

1. Product Introduction

TocoTalk is an AI-powered bilingual picture book reader designed for children aged 1–10. Using physical picture books as the medium and integrating AI large-model technology, it creates an immersive language enlightenment environment. With a simple “tap and point”, children can make picture books “speak”, developing language competence, expression ability and reading interest through multi-sensory interaction.

Technical Specifications

Item	TocoTalk AI Bilingual Picture Book Reader
Model	Toco-T1
Dimensions	15 × 9 × 6 cm
Material	Food-grade ABS + Silicone
Battery	Li-polymer / 1500mAh
Charging Voltage	5V=1A
Battery Life	Approximately 3.5–4 hours
Wi-Fi Band	2.4G (802.11 b/g/n)
Speaker	High-fidelity, 4W
Camera	1920×1080p
Operating Environment	0°C~40°C, 20%~80%RH
Supported Languages	Chinese / English / Japanese / Korean, etc. (recognition & translation)

2. Detailed Core Functional Modules

2.1 Audio Module

System prompt tones have the highest priority; media sound mutes during prompt playback. The speaker and power amplifier shut down when no audio is pending.

Core Functions:

- **System Voice Prompts:** Auditory feedback for power on/off, network connection success/failure, recognition start/end and other statuses.
- **Text-to-Speech (TTS):** Core reading function that converts recognized text into speech via AI voice synthesis.
- **Voice Tone Settings:** Multiple tones switchable to suit children's preferences, configurable via App/mini-program (only one tone supported for now).
- **Language Settings:** Supports reading in multiple languages such as Chinese, English and Cantonese, configurable via App/mini-program.
- **Volume Control:** Multi-level system volume adjustment via device buttons or remote App/mini-program settings.
- **Technical Association:** Interacts closely with cloud AI speech synthesis services or local TTS engines, receiving text instructions from the AI processing module.

Playback :

- **Exclusive Playback:** Clears previous content and plays the specified audio.
- **Interruption Rule:** Photo-based playback cannot be interrupted and takes priority over all other audio.

2.2 Display Module

Core Functions

- **Status Indication:** Clearly displays device status via a small screen (or LED icons).
- **Main Display Elements:**
 - o Wi-Fi connection status
 - o Cloud connection status
 - o Battery status (level and charging)
 - o Scanning mode status
 - o Firmware upgrade status

2.3 Image Capture & AI Recognition Module

Core Functions

- **Image Capture:** Built-in camera for fast, clear shooting of book pages and scanning

Wi-Fi QR codes for system configuration.

- **Optical Character Recognition (OCR):** Preprocesses captured images (correction, noise reduction) and accurately recognizes text via AI models.
- **Natural Language Processing (NLP):** Performs semantic analysis on recognized text to ensure natural phrasing, intonation and emotion during reading.
- **Core Technology:** This module is the technical foundation of the product, relying on high-precision OCR algorithms and powerful NLP models processed in the cloud.

2.4 Button Module

1. **Photo Button (2-stage)**
 - o Half-press: Activates alignment light for framing.
 - o Full-press: Triggers photo recognition; keep steady until the “drop” sound.
2. **Translate Button**
 - o Short press: Translates the last recognized content.
 - o Long press: Enters Wi-Fi QR code pairing mode; short press to exit.
3. **Repeat Button**
 - o Short press: Repeats the last recognized content.
 - o Long press: Toggles between “Reading Mode” and “Picture Description Mode”.
4. **Volume – / 5. Volume +:** Adjusts volume.
5. **Power Button**
 - o Long press 2s: Powers on.
 - o Long press 5s: Powers off.
 - o Double-click: Toggles “Background Listening Mode”.
6. **Point-Read Button:** Press down for point reading.
7. **Reset Button:** Forces device restart.

2.5 Indicator Light Module

- **Range Indicator Light:** Marks effective shooting range; approximately 1.2cm blind spot at the front base.
- **Charging Indicator Light:** Near charging port; red solid = charging, green solid = fully charged.

2.6 Shake Module

Shake the device to trigger random short stories, ancient poems, etc. Content type configurable via App/mini-program.

2.7 Background Listening Module

Enable/disable by double-clicking the power button; plays preset content continuously. Playlist created in App/mini-program.

2.8 Mobile App Control Module

Scan the QR Code for instant access:

WeChat Mini-program	Android	苹果 IOS
		
Search “TocoTalk”	https://www.pgayer.com/tocotalk	https://www.pgayer.com/tocotalk-ios

Core Functions:

- Device Network Configuration: Guides users to connect the reader to home Wi-Fi.
- Device Addition: Automatically adds devices to the family group after network setup.
- Family Management: Multiple family members can join with different remote operation permissions.
- Remote Control:
 - o Network settings
 - o Maximum volume limit
 - o Locate device (voice prompt: “I’m here!”)
 - o Switch tone, device language and translation language

Interaction Logic

The App communicates with the reader via cloud services for real-time synchronization of commands and status data.

2.9 Membership System Module

Basic Membership / Advanced Membership

Note: This product relies on cloud AI computing power and requires membership service support.

2.10 Firmware Upgrade (OTA)

- Automatically checks for updates on boot; downloads new versions silently in the background.
- Applies upgrade on next restart (ensure sufficient battery). Do not power off during upgrade.
- Displays upgrade icon and voice prompt when updates are available. Automatically restarts and prompts upon completion.

3. System Workflow

The device operates in a closed-loop system in the following sequence:

1. Trigger: Aim reader at book page and press photo button.
2. Image Capture: Camera activates and captures high-resolution image.
3. Image Transmission: Image data sent to AI processing unit (uploaded to cloud server via Wi-Fi).
4. AI Recognition & Processing
 - o OCR Recognition: AI model identifies text areas and converts to machine-readable text.
 - o NLP Processing: Proofreads, segments and analyzes semantics to generate structured text with prosody.
5. Speech Synthesis (TTS): Processed text sent to TTS engine, synthesizing audio in selected language/tone.
6. Audio Playback: Audio stream sent to speaker for playback, completing the “shoot–recognize–read” process.

4. Key Technologies & Dependencies

- High-precision OCR technology: Ensures high recognition rate for various fonts and layouts.
- High-quality TTS technology: Delivers natural, expressive voice close to human speech.
- Stable network connection: Cloud-based AI processing requires reliable Wi-Fi.
- Low-power hardware design: Ensures long battery life for extended children’s use.

FCC Warning:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC

Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

RF warning for Portable device:

The device has been evaluated to meet general RF exposure requirement.

The device can be used in portable exposure condition without restriction.