WoodID

USER MANUAL

CONTENT

01. GENERAL INTRODUCTION

WoodID is an application powered by state-of-the-art Artificial Intelligence (AI) and deep learning technology, designed to identify wood species with high accuracy. The application is specifically developed for:

- Forestry and customs sectors
- Wood processing
- Wood inspection and research organization

WoodID can identify approximately 260 wood species commonly imported into Vietnam and provides detailed information on each within its database (library). WoodID's key features include:

1. **Rapid Identification with Deep Learning:** WoodID applies modern AI algorithms to accurately identify wood species from a magnified image of the wood's cross-section (at 50x to 60x magnification). By using a clear photo taken with a smartphone camera paired with a digital microscope or a macro lens, users can quickly determine the species and access related information.
2. **Comprehensive Library of 260 Wood Species:** The application features a comprehensive library with high-quality images and detailed information on 260 wood species common in Vietnam and international markets. Each entry includes useful data such as scientific name, origin, hardness, density, and common applications, along with distinguishing visual features like color, grain, and characteristic anatomical structure.
3. **Identification History:** The application save the history of all identifications in three recent days, allowing users to easily review past results for reporting and statistical analysis.
4. **Identification Guide and Wood Anatomy Basics:** To help users better understand wood structure, WoodID includes a basic guide that visually and simply explains key anatomical concepts such as growth rings, wood rays, vessels (pores), sapwood, and heartwood. This knowledge helps improve the user's ability to effectively identify and differentiate between wood species.
5. **Intuitive, User-Friendly, and Multilingual Interface:** The application is designed with a simple, intuitive interface, making it easy to use even for those with limited technical expertise. All features are clearly arranged and easy to navigate. WoodID supports multiple languages (currently Vietnamese and English), ensuring accessibility and effective use for both local and international users.

02. INSTALLATION & DEVICE REQUIREMENTS

2.1. Download and Installation

1. **iOS:** Search for "WoodID" on the App Store or use the following link: link (https://apps.apple.com/vn/app/woodid-app/id6504000600).
2. **Android:** Search for "WoodID" on the Google Play Store or use the following link (If it does not appear, you can also search for “WoodID Nguyen Trong Khanh”: link (https://play.google.com/store/apps/details?id=com.aitc.woodid).

Download on the App Store

GET IT ON Google Play

2.2. System and Hardware Requirement

• **Android Phone:** Minimum 4GB RAM with GPU support; requires Android 11 or later.
• **Iphone:** liPhone 8 or newer; requires iOS 14.0 or later. Also compatible with iPad. The mobile device must have a rear-facing camera and a minimum of 500MB of available storage for smooth installation and performance.
• **External Devices for Image Capture:**

Dinolite Premier series digital microscopes (for best accuracy), such as the AM4113 R4 or AM4115ZT R9.

For **Android**, these devices can be connected directly via a USB-C port. Users will need a USB to USB-C adapter.

For **iPhone**, connecting to a Dinolite microscope requires the Dino-lite WF-10 Wi-Fi streamer.

Handheld digital microscopes that support 50x – 60x magnification (providing comparable accuracy). Some models tested and compatible with WoodID include the Maxsee 50x–1600x Wireless Microscope (often sold as a "Skin Analyzer Scope") and the DM Wifi F210 50x–1000x Microscope.

External Clip-on Lens: Apexel 24x clip-on lens. Accuracy is lower, with a potential reduction of 5–10% depending on real-world conditions.

2.3. Initial Setup

After installation, you will need to grant the application certain permissions to enable its features, as detailed in the steps below.

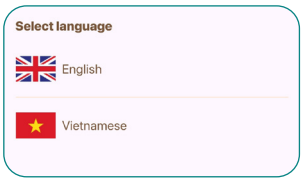
Step 1: Check for New Version

Upon launch, the app will automatically check for updates to ensure you always have the best experience with the latest features. (This function runs automatically every time the app is launched.)

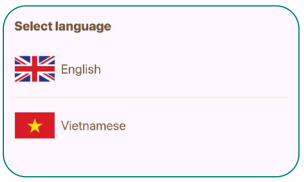
Step 2: Select Language

The application supports two languages: Vietnamese and English. Select your preferred language on the first screen after launching the app.

Android

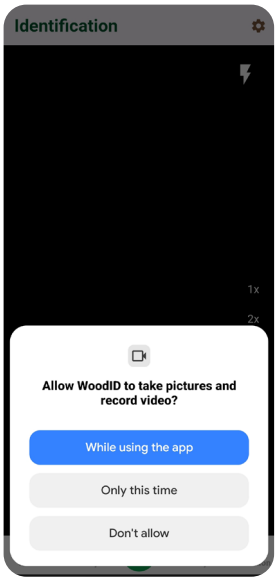


iOS

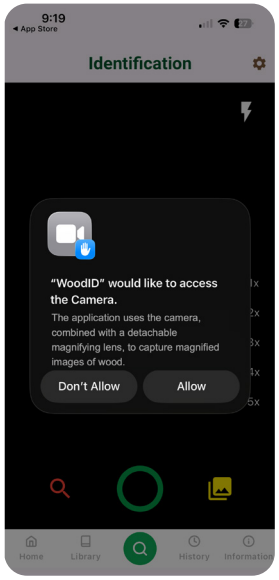


Step 3: Grant Camera Access

Android



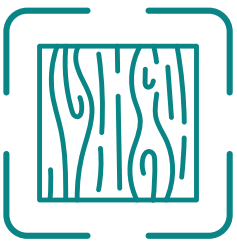
iOS



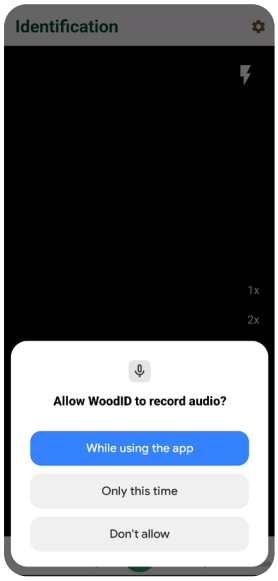
The WoodID app requires access to your device's camera to capture magnified wood images for species identification. When prompted, please select “Allow“ on the permission request pop-up.

Step 4: Grant Microphone Access

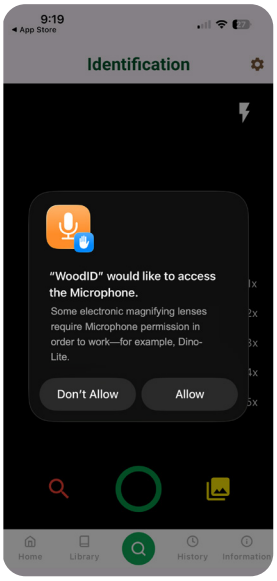
Some digital microscopes (such as Dino-lite) require microphone access to function. When the permission request screen appears, please select “Allow“ to continue.



Android



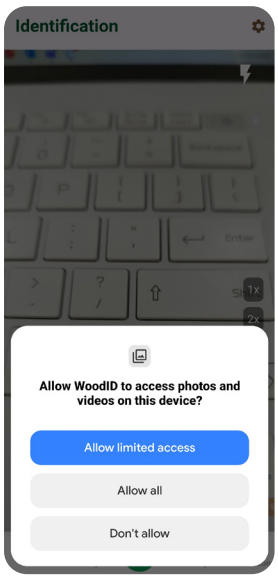
iOS



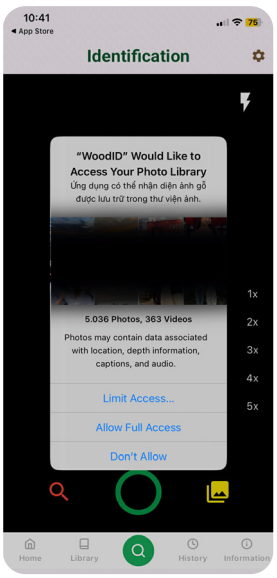
Step 5: Grant Photo Library Access

The app can identify wood species from images already stored on your device. When prompted for access to your Photo Library, please select "Allow Full Access" or the option that best suits your needs.

Android



iOS



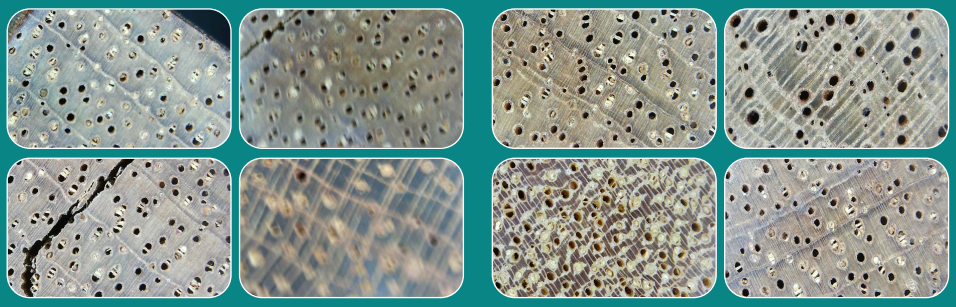
03. USER GUIDE

3.1. Wood Species Identification

3.1.1. Sample Preparation

- Cut or sand the cross-section of the wood sample to clearly see the growth rings, vessels (pores), and wood rays…
- The wood surface must be clean, and the anatomical features should be distinct and unobstructed. The sample must not be cracked, dirty, or wet.

Wood surface preparation



A properly prepared sample vs.an unsuitable sample

3.1.2. Connecting/Attaching Devices

Depending on the user's equipment, the application can be used to capture images and perform identification with several different configurations. The sections below guide you on how to connect/attach the device to your phone:

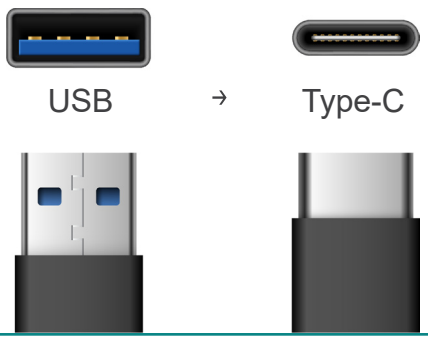
- Method 1: Connect to a Dinolite handheld digital microscope. This method was used to build the AI model and yields the best results. However, Dinolite microscopes are typically used in laboratory settings and are not widely available.
- Method 2: Connect to common handheld digital microscopes (e.g., MaxSee, DM Wifi F210). This method provides identification results nearly as accurate as Method 1 and is easier to set up.
- Method 3: Attach a clip-on macro lens (e.g., Apexel 12-24x). This method is compact and easy to use; however, the accuracy can be inconsistent.

3.1.2.1. Connect to Dinolite handheld electronic microscope

Direct Connection (Android Only)

Step 1: Attach Adapter USB into Type-C

Connect the Dino-Lite microscope to the USB to Type-C adapter.

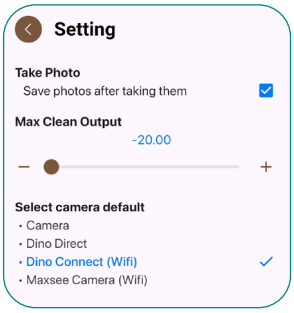


Step 2: Plug into Phone‘s Type-C

Plug the adapter into the Type-C port of your Android phone. Ensure the connection is secure.

Step 3: Set Camera in WoodID

Go to the "Identification" screen and tap the settings icon (gear symbol) in the top-right corner.
In the settings menu, find "Select Default Camera" and choose "Dino Direct".



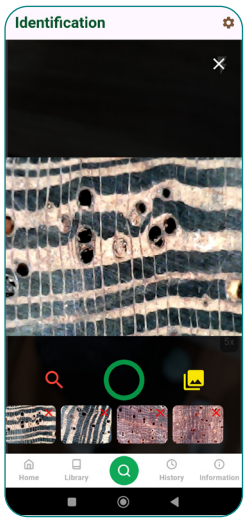
Step 4: Grant Permission

When the app requests camera access, select "Allow."
(If the screen is black or doesn't show the Dino-Lite view, return to settings, switch to the standard camera, and then try selecting "Dino Direct" again.)

Step 5: Capture Images

You can capture up to 4 images. For the best results, position the microscope so the wood rays are parallel to the vertical or horizontal axis of the screen.

Tip: *Place the Dino-Lite on the wood sample and rotate the focus wheel to get a sharp image (at approx. 55x).*



Step 6: Identify

Tap the red magnifying glass icon to start the identification process.

The AI model will take 0.1–0.5 seconds to process, depending on your phone's specifications. Swipe right to view the results for each subsequent image.

Wireless Connection

Step 1: Connect Dino-Lite Microscope with WiFi WF-10

Turn on the Dino-Lite WF-10 Wi-Fi streamer.
Ensure the device is fully charged and run normally.
The microscope's light will turn on to indicate a successful connection.

Step 2: Connect Phone to Wi-Fi WF-10

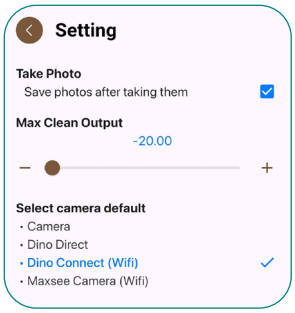
On your phone, go to Wi-Fi settings and connect to the network named “Dino-Lite WiFi Streamer”. If prompted for a password, enter 12345678.
Your phone may show "Connected, no internet," which is normal.

Step 3: Set Camera in WoodID

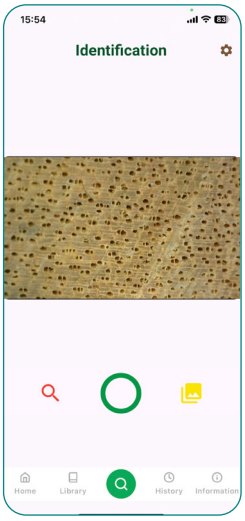
Return to the WoodID app. On the "Identification" screen, go to settings (gear icon) and under "Select Default Camera," choose "Dino Connect (WiFi)".

Step 4: Back to Identification Screen and Check Camera View

If the camera view doesn't appear, repeat steps 1-3, ensuring the microscope light is on and your phone is connected to the correct Wi-Fi network".



Step 5: Capture Images



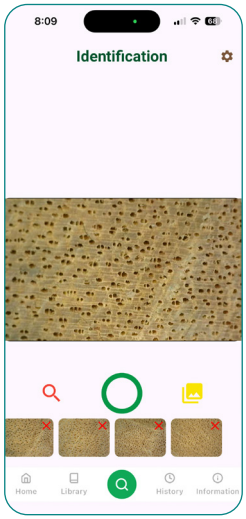
You can capture up to 4 images. For the best results, position the microscope so the wood rays are parallel to the vertical or horizontal axis of the screen.

Tip: *Place the Dino-Lite on the wood sample and rotate the focus wheel to get a sharp image (at approx. 55x).*

Step 6: Identify

Tap the red magnifying glass icon to start the identification process.

The AI model will take 0.1–0.5 seconds to process, depending on your phone's specifications. Swipe right to view the results for each subsequent image.



3.1.2.2. Using other electronic microscopes (MaxSee)

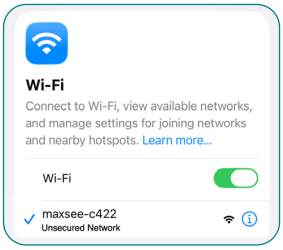
Microscopes tested and supported by WoodID include

- Maxsee Wireless Microscope (50x – 1600x)
- DM Wifi F210 Microscope (50x – 1000x)

Steps to use WoodID with a handheld digital microscope

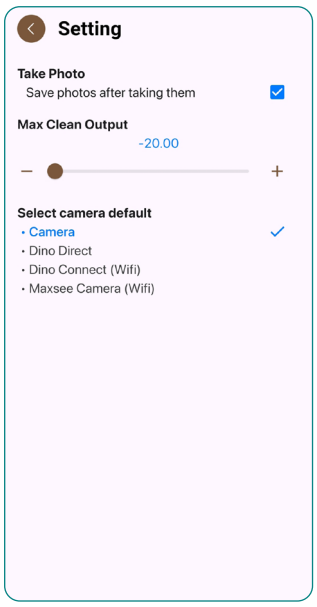
Step 1: Power On and Connect Your Phone to the Microscope

For **wireless microscopes** (MaxSee, DM Wifi F210): Power on the microscope. Then, go to your phone's Wi-Fi settings and connect to the Wi-Fi network broadcast by the microscope (no password is required).

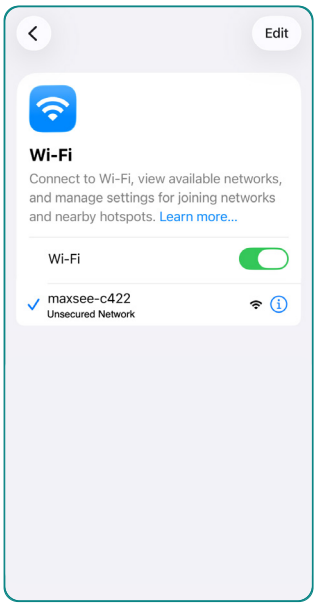


Step 2: Configure the Camera Selection in WoodID

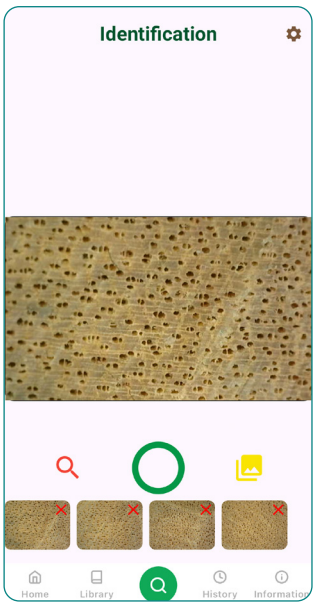
Open the WoodID application.



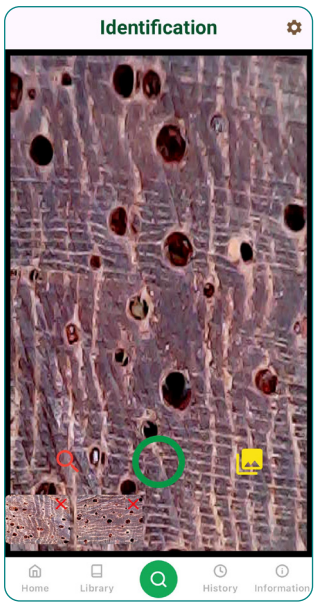
On the identification screen, tap the settings icon (gear icon, top right corner).



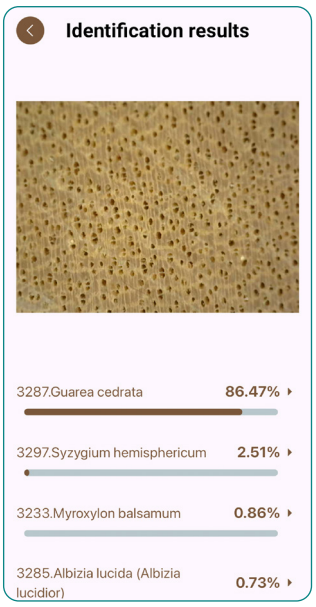
In the settings menu, select MaxSee. (Note: Ensure you are connected to the microscope's Wi-Fi network before doing this).



Return to the identification screen. The video/images from the microscope's camera will be streamed to WoodID.



Adjust the lens by starting at the lowest magnification (50x) and slowly turning the dial until you achieve a clear, focused image.



Capture the image and tap the "Identify" button.

Tips for Capturing a Good Image:

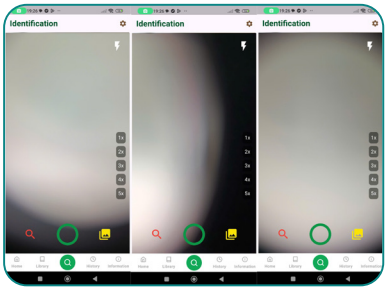
- Set the microscope's focus dial to its lowest setting.
- Then, slowly rotate it in the opposite direction to magnify the image. Stop as soon as you achieve the first clear, focused view.
- Capture the image at this initial clear magnification level. (Continuing to rotate the dial will zoom in further, but these higher magnification levels are not suitable for identification).

3.1.2.3. Using External Clip-on Lens (Apexel 24x)

Step 1: Attach the lens to your phone

Clip the Apexel 24x lens over your phone's main camera. Align it carefully to ensure the camera is not obstructed. Remove your phone case before attaching the lens.

Step 2: Center the lens over the camera

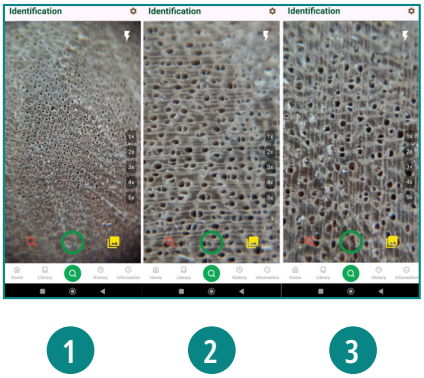


Point the camera towards a light source. Make sure the light is bright and unobstructed. Adjust and rotate the lens until the circle of light is centered on the screen. If there are dark areas (vignetting), adjust the lens so the darkness is evenly distributed in the four corners. For example, Figures 1 and 2 show an improperly centered lens, Figure 3 shows a correctly centered lens.

Step 3: Properly hold the phone and sample

Hold the phone with the lens attached and place the wood sample on a stable surface below the camera. Rest the plastic part of the lens directly on the wood sample.

Step 4: Select the appropriate zoom level



1 2 3

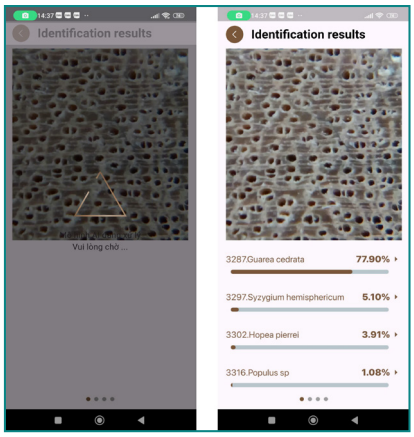
Use zoom 3x option in the WoodID app to achieve the optimal magnification for species identification. Rotate the wood sample or the phone so that the wood rays are parallel to either the horizontal or vertical axis of the phone.

+ **Figure 1:** No zoom (1x) mode)
+ **Figure 2:** 3x zoom mode, with wood rays aligned vertically
+ **Figure 3:** 3x zoom mode, with wood rays aligned vertically with the phone

Step 5: Capture and Identify

- Press the round blue button in the center to take a photo. You can capture up to 4 images for a single identification
- After taking the photos, press the red magnifying glass icon to identify the wood species. Depending on your phone's specifications, the AI model will take 0.1–0.5 seconds to process the image. Swipe right to view the results for the next image.

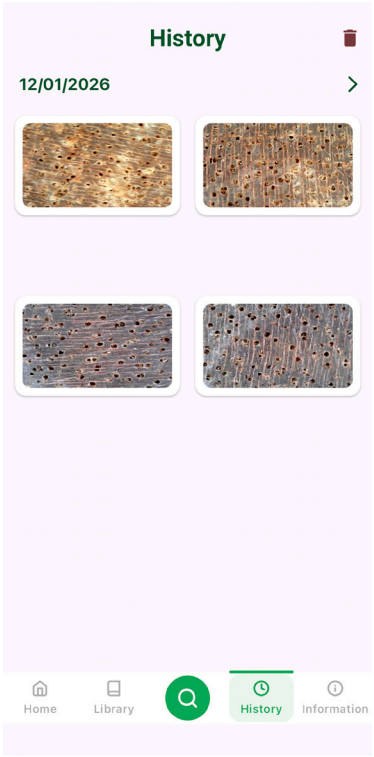
Tip for a better photo: *You can rest the plastic part of the lens on the wood and tilt it slightly from side to side to achieve a sharper image.*



3.2. Result history

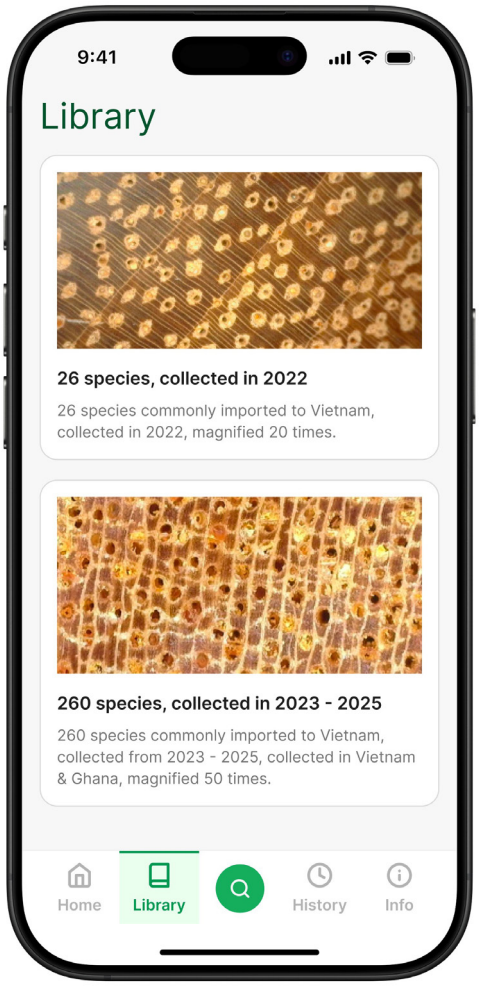
The application saves a history of all identifications in three recent days. You can review your identification history via the History menu, located next to the identify menu.

The history is organized by date and displayed as a list of captured images. Simply tap on an image to view its identification results.



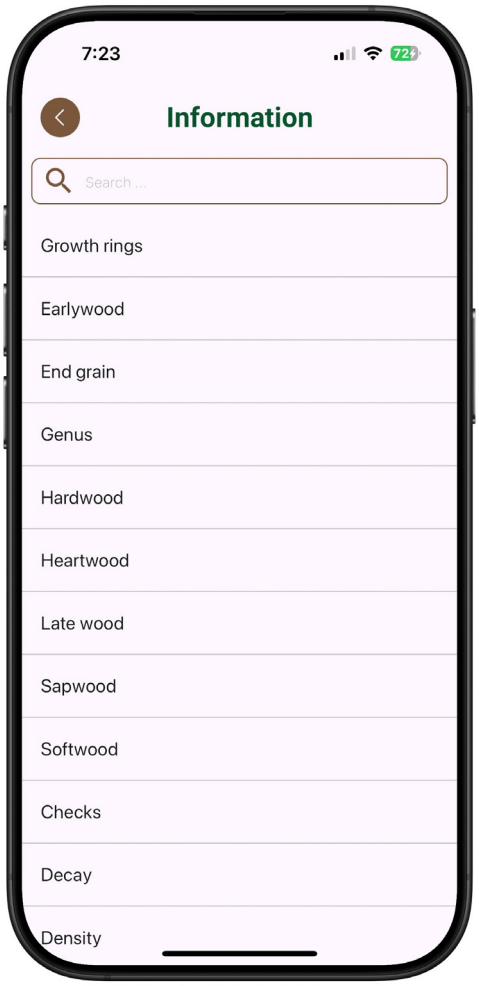
3.3. Library

- The library contains datasets such as the "26 Species Dataset" (20x magnification), "50 Species Dataset" (50x), and "260 Species Dataset" (50x), etc.
- You can open and view representative sample images along with detailed information for each species.



3.4. Concepts

- Specialized terms explaination (heartwood, sapwood, spring/summer growth rings, wood rays, etc.)
- Useful for anyone who wants to learn more about wood anatomy.



3.5. Contact

Provides the project's email address, Facebook page, and developer information.

Users can send support questions, feature requests, and other inquiries…

4. TIPS FOR ACCURATE IDENTIFICATION

Prepare a clean sample

The wood surface should be flat and free of dust

Ensure adequate lighting

Use the built-in LED light or an auxiliary light source, and avoid glare

Keep the sample steady

Prevent the sample from moving while capturing the image

Focus carefully

Check that the image clearly shows the grain, pores, and wood rays

Take multiple pictures

Compare the results from several different images (if in doubt)

Consult the information

When you get a list of results, tap on each species to view its characteristics and compare them with your physical sample

5. SUPPORT & CONTACT

Email:
loc.le@giz.de
khanhnt82@gmail.com or khanhnt@ptit.edu.vn

Facebook:
https://www.facebook.com/GIZinVIETNAM

Feedback:
In the app, go to **Feedback** → **enter your message** → **tap "Send Feedback"**.
If you encounter any issues (with installation, camera connection, incorrect identifications, etc.), please contact us through the channels above for assistance.

Hợp tác Đức
DEUTSCHE ZUSAMMENARBEIT

Xuất bản bởi

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Tháng 9 năm 2025

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Web QR

WoodID

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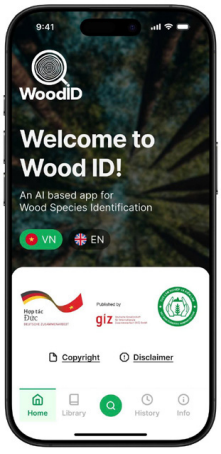

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