

# Camera New Vision – User Manual (User Needing Help)

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## 1. Overview

Camera New Vision connects you with **Volunteers** who can see your surroundings through a camera glasses attached to your phone and provide real-time visual guidance. As a User Needing Help, you stream video from your USB camera, and a volunteer can see your environment, help you navigate, read text, and more.

## Key Features

- **USB camera support:** External camera mounted on glasses for wide-angle view
- **Phone rear camera switching:** Volunteer can request switching to your phone's built-in camera for reading text (price tags, documents)

- **Video calls:** Real-time video streaming
- **Location sharing:** Share your GPS location with the volunteer
- **Voice rooms:** Async voice messaging in community rooms
- **Support:** Voice-based support tickets
- **My Circle:** Trusted contacts for priority call routing
- **Accessibility:** TalkBack support, accessibility descriptions on key UI elements
- **Multi-language:** English and Russian UI localizations

## 2. Getting Started

### System Requirements

- Glasses "Camera New Vision"
- Android 8.0 or higher
- USB OTG-compatible phone
- Internet connection (Wi-Fi or mobile data)

### Installation

The app is installed from Google Play store. On first launch, the app requests necessary permissions (camera, microphone).

## 3. Role Selection

On first launch (or after logout), the app presents a **Role Selection** screen with two cards:

- **User Needing Help:** Choose this role if you need visual assistance and have a USB camera connected.
- **Volunteer:** Choose this role if you want to help others by answering video calls.

Tap the **User Needing Help** card. The selection is saved and used for subsequent logins. You can switch roles by logging out and selecting a different role.

## 4. Login & Registration

## Login Flow

1. **Enter Email:** Type your email address and tap **Send Code**.
2. **Enter Verification Code:** A 6-digit code is sent to your email. Enter it and tap **Verify**.
  - If you are a **new user**, you will be asked to enter your **full name** after verifying the code.
  - If you are an **existing user**, you are logged in immediately after verification.

## Validation

- Email must be a valid email format.
- Verification code must be 6 digits.
- Name field is required for new users.

## Email Verification

After registration, a verification email is sent. The app displays an **Email Verification Pending** card on the dashboard if your email is not yet verified. Tap **Resend Verification Email** to request a new verification link.

## 5. Onboarding

After your first login as a User Needing Help, an onboarding screen appears:

- Explains how to connect a USB camera, request help, and use the app.
- Includes a link to the project website.
- Tap **Continue** to proceed to the dashboard.

Onboarding is shown only once. It can be revisited by logging out and selecting the same role again (if the onboarding flag is reset).

## 6. Dashboard

The User Dashboard is your home screen. It displays:

### Status Cards

- **Connection Status:** Shows whether the app is connected to the server (Connected /

Connecting / Disconnected).

- **Authorization Pending:** Displayed if your account is not yet authorized by an administrator.
- **Email Verification Pending:** Displayed if your email is not verified, with a **Resend** button.
- **Permissions Missing:** Displayed if camera or microphone permissions are not granted. Tap to grant.
- **USB Camera Not Connected:** Displayed if no USB camera is detected. Connect a USB camera via OTG to proceed.

## Call Request

- Select a call duration: **5 minutes**, **15 minutes**, or **30 minutes**.
- Tap the **Call** button to request a volunteer.

## Navigation Buttons

- **Profile:** View and edit your profile.
- **Circle:** Manage your trusted circle contacts.
- **Voice Rooms:** Access community voice messaging rooms.
- **Support:** Contact support via voice messages.

## Network & USB Handling

- The dashboard monitors network connectivity and updates the connection status automatically.
- USB camera hot-plugging is detected — connecting or disconnecting a USB camera updates the UI in real time.

## 7. Requesting a Call

1. On the dashboard, ensure your USB camera is connected and permissions are granted.
2. Select a call duration: **5**, **15**, or **30 minutes**.
3. Tap the **Call** button.
4. The app sends a call request to the server and navigates to the [Waiting for Connection](#) screen.

## Call Routing

Calls are routed based on your **Circle Routing Mode** (configurable in [Settings](#)):

- **Everyone:** Call is offered to all available volunteers.
- **My Circle:** Call is offered only to volunteers in your circle.
- **My Circle First:** Call is offered to your circle first, then to all volunteers if none are available.

## 8. Waiting for Connection

After requesting a call, the **Waiting for Connection** screen appears:

- **Duration Display:** Shows the requested call duration.
- **Status Text:** "Waiting for a volunteer..." → "Volunteer found!" → "Call connected".
- **Cancel Button:** Tap to cancel the call request and return to the dashboard.
- **Ringback Tone:** A ringback tone plays while waiting.

## Outcomes

- **Volunteer Found:** The app navigates to the call screen.
- **No Volunteers Available:** A message is displayed and you are returned to the dashboard after 2 seconds.
- **Cancelled:** You return to the dashboard immediately.

## 9. During a Call

The call screen displays video from your USB camera and provides call controls:

### Video Display

- **Local Video (USB Camera):** Full-screen view of the USB camera feed, sent to the volunteer via WebRTC.
- **Remote Video (Volunteer):** Picture-in-picture overlay showing the volunteer's camera (if bidirectional video is enabled).

### Call Controls

- **Mute Microphone:** Toggle to mute/unmute your microphone.
- **Audio Output:** Cycle through available audio outputs (earpiece, speaker, USB headset, Bluetooth, wired headset).
- **Flashlight:** Toggle the USB camera's flashlight (if supported).

- **End Call:** End the current call. A confirmation dialog appears.
- **Share Location:** Toggle GPS location sharing with the volunteer. When active, the button turns orange and shows "Stop Location Sharing". If GPS is disabled, a dialog prompts you to enable it.

## Camera Switching (Volunteer-Initiated)

The volunteer can request switching from your USB fisheye camera to your phone's built-in rear camera for reading text (price tags, documents, etc.). When this happens:

- The USB camera pauses and the phone's rear camera activates.
- The volunteer sees live video from your phone's rear camera.
- The volunteer can take high-resolution snapshots.
- When the volunteer toggles back, the USB camera resumes.

You don't need to do anything — the switch is controlled by the volunteer and happens automatically.

## Bandwidth Warning

If the network connection is slow, a **Bandwidth Warning** banner appears. The app automatically reduces video resolution to maintain a usable video stream.

## Network Reconnection

If the network drops during a call:

- A "**Network disconnected**" toast appears.
- The app attempts to reconnect.
- A **reconnecting countdown** is shown with the remaining grace period.
- If reconnection succeeds, the call resumes automatically.
- If the countdown expires, the call ends.

## USB Camera Watchdog

The app monitors USB camera frame delivery. If frames stall (e.g., due to USB issues), it automatically attempts recovery by re-registering the camera callback or restarting the camera (up to 3 attempts).

## Call Recording

Calls may be recorded server-side for quality and safety purposes. Each participant's audio and

video are recorded as separate streams.

## 10. Profile

The Profile screen displays:

- **Name:** Your full name (editable).
- **Email:** Your registered email address.
- **App Version:** Current app version number.

## Actions

- **Edit Name:** Tap the edit button to change your display name. A dialog appears with a text field.
- **Logout:** Tap to log out. A confirmation dialog appears. After logout, you return to the role selection screen. Your email is remembered for faster re-login.
- **Delete Account:** Tap to permanently delete your account. This action is irreversible.

## 11. Settings

The Settings screen allows you to configure:

### Circle Routing Mode

Determines how your call requests are routed to volunteers:

- **Everyone:** Calls go to all available volunteers.
- **My Circle:** Calls go only to volunteers in your circle.
- **My Circle First:** Calls go to your circle first, then everyone if none are available.

### Bidirectional Video

Toggle to enable/disable two-way video. When enabled, both you and the volunteer see each other's camera. When disabled, only your camera is shared (one-way video).

### Alternative Codec

Toggle to use an alternative USB camera video format (YUYV instead of MJPEG). This may help

with compatibility on certain devices.

## Map Provider

Select the map provider for navigation (used by the volunteer to navigate to you):

- **Google Maps:** Default map provider.
- **Yandex Maps:** Alternative map provider (useful in regions where Yandex is preferred).

## Spoken Languages

Tap the **Languages** button to select the languages you speak. This is used for matching in voice rooms and call routing. A language picker dialog appears with a list of supported languages.

# 12. My Circle

The My Circle screen lets you manage your trusted contacts (circle members):

## Adding Members

1. Enter the email address of the person you want to add.
2. Tap **Add**.
3. The person receives an invitation. Their status shows as **Pending** until they respond.

## Member Status

Each circle member has one of three statuses:

- **Pending** (orange): Invitation sent, awaiting response.
- **Confirmed** (green): Member has accepted the invitation.
- **Declined** (red): Member has declined the invitation.

## Removing Members

Tap the **Remove** button next to a member to remove them from your circle. A confirmation dialog appears.

## Limits

- You cannot add yourself to your circle.

- You cannot add duplicate members.
- There is a maximum circle size limit (enforced by the server).

## 13. Voice Rooms

Voice Rooms are community spaces for async voice messaging:

### Voice Rooms List

- Displays all available voice rooms.
- Each room shows:
  - **Room Type:** Conversation, Marketplace, Acquaintance, or Unknown.
  - **Language:** The room's language (shown if you speak multiple languages).
  - **Message Count:** Total number of voice messages in the room.
  - **Last Message Time:** Timestamp of the most recent message.
  - **Unread Badge:** Number of unread messages (red badge).

### Voice Room (Inside a Room)

- **Message List:** Scrollable list of voice messages from all participants.
- **Play Button:** Tap on any message to play the voice recording. Tap again to stop.
- **Record Button:** Tap to start recording a voice message. Tap again to stop and send.
  - Recording status and timer are displayed while recording.
  - Maximum recording duration is enforced automatically.
- **Message Menu:** Long-press or tap the menu icon on a message to:
  - **Delete** (your own messages): Remove your voice message.
  - **Report** (others' messages): Report an inappropriate voice message.
- **Auto-Mark Read:** Messages are automatically marked as read when you view the room.

## 14. Support

The Support screen provides a voice-based support ticket system:

### Usage

1. **Record a Message:** Tap the record button to start recording a voice message describing

your issue.

2. **Send:** Tap the record button again to stop and send the message.
3. **Play Responses:** Support responses appear as voice messages in the thread. Tap to play them.

## How It Works

- There is a single open support ticket per user at a time.
- The first message you send creates a ticket automatically.
- All subsequent messages are added to the same ticket thread.
- Support staff respond with voice messages in the same thread.

## 15. Permissions

The app requests the following runtime permissions:

- **Camera:** Required for USB camera video streaming.
- **Record Audio (Microphone):** Required for two-way audio during calls and voice messages.
- **Location (GPS):** Optional, for location sharing during calls.

## Permission Handling

- Missing permissions are displayed as cards on the dashboard with a tap-to-grant action.
- The app continues to function for non-call features even if some permissions are denied.
- Call features require camera and microphone permissions.

## 16. Troubleshooting

### USB Camera Not Detected

- Ensure the USB camera is properly connected via OTG.
- Disconnect and reconnect the USB camera.
- Try a different USB OTG adapter.
- Check that the USB camera is compatible with Android UVC.

### Video Black Screen

- If the video is black during a call, the app's watchdog will attempt automatic recovery (up to 3 times).
- If recovery fails, end the call and restart.
- On Samsung Galaxy A54, ensure no USB headset is connected simultaneously with the USB camera (hardware limitation).

## Audio Issues

- Use the **Audio Output** button to cycle through available audio outputs.
- If using a USB headset, ensure it is connected before starting the call.
- If audio is garbled or cuts out, check your network connection — low bandwidth affects audio quality.

## Call Not Connecting

- Check your internet connection.
- No volunteers may be available — try again later.
- Verify your account is authorized (check dashboard for authorization pending card).

## Network Reconnection

- If the network drops during a call, the app shows a reconnection countdown.
- Reconnect within the grace period to resume the call.
- If the countdown expires, the call ends automatically.

## App Crashes or ANR

- The app includes an ANR watchdog that reports unresponsive states to Firebase Crashlytics.
- If the app becomes unresponsive, force-stop and restart it.
- Ensure you are running the latest version.