each time the next measurement is taken, the height/length, species and quality parameters are repeated as default values, but for the user's convenience the height or length and species can also be changed each time in voice mode. Data can be exported as a CSV file to other devices via wireless communication, e-mail or cable.

The user enters the forest address and then records the height*/length, depending on the measurement type (standing or lying tree, respectively),species and quality index. Then he measures and records the DBH / diameter. At each stage of work, the user has the option to delete or edit the measurements taken.

*To measure the height of a standing tree you can use the Codimex-H application.

4.1. Installation of the mobile application

The installation file of the VoiceCaliper mobile application can be found on the included pendrive. Below we present instruction for downloading the file from the pendrive to your computer and then how to install it on your smartphone.

If you downloaded the demo version (20 records) from the website and then the registration key, go straight to the "Getting Started with the program" section on page 12.
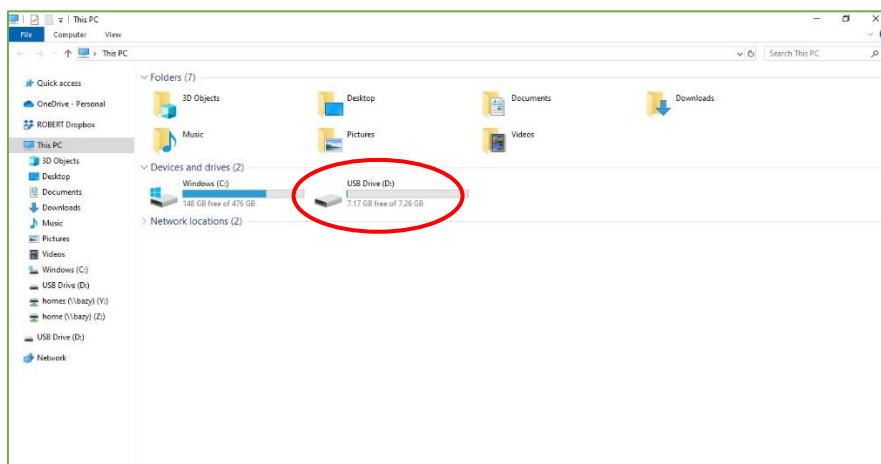
1. Go to the "This computer" icon on the desktop of your computer. Once open, locate the pendrive icon and open it.
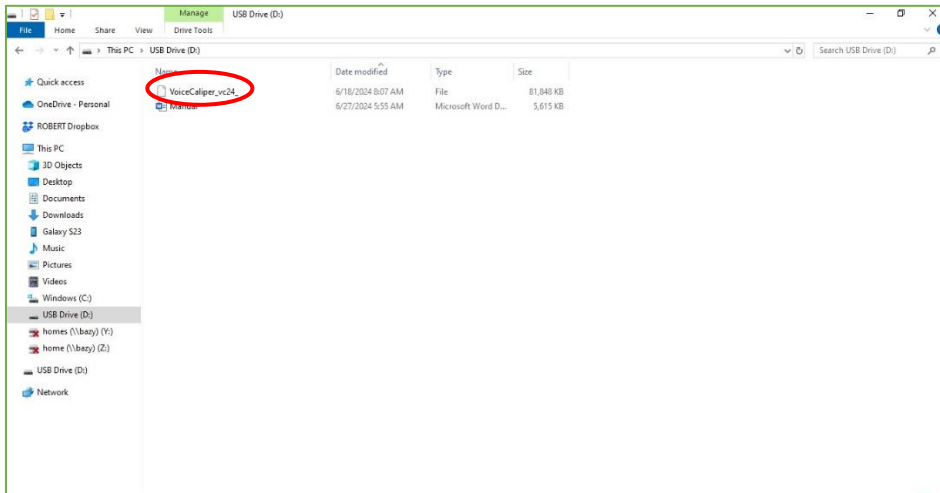
2. Find the file VoiceCaliper on the pendrive. Copy the file (to then paste it to your phone) and close the window.
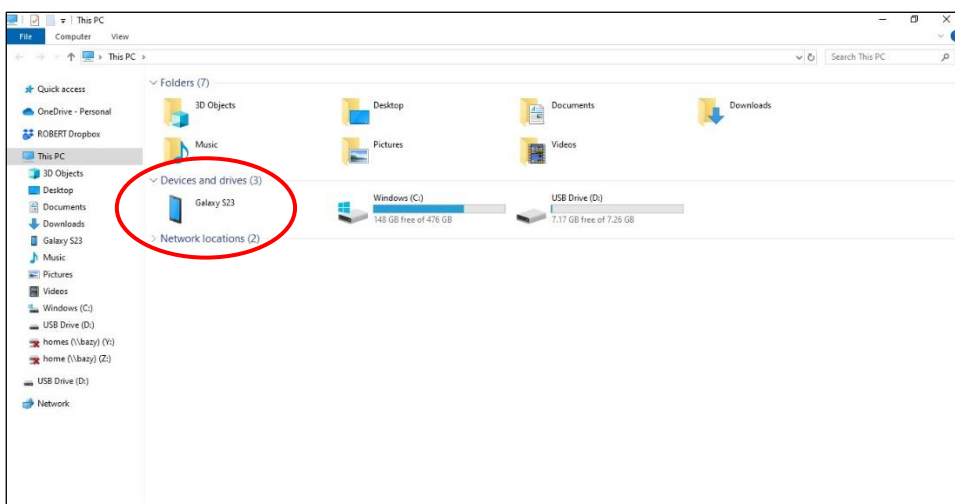
3. Connect the smartphone to the computer.

   - Open the "This computer" icon on the desktop.

   - In the "This computer" folder, look for the icon with the name of your smartphone.

   - Open the icon of your smartphone.
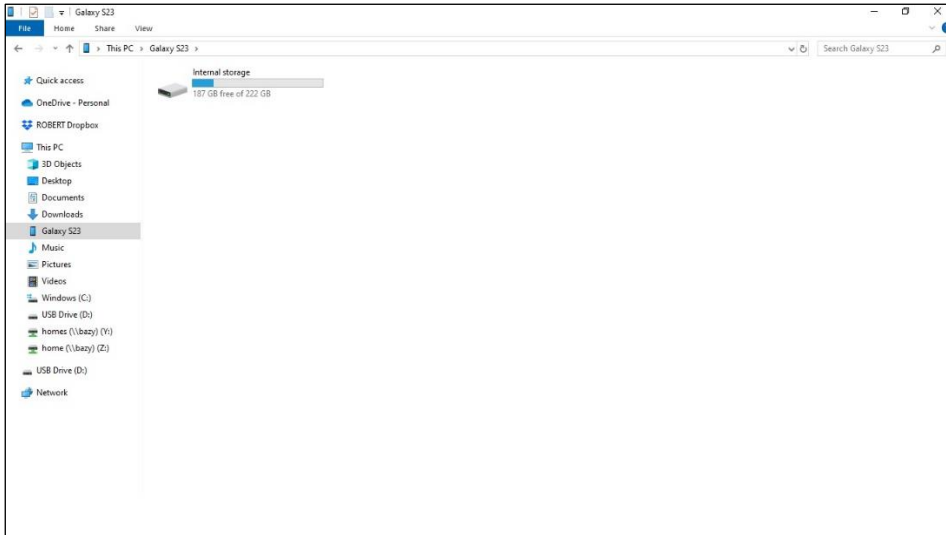
4. Open the icon named "Internal storage" of the smartphone.
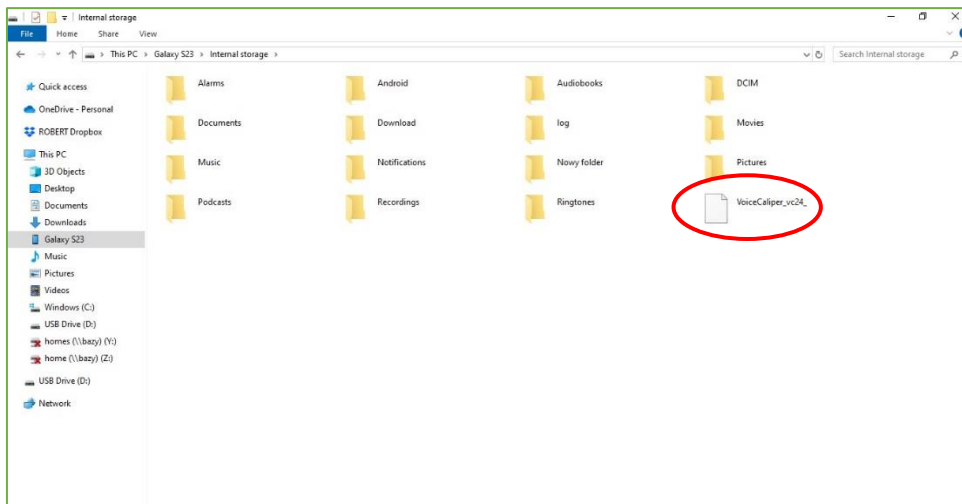
5. In the folder "Internal storage" paste the installation file of VoiceCaliper application. Close the folder and disconnect the smartphone from the computer. The next steps are performed on the smartphone.
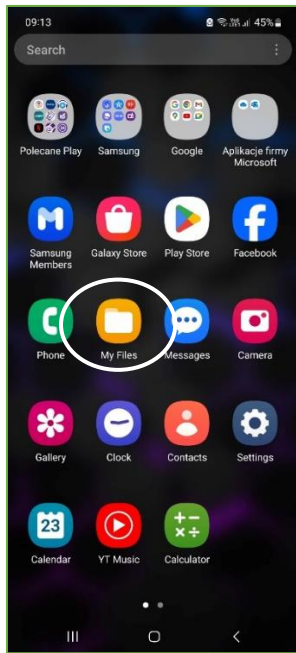
6. Find the "My Files" icon in the smartphone menu and open it.
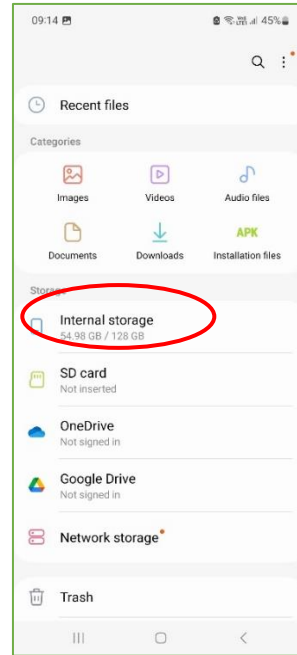
7. Select the "Internal storage" tab.
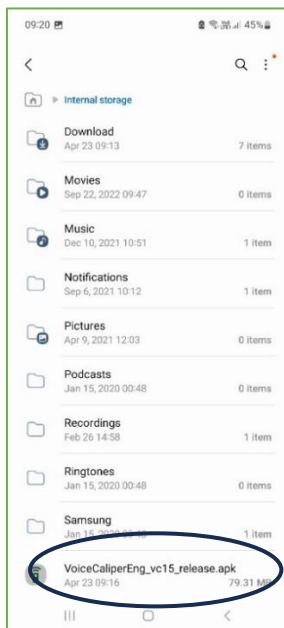
8. Search and click „Voice Caliper".
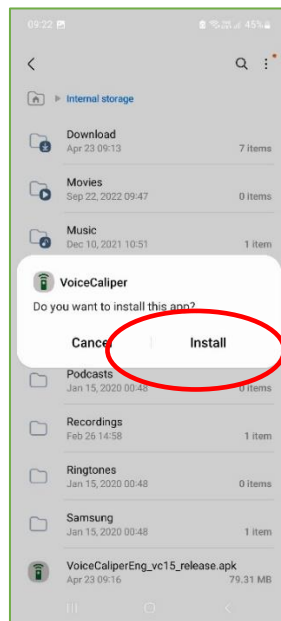
9. Click "Install".
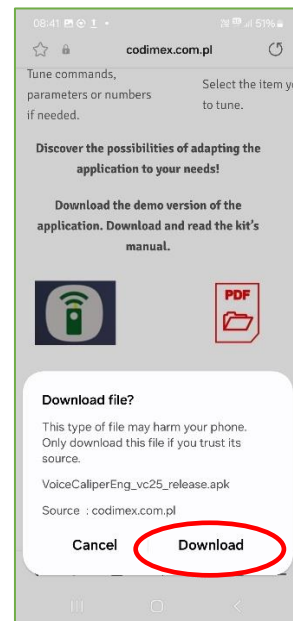
10. The demo version of the application can also be downloaded to your smartphone from the Codimex website. Since the application does not come from the Play Store, a security message about an unknown threat may appear. Click "Download".
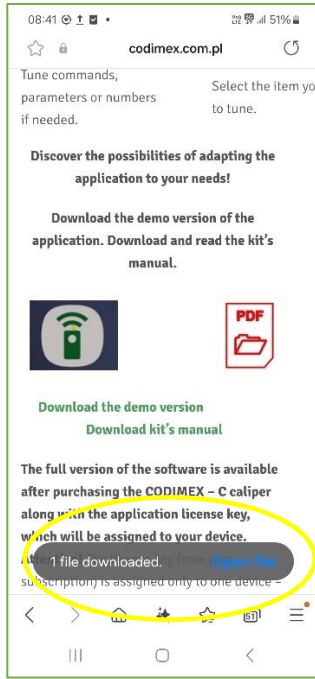
11. The file has been downloaded, you can open it and install it.
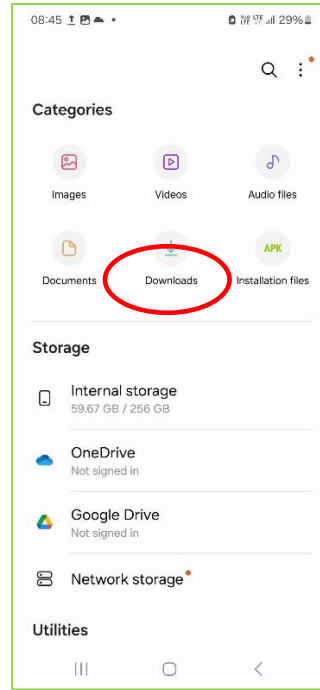
12. If you do not install the file immediately after downloading, you will find it in the "Downloads" folder.
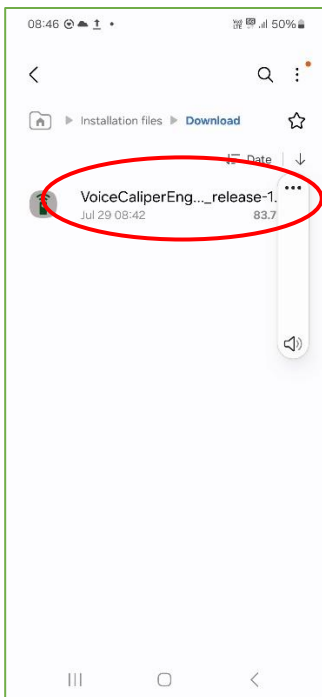
13. From this location you can install the file on your smartphone.
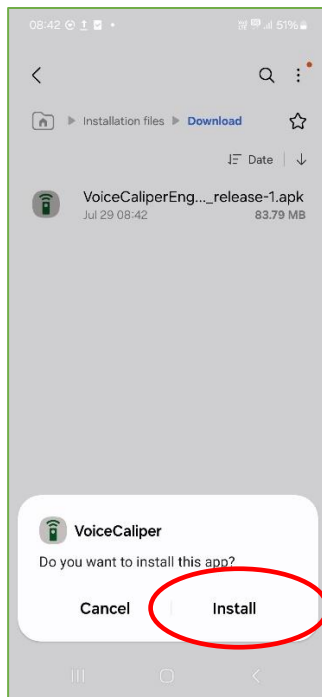
14.Installation of the application from internal memory or downloaded from the website is the same. Click "Install".
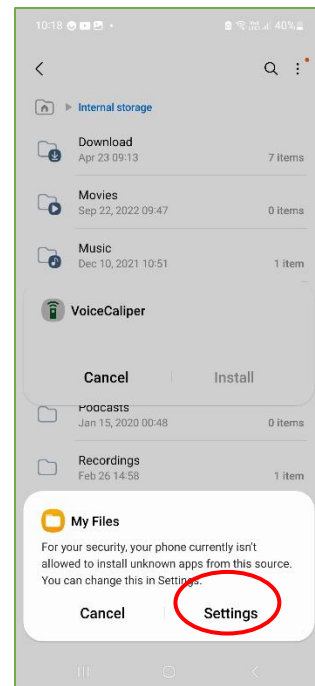
15. Since the application is not from the Play Store you may get a security message about the unknown source of the application. Click "Settings".
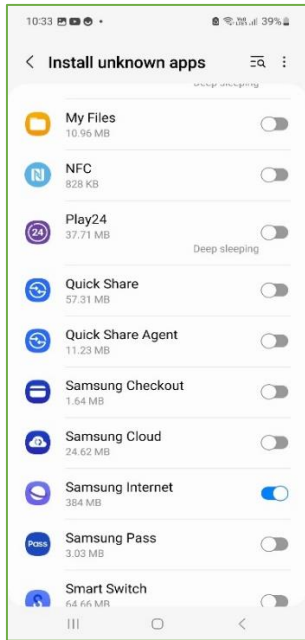
16. Allow to install the application.
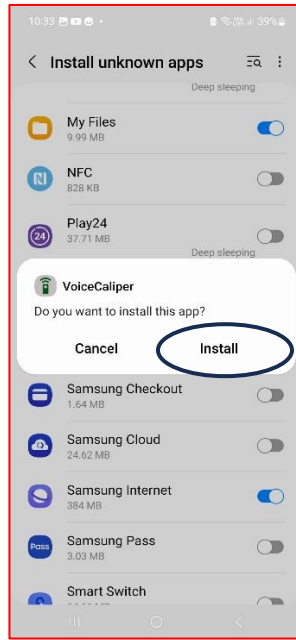
17. Click "Install".
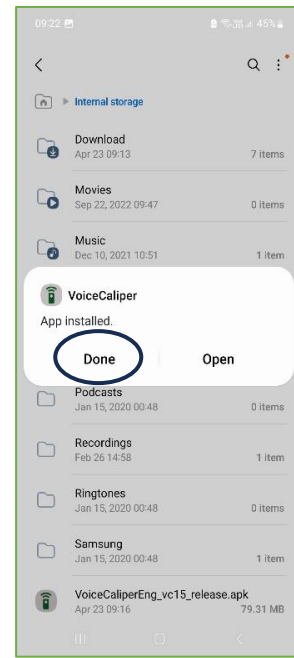
18. Application is installed. Click "Done".

After installing the application, go to the main menu of the smartphone.

4.2 Getting started with VoiceCaliper app

1. Search for the VoiceCaliper application icon in the smartphone menu.
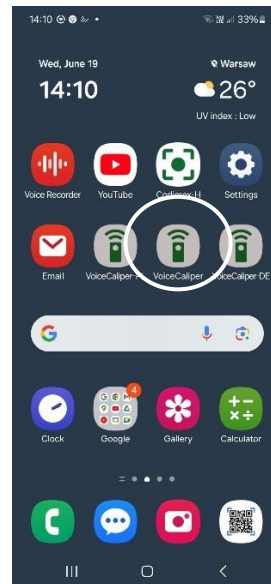
2. It is recommended to move the VoiceCaliper application to the start screen to facilitate quick access to it. Click on the icon to open the application.

4.2.1. User registration_____
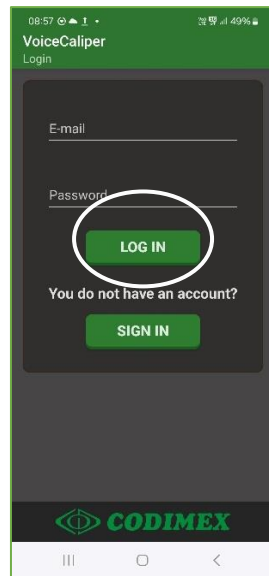
1. Click "SIGN IN".
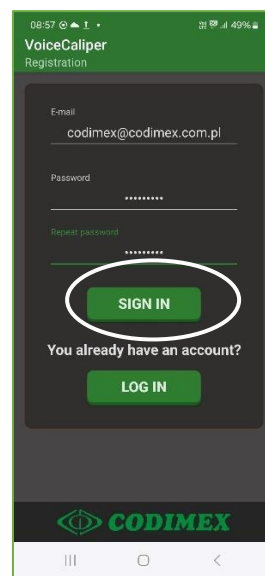
2. Enter your email address and create password, repeat the password and click "SIGN IN".
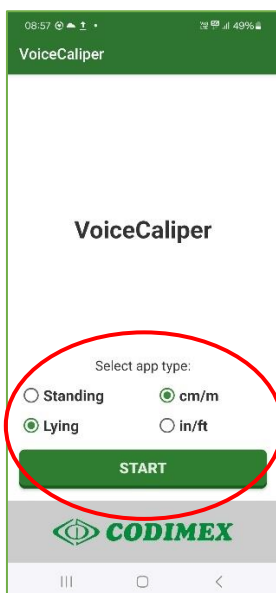
3. Select easurement of a standing or lying tree and cm/m or in/ft and click "START".
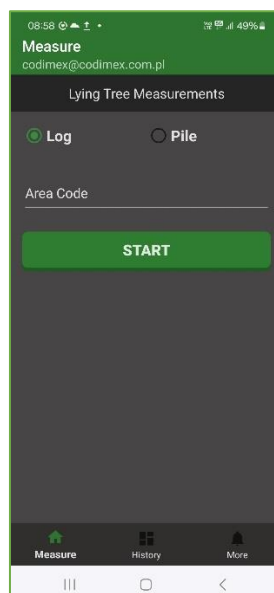
4. Your email address has been registered.
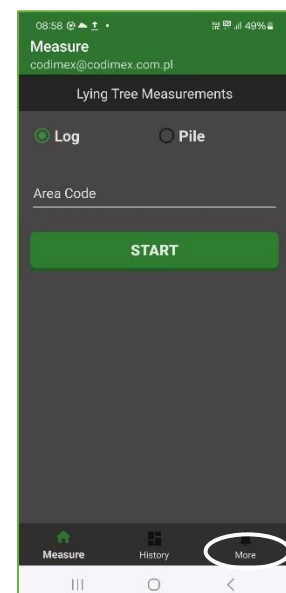
5. In order to use the annual subscription click "More"
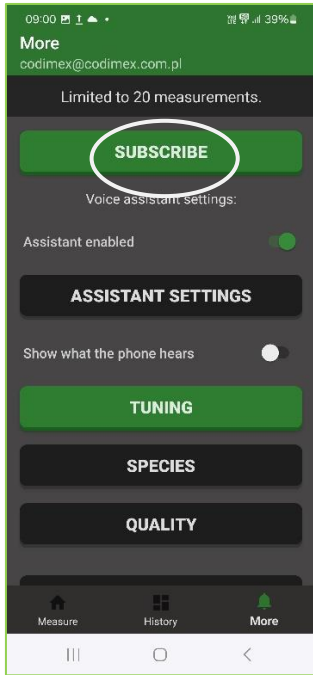
6. Click "SUBSCRIBE".
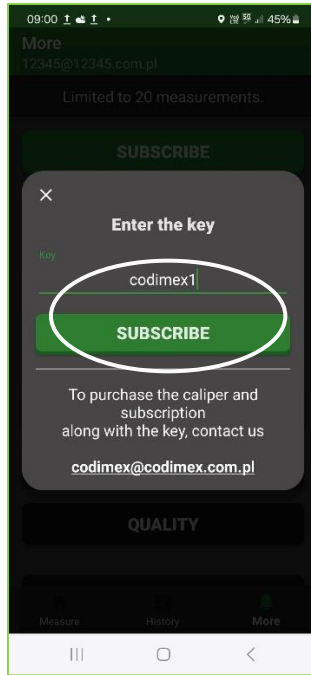
7. Enter the product key and Click "SUBSCRIBE".
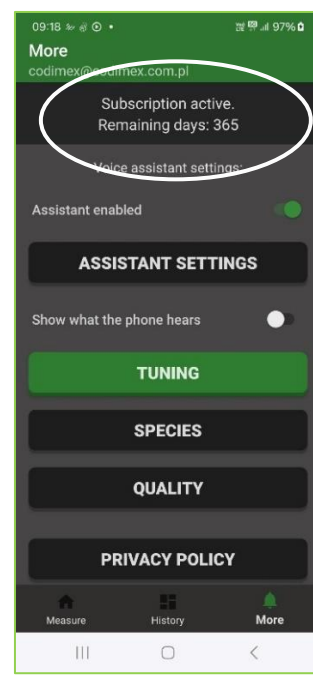
8. You have an active subscription.

IMPORTANT! The subscription is only for one device and one installation! To purchase the Codimex - C caliper with the VoiceCaliper application contact the Sales Department codimex@codimex.com.pl .

4.2.2 Preparing for measurements
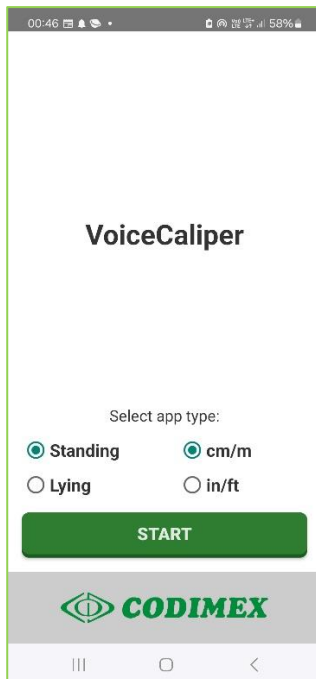
1. Enter the start screen of the application and select standing or lying tree and scale. Click "START"
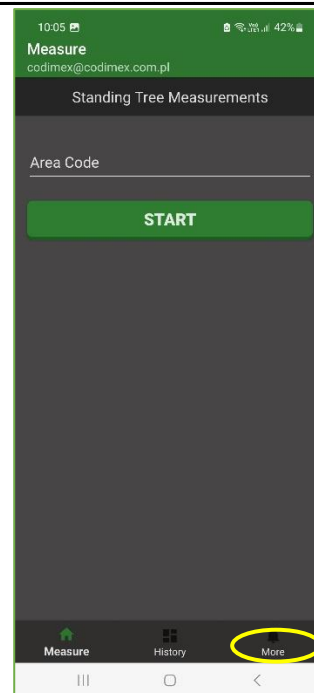
2. In the lower right corner of the "Measure" screen click "More".

15
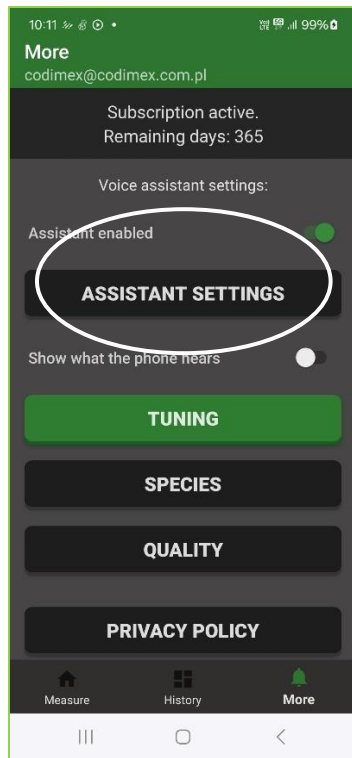
3. On the "More" screen, check the "ASYSTENT SETTINGS".
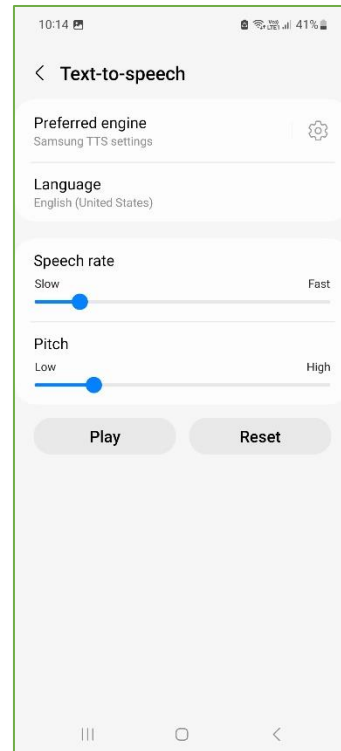
4. Select the speech synthesizer mechanism and the language.

Before starting the measurement, place the smartphone in a special holder mounted on the CODIMEX – C caliper. It is not recommended to place the smartphone in the wristband (case), due to the associated limitations of acoustic perception of the smartphone microphone.

If you have not yet mounted the special holder on your CODIMEX - C caliper, do it now.

See the mounting instruction on page 7.

5. Measurements

5.1 Standing tree
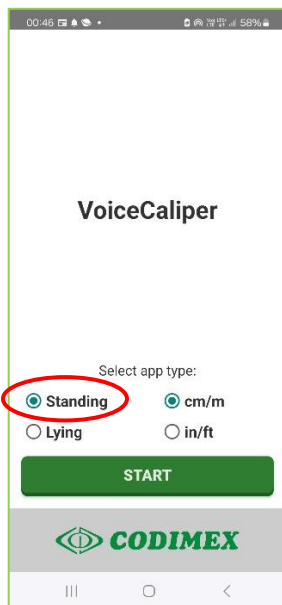
1. On the start screen, select the type of measurement – "Standing" tree.
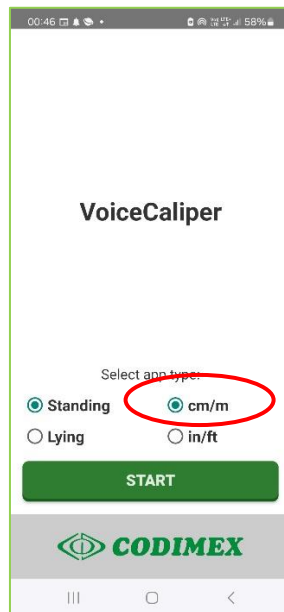
2. Select unit of measure in "cm/m" and click "START".
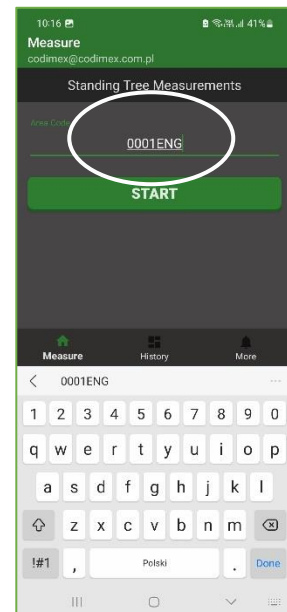
3. Enter a new forest address or select one of the existing ones and click "START".
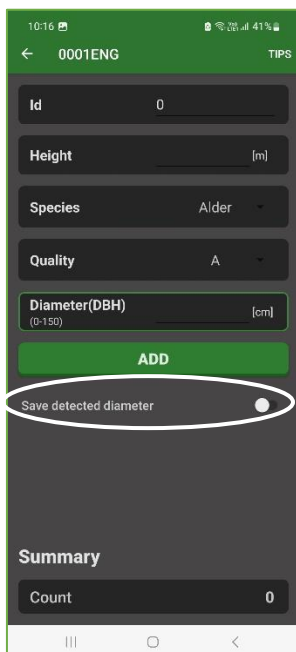
4. Select "Save detected diameter".
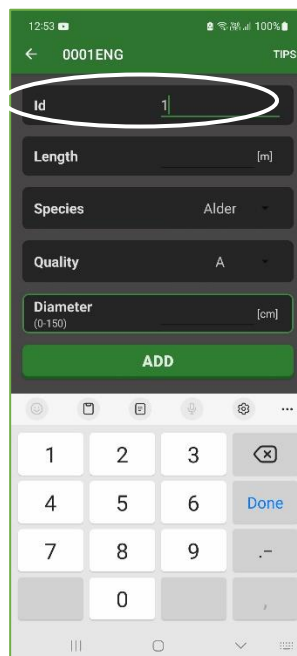
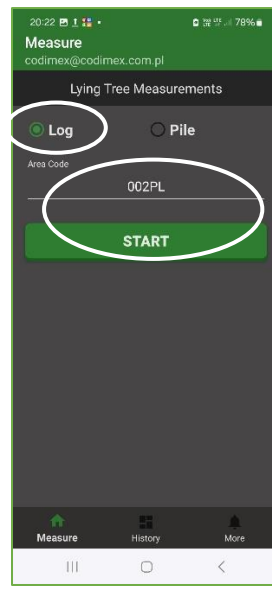5. Accept or manually enter the correct Id sequence number.
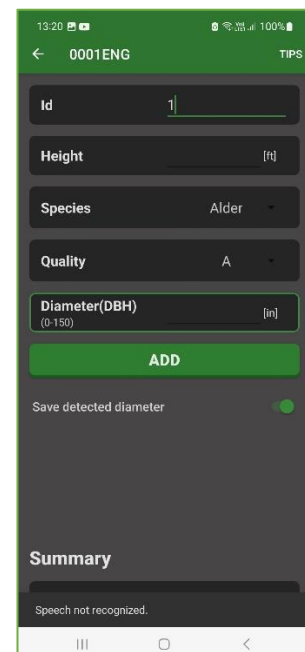
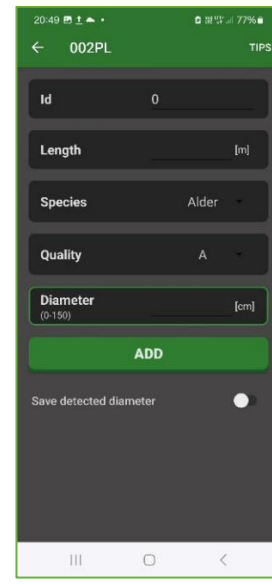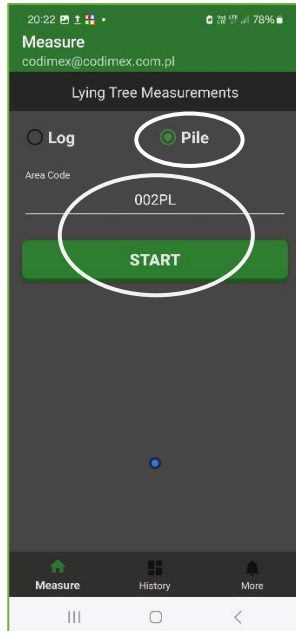6. You are ready to enter parameters. The starting parameters are displayed.

17
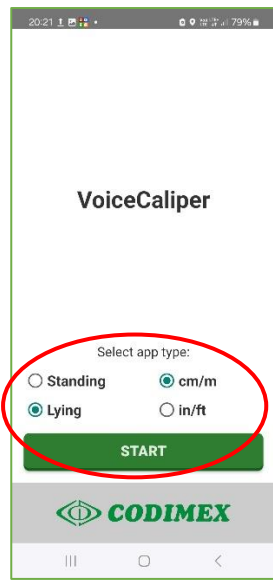
5.2 Lying tree_____

1. On the start screen, select the type of measurement – "Lying" tree, scale "cm/m" and click "START".

2. Select the „Log" and enter a new forest address or select one of the existing ones and click "START".
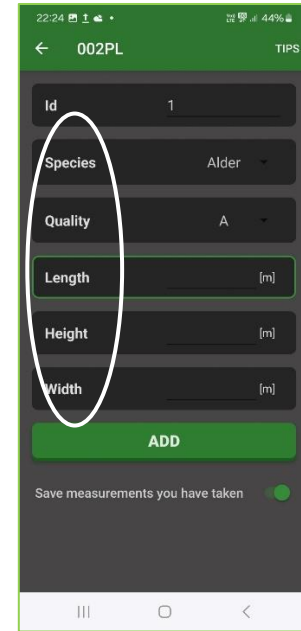

3. Continue as in the case of measuring a standing tree.

4. For pile measurement select „Pile" and enter a new forest address or select one of the existing ones and click "START".
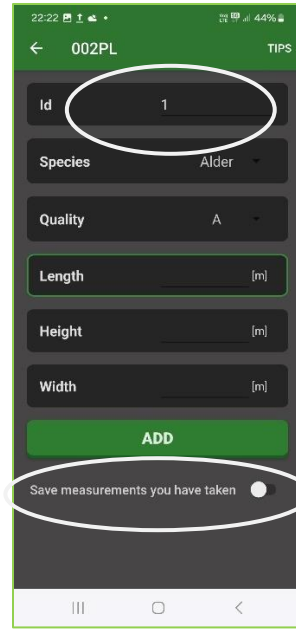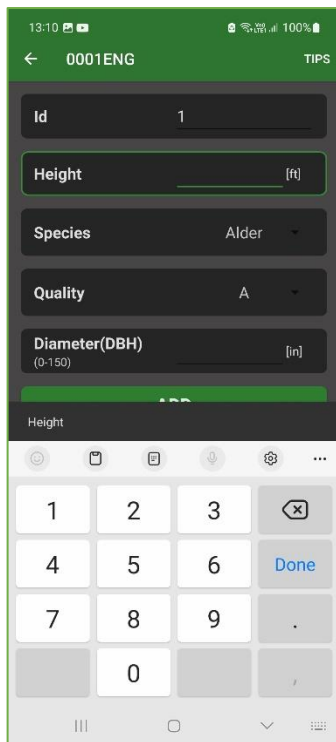

5. Accept or manually enter the correct sequence number id. Click "save measurements you have taken".

6. You are ready to enter parameters. After entering the parameters, enter the dimensions of the pile. After entering the last dimension, an automatic save takes place

18

5.3. Entering parameters

1. On the measurement screen, click on the "Height". A keyboard will appear. Enter the height of the tree. Similarly, for a lying tree measurement, enter the "Length" of the tree.
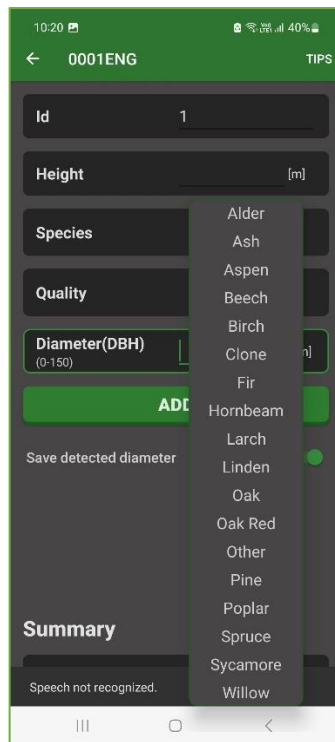
2. Click the tree species visible on the screen. The list with available tree species will appear. Select the desired one from the list. The selected will appear on the measurement screen.
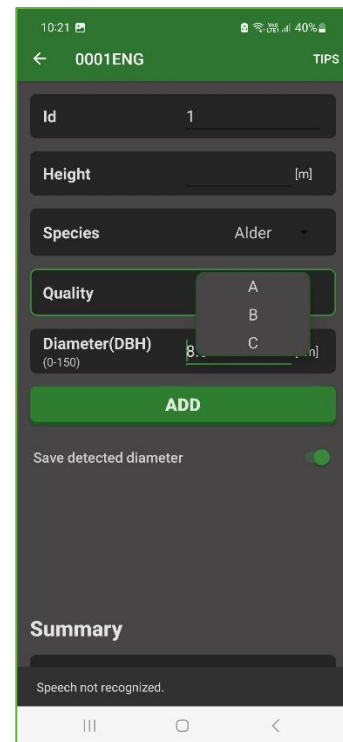
3. On the measurement screen, click on the Quality. List with available quality indexes will appear. Select the desired one from the list. The selected one will appear on the measurement screen

---

The entered parameters will be repeated as default values before the next measurement. Parameter change can be done in voice mode or in manual mode by using the keyboard or selecting from the list of available species and quality indexes
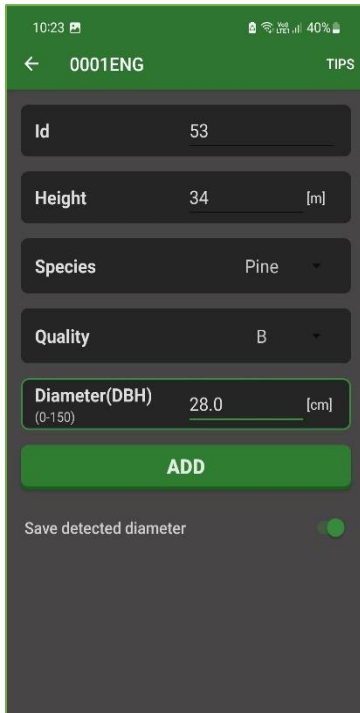
In case of strong acoustic interference, it is recommended to use manual mode.

If the desired species or quality indexes are not available, add a new one according to the procedure described in Chapter 6 **Adding and Removing Species**, p. 23 or in Chapter 7 **Adding and Removing Quality Index**, p. 25.

You can also enter the initial parameters in voice mode. See **Changing the parameters during measurement** on page 21.

5.4. Voice recording of measurements

U (**User**)

He measures the diameter of the tree and reads the result out loud:

- Twenty eight

VA (Virtual **Voice Assistant** of the VoiceCaliper app)

She confirms by saying:

- Pine, twenty eight point zero, saved,

where twenty eight means the diameter 28 cm.

NOTES

1. Give the result of the tree diameter measurement taken with the caliper as a whole number or accurate to the tenth.

2. If you need to cancel the measurement (due to wrong reading on the caliper or wrong confirmation by the voice assistant, say **Delete** or **Cancel** and the voice assistant will confirm: Cancelled successfully. The wrong measurement will disappear from the measurement screen of the smartphone. Repeat the correct result, which will be confirmed by the app's voice assistant.

3. If there is no confirmation or "Speech not recognized" message, repeat the result/parameter again.

4. When talking to the app's voice assistant, speak slowly and clearly.

5. The VoiceCaliper application recognizes commands, species, quality indexes and, most importantly, numbers, which you will find when you click the "TUNING" bar on the "More" screen.

6. If you want to add or remove a species or quality index read the Chapter 6 **Adding and Removing Species** and Chapter 7 **Adding and Removing Quality Index**

7. If you want to use synonyms – read the Chapter 8 - **Tuning**.

8. Tuning allows you to assign individual elements of a set of commands, names and numbers to any phrase recognized by the program's voice engine.

9. If you want to record measurement results in the traditional way by using the keyboard click the "Diameter" on the measurement screen and enter the result using the keyboard.

5.5. Changing the parameters during measurement

The parameters entered before starting the measurement are displayed on the screen as default values each time. See an example of changing parameters.

Previous measurement	Current measurement
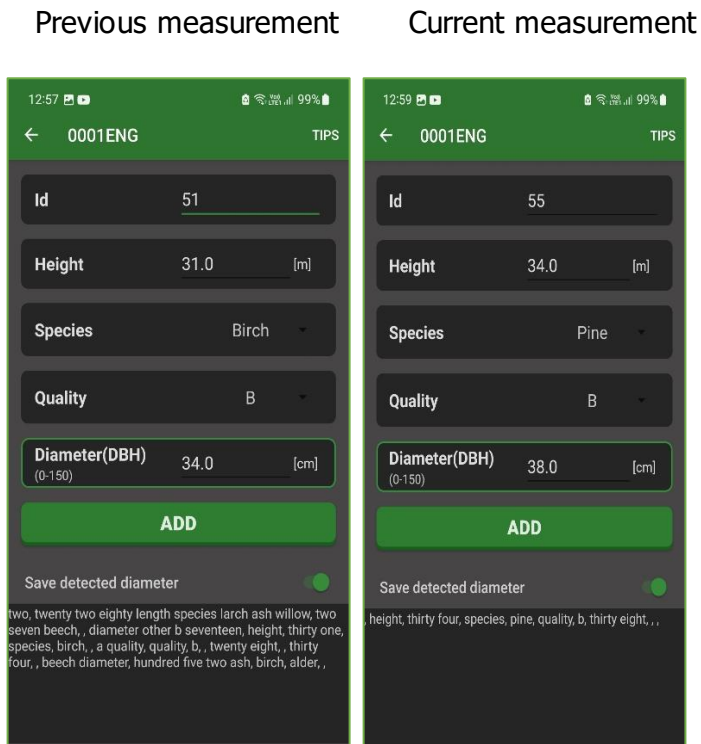
Height change - standing tree.
Can be performed in voice mode.
U (User):
- Height
VA (Voice Assistant) confirms:
- Height
U: - Thirty four
VA: - Thirty four
Height 34.0 will be displayed on the screen. If you don't want to record height, say **next**.
The change of length is carried out similarly for the lying tree.

Change of species.
Can be performed in voice mode.
U: - Species
VA: - Species
U: - Pine
VA: - Pine
"Pine" will be displayed on the screen.

Measurement.
The user reads the result of diameter measurement from the caliper:
- Thirty eight
VA confirms: Pine, thirty eight point zero, saved.
The number "38.0" will be displayed on the screen.

A record of the user's voice commands to the Voice Assistant is displayed at the bottom of the measurement screen.
We recommend to change the quality index manually according to the procedure shown on the page 19 (Entering parameters).

If the system repeatedly fails to recognize any of your spoken words (no confirmation from the voice assistant and the need to repeat it), perform tuning of this item. Read the Tuning section, page 27.

5.6. Overview of results
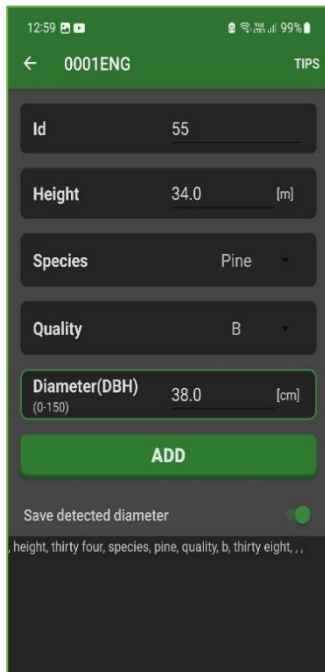
1. Exit the measurement screen
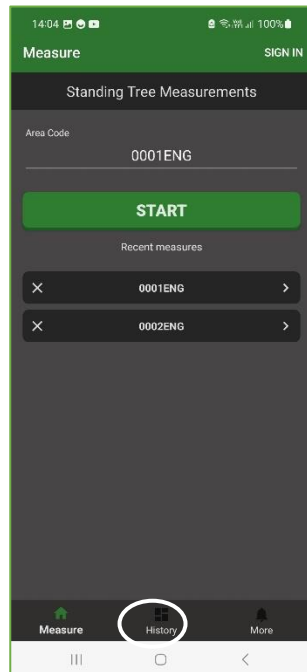
2. On the bottom of the screen click "History".

3. Select the address of the document you want to review
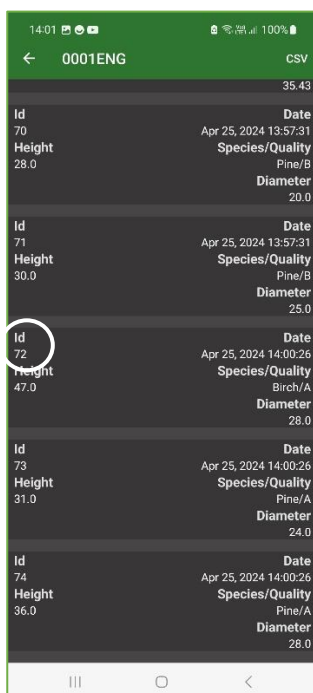
4. A list of measurements will appear. Click the measurement you want to delete or update.
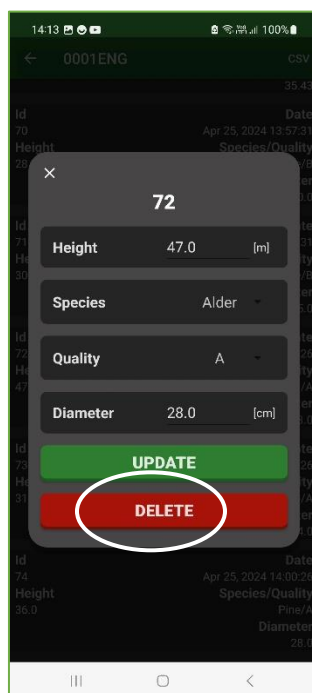
5. The data of this measurement will be displayed. Click e.g. "DELETE".
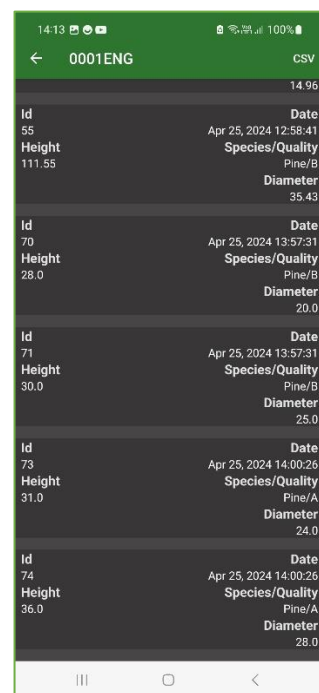
6. The measurement was removed from list of measurements.

6. Adding and removing species
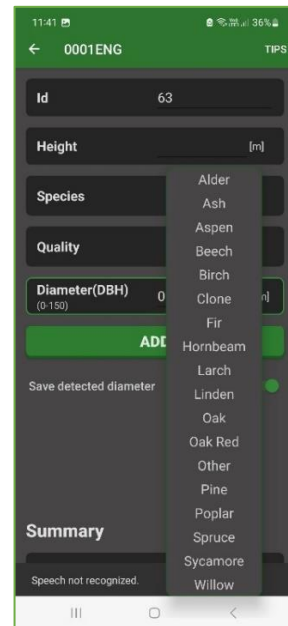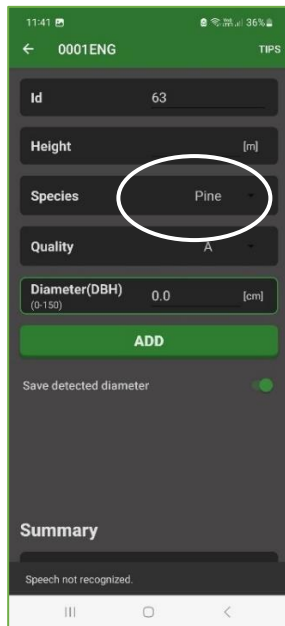
1. To see the list of available species enter the measurement screen and click the displayed tree species.

2. The list of available species will appear.

If the species you need is not on the list or there are species you would like to delete, the list can be modified to suit your needs.
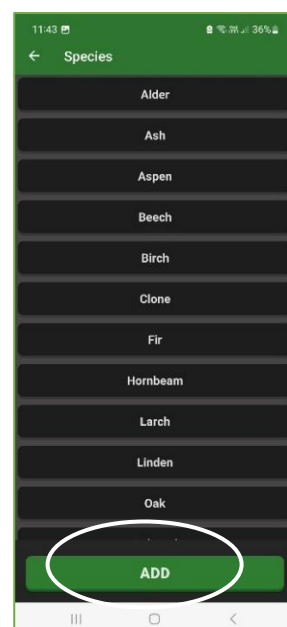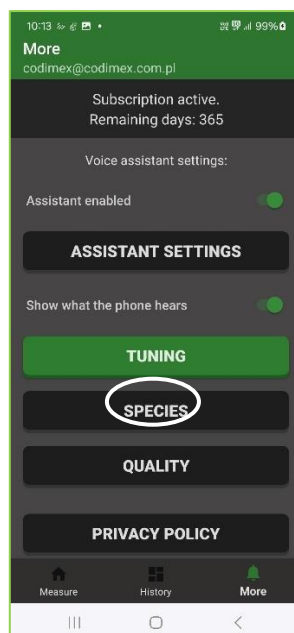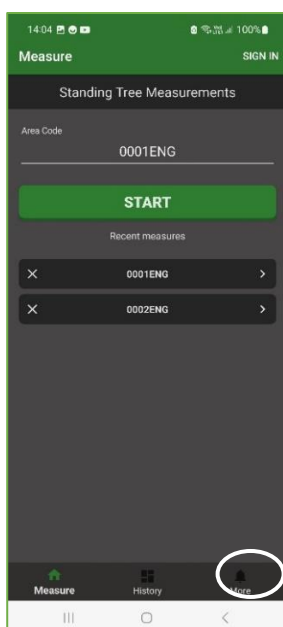
3. To add or remove species, press "More" in the lower right corner of the "Measure" screen.

4. Select "SPIECIES"

5. Click "ADD"
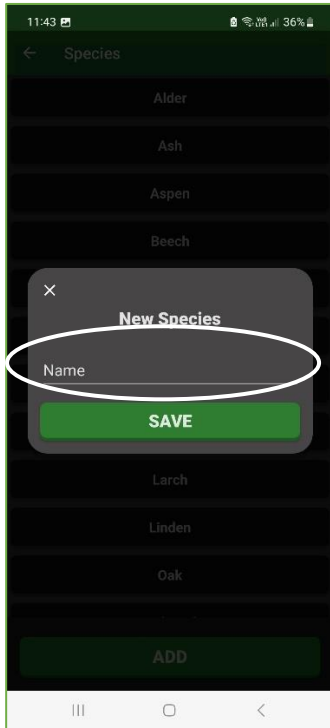
6. A new screen will appear. Click on the "Name".
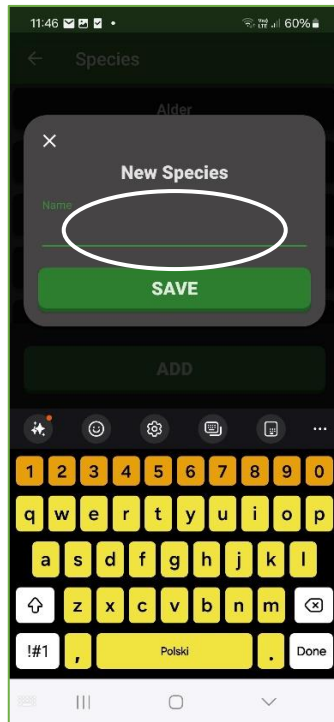
7. The keyboard will appear. Add species you would like to have on the list.
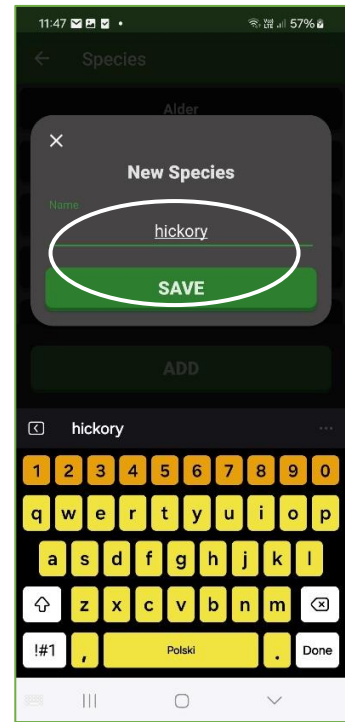
8. Click "SAVE"
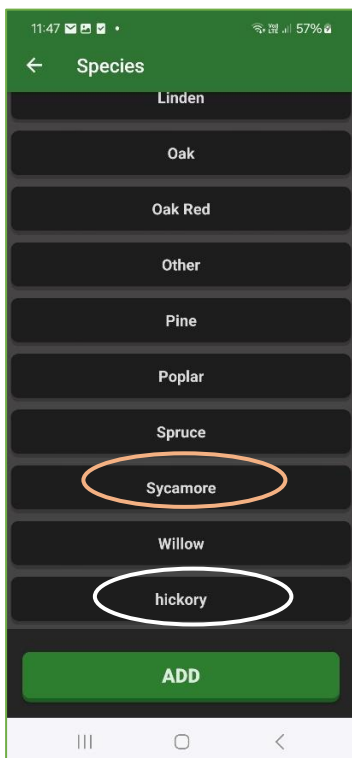
9. Added species will appear on the list.
10. Click the species you want to delete.
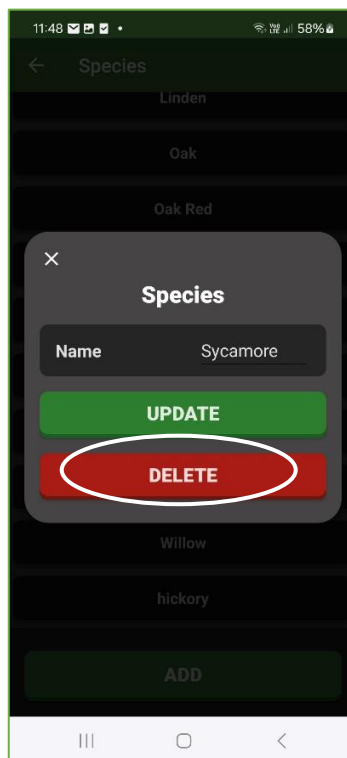
10. Click "DELETE".
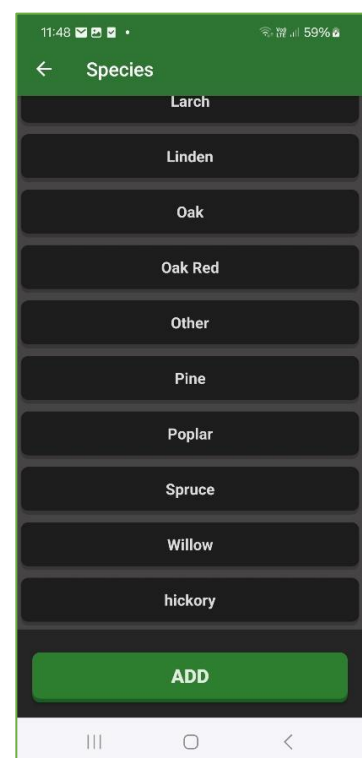
11. The species has been removed from the list of available species.

7. Adding and removing quality index
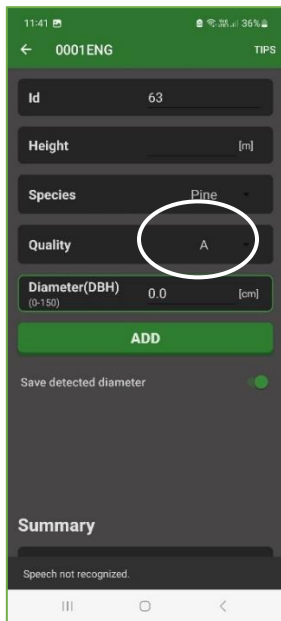
1. To see the list of available quality indexes enter the measurement screen and click on the displayed quality index.
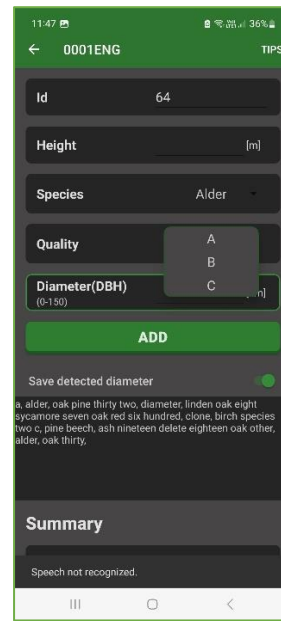
2. A list of available Quality indexes will be expanded.

If the list does not include the Quality index you need, or there are records you would like to delete, the list can be modified to suit your needs.
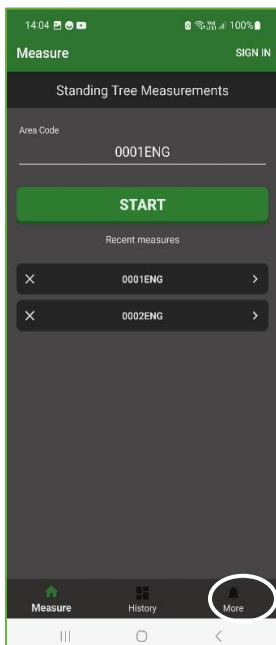
3. To add or remove a Quality index click "More" in the lower right corner of the "Measure"screen.
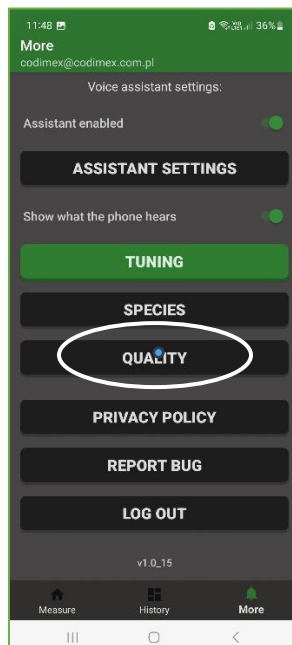
4. Click "QUALITY"
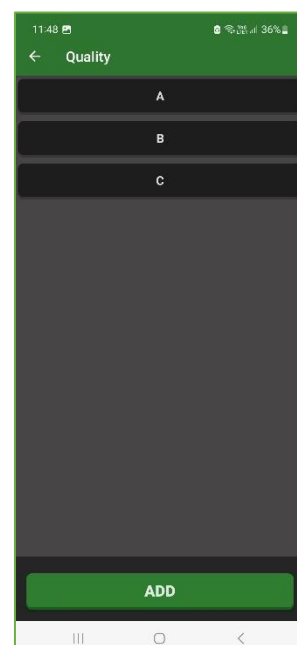
5. Click "ADD"
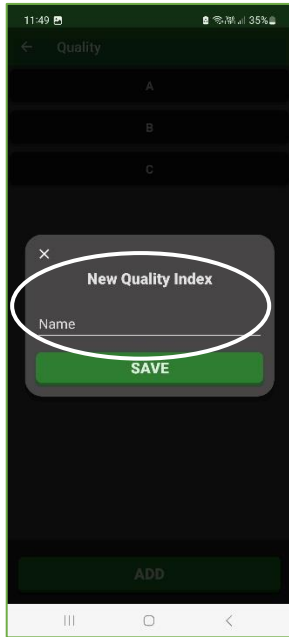
6. A new screen will appear.
Click on the Name field.
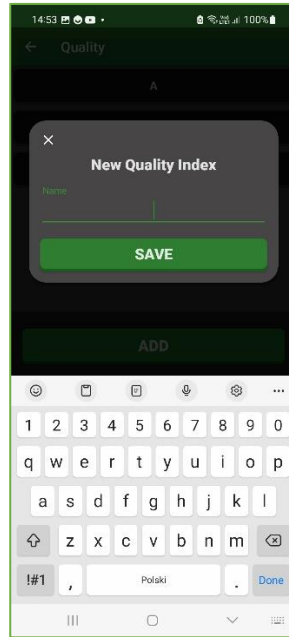
7. Add a new Quality Index
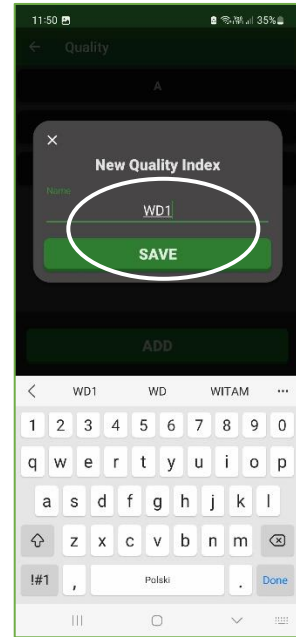
8. Click "SAVE"
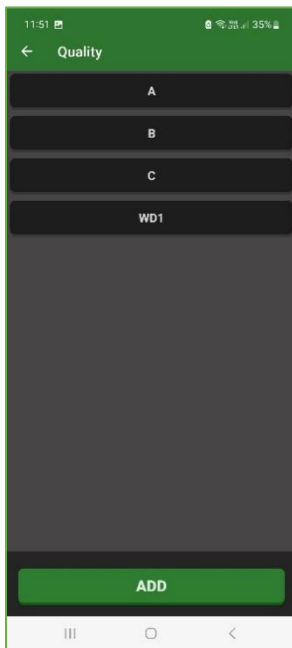
9. The added quality index
will appear on the list.
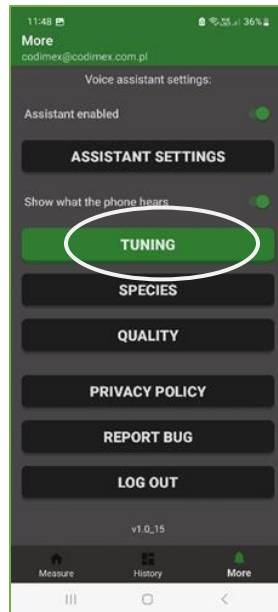10. Click the quality index
you want to delete.
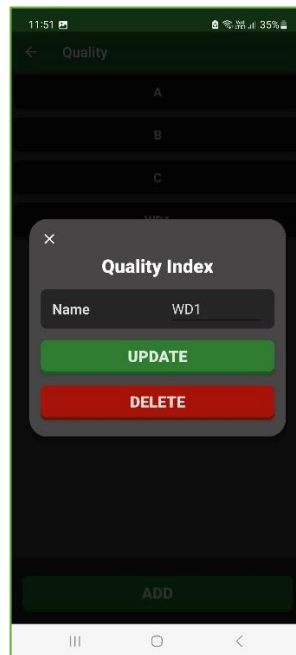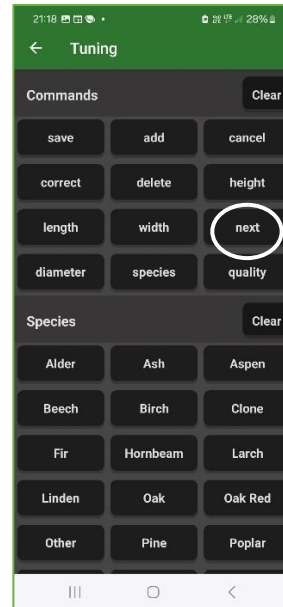

10. Click "DELETE"
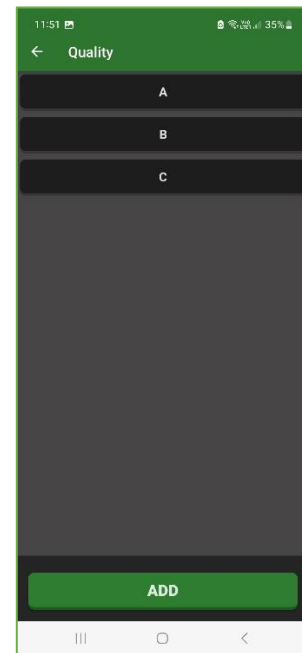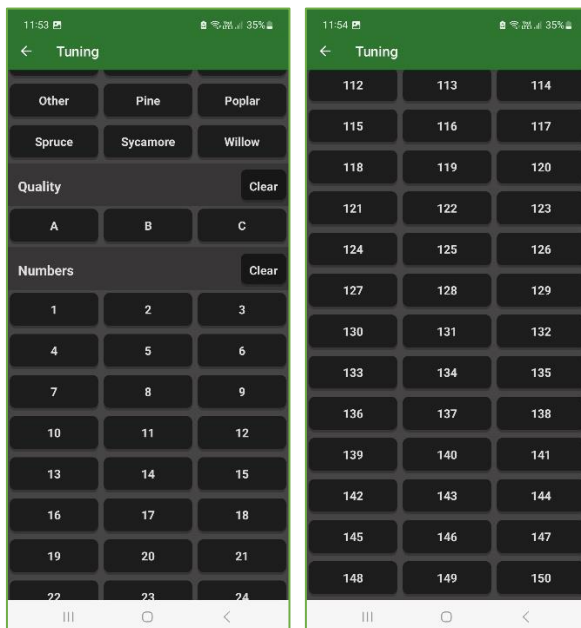

11. Quality index has been

removed.

8. Tuning

To ensure that the mobile application is fully effective, it has been equipped with a system of tuning. You can tune: commands, species names, quality indexes and numbers in the range of 0-400 .
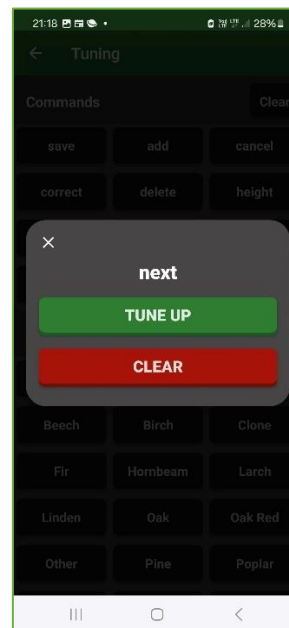

1. On the "More" screen, enter "TUNING"

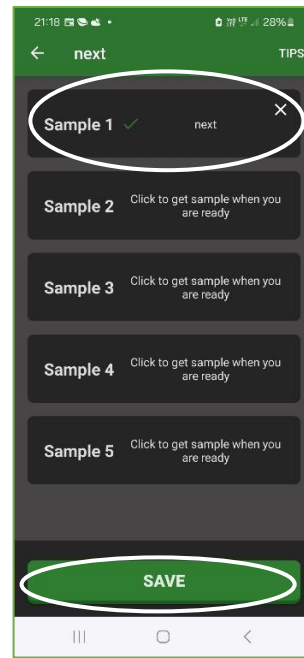2. Four blocks of data for tuning will be displayed: Commands, Species, Quality, Numbers.

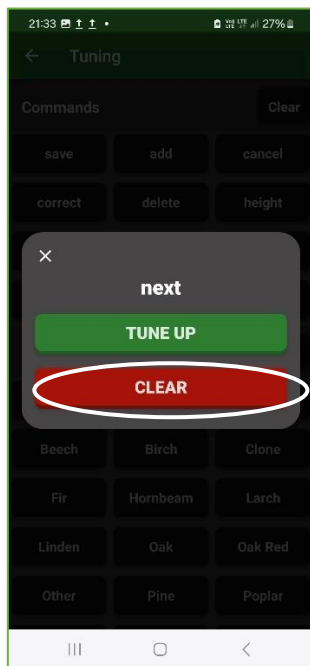3. To view the full contents of the screen, scroll down the screen to the number 400.

4. Example tuning of the **next** command. Click the "next" icon (Fig.2) and then "TUNE UP" on the tuning menu screen.
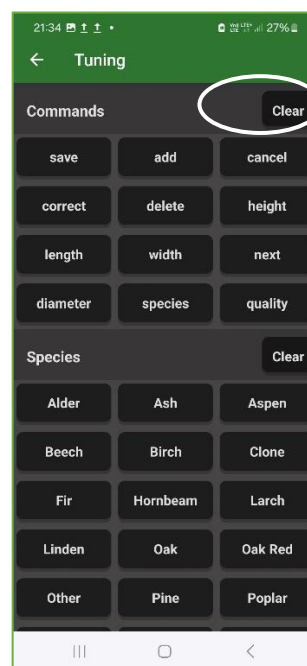
5.Click "Sample 1" (or the next one) and say **next** when the green activity bar moves.

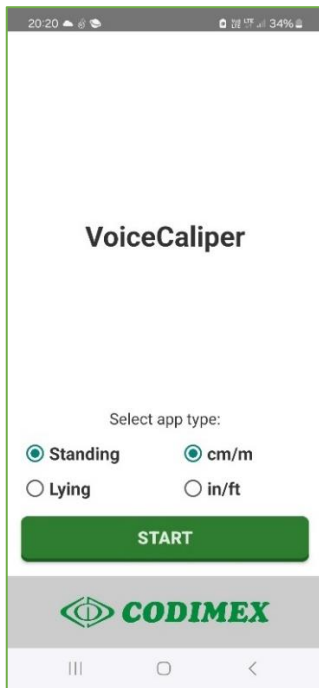6. The "Sample 1" bar will show the system's associated meaning of the spoken phrase. Click" SAVE".
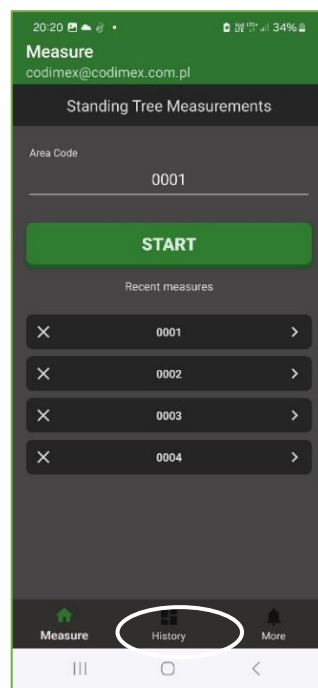

7. To delete a single tuning, click "CLEAR".

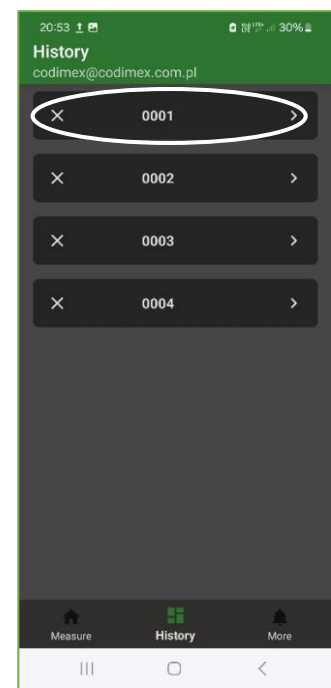8. To delete all tunings in a given block, press "Clear" on the right side above the given block.
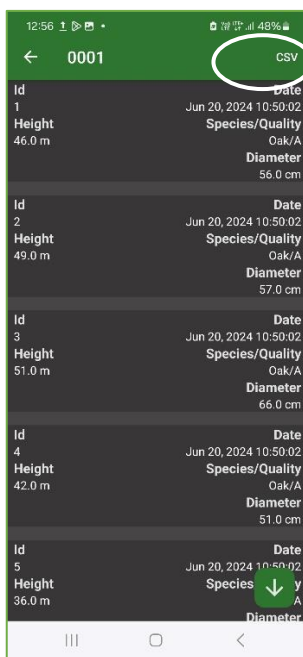
9. Data export
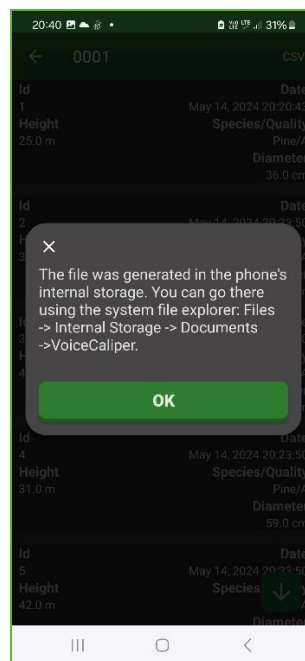

1. On the start screen, click "START.
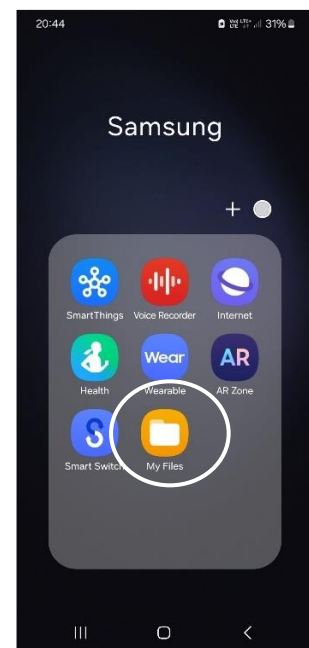

2. On the bottom bar, click "History".
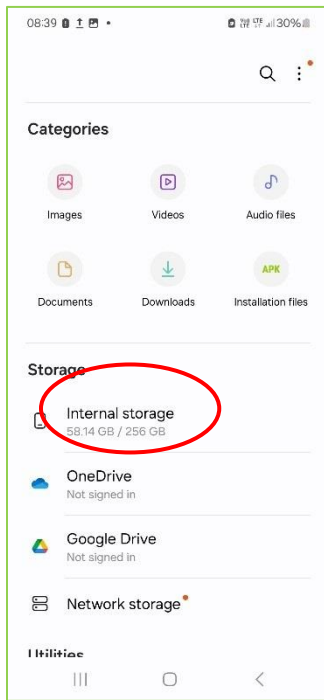

3. Select a document

4. A list of measurements will appear. Click the "CSV" at the top right.
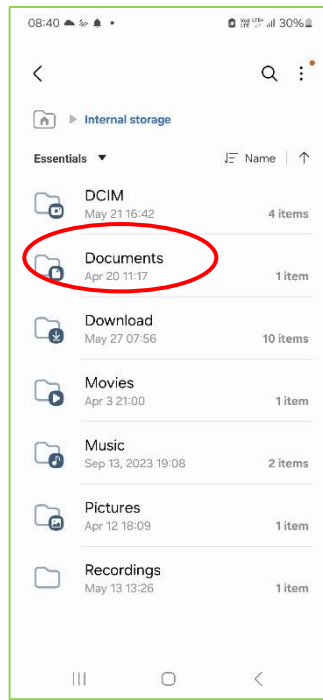

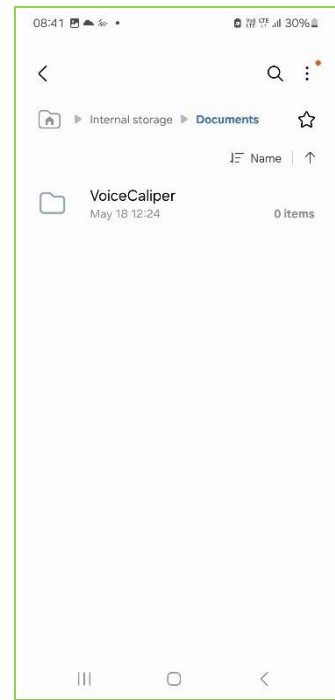5. A message will be displayed

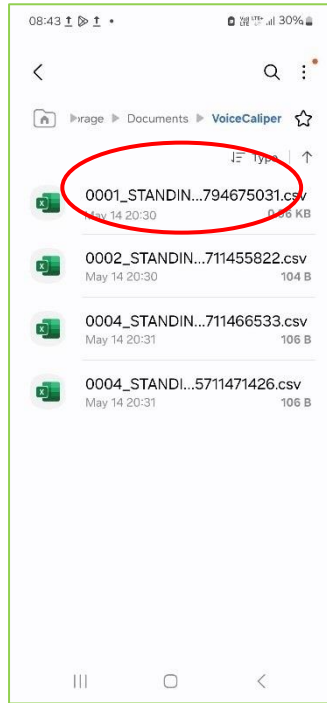6. Find the "My Files" icon and click.

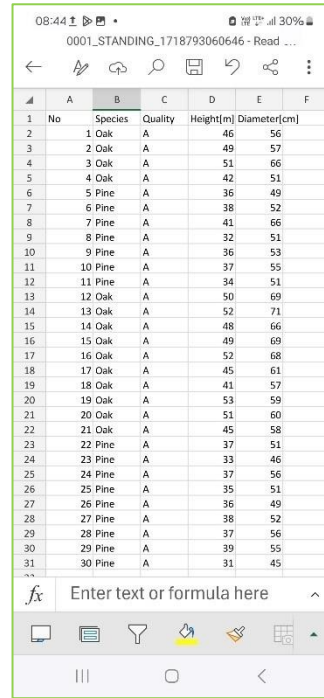7. Select "Internal storage".

8. Select "Documents".

9. Click "VoiceCaliper".

10. Locate the generated file on the screen and click on it.

11. An Excel sheet with the measurement results will appear. You can transfer it to your computer.

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10. Concluding comments

The VOICE CALIPER set is a new solution from CODIMEX. It allows recording the results of tree diameter measurement in the simplest way - by the voice commands. Measurements are performed with a manual caliper, which, compared to the use of an electronic caliper, perfectly reduces the cost of equipping the user with measuring equipment. At the same time, the set allows for quick electronic recording of measurement data and parameters, as well as their processing and transmission.