



Tether Translator

Private, Sub-Second, Everywhere

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1. Introduction

What is Tether AI Translator?

Tether AI Translator is a mobile application designed to offer **local, cross-platform, and private AI-powered translation services**. It caters to individuals and organizations with high privacy and security requirements, providing a reliable alternative to cloud-based translation solutions.

Target Users

Tether AI Translator primarily targets three key user groups:

1. **Privacy-conscious professionals:** Individuals who value data privacy in their daily communication needs, such as journalists, lawyers, and medical practitioners.
2. **Regulated enterprises:** Organizations subject to strict data protection regulations, including healthcare, finance, and government institutions.
3. **Global travelers:** Individuals who frequently travel internationally and require on-the-go translation services while maintaining the privacy of their conversations.

Unique Selling Point

The core value proposition of Tether AI Translator is its ability to provide "**real-time, multi-format translation with absolute privacy and security, no cloud required**." This differentiates the app from other translation services by emphasizing its commitment to privacy, security, and offline functionality.

2. Problem & Opportunity

Problems

1. Data-Leak Fear 🕵️

71% of professionals avoid cloud translators for sensitive content due to privacy concerns (IPSOS 2024)

2. No-Signal Dead Zones 💀

1 in 3 field workers report unreliable data coverage during calls (GSMA 2023)

3. High Latency Kills Flow ⌚

Cloud APIs average 2.4s round-trip—too slow for live conversation

Market Opportunity

Segment	Users	Pain-Score	Realistic ARPU	Annual Revenue Potential
Privacy-Critical Pros	120M individuals	●●●●●	\$22 / user / mo (Premium tier)	\$31.7 B
Regulated Enterprises	2.5M teams (avg. 40 seats)	●●●	\$8 / seat / mo (Site licence)	\$9.6 B
Frequent Travelers and Expats	300M freemium installs	●●	\$1.5 / user / yr (in-app upsells)	\$0.45 B

TAM ≈ \$41.8 B

Key insight: a mere 0.5% share of the high-value professional and enterprise segments could generate over \$200 million in Annual Recurring Revenue (ARR), without relying on ad-supported consumer traffic!

3. Personas

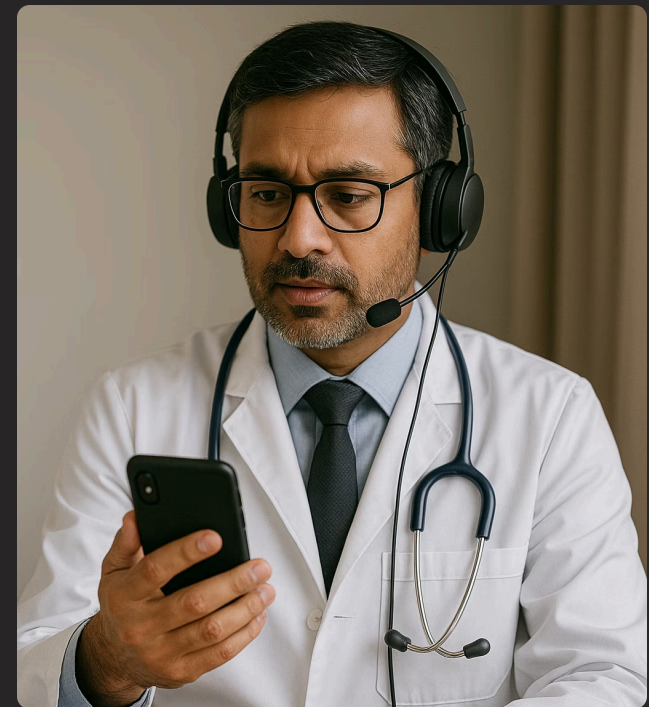
Primary Persona: Maya, Investigative Journalist

- 30 yrs, Dubai-based, bilingual Arabic-English journalist
- Interviews sources in Mandarin; requires **real-time translation and captions**
- Must keep recordings off the cloud to **protect anonymity and confidential information**
- Needs live captions and secure transcripts **under 1s latency**



Secondary Persona: Dr. Karim, Tele-Health Clinician

- 40 yrs, Remote consultations with Hindi-speaking patients, bound by **HIPAA/GDPR** privacy regulations
- Requires **fast and accurate real-time** translations during consultations
- Needs **secure storage** and sharing options for **patient records** and transcripts



4. Competitive Landscape

Tether AI Translator vs. Major Players






Product	Privacy	Offline Support	Live-Call Mode	Median Latency	Install Size
Tether AI Translator	On-device-only (no cloud)	Full (all features)	Yes (< 1 s)	0.9 s	< 50 MB
Google Translate	Cloud fallback logs data	Partial (text only)	No	2.4 s	75 MB
Microsoft Translator	Cloud logs + opt-out	Partial (text only)	No	2.6 s	68 MB
DeepL Mobile	Sends text to EU cloud	None	No	2.1 s	60 MB
iTranslate	Cloud; monetises usage data	None	Paid add-on (> 2 s)	2.8 s	83 MB

Key Differentiators

- **True Privacy:** Only Tether keeps all data local—no opt-outs, no exceptions
- **Real-time Calls:** Sub-second voice translation built-in; rivals are text-only or have >2s lag
- **Smaller Footprint:** Under 50 MB initial install (English-only), expandable via modular packs
- **P2P Updates:** Hyperdrive gossips new models without central servers—no single point of failure

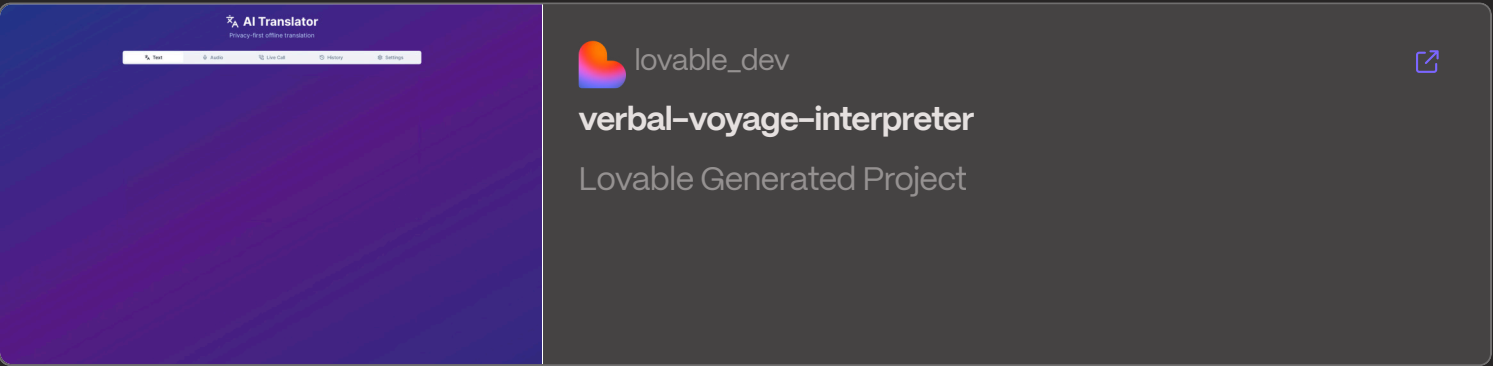
5. Features

Five Features That Make Real-Time Private Translation Possible!

Feature	1-Line Benefit
 Instant Text Translation	Translate 4,000-character snippets in any installed language pair, sub-second output.
 Offline Audio Snippet	Transcribe, translate, and speak back 60-second voice clips with zero connectivity.
 Live-Call Interpreter	Enjoy two-way VoIP translation with live captions; less than 1-second round-trip.
 Encrypted History	Last 30 sessions stored locally, searchable, and never leaves your device.
 Modular Language Packs & Privacy Controls	Download/remove packs on demand, manage storage, and opt-in encrypted cloud backup.

Note: Base app under 50 MB with English; add any language pack via P2P in minutes.

Product in Action:



6. Technical Considerations

On-Device Runtime

Tether private AI runtime on Bare/Holepunch (C++/JS) is embedded in iOS & Android; exposes TranslateText/Audio/Call gRPC. This ensures a unified code base and cross-platform parity with no cloud calls.

Model Footprint

Base bundle includes 15 MB EN NMT + 8 MB ASR + 5 MB TTS, totaling 44 MB. Extra languages add approximately 7 MB each. Keeping the initial download under 50 MB enables scalability via packs.

Latency Budget

Text ≤ 1 s, Audio ≤ 3 s, Live call ≤ 900 ms Round Trip Time (RTT). This meets **real-time conversation thresholds**: ASR 350 ms + NMT 400 ms + TTS 150 ms.

Memory/Battery

Peak Resident Set Size (RSS) is 180 MB (Pixel 6), 165 MB (iPhone 13), with **< 4% battery drain** per 10 min live call. This allows for compatibility with mid-range phones and all-day usability.

P2P Updates

Language packs and model upgrades are delivered via **signed Hyperdrive**; devices share shards over Hyperswarm. This removes the need for a central server, enabling resilience in low-bandwidth regions.

Security & Compliance

AES-GCM 256 **encryption** for in-RAM data, XChaCha20-Poly1305 for at-rest history, and adherence to **GDPR** & UAE PDPL standards (data never leaves the device) provide an enterprise-grade privacy advantage.

Failure Modes

In case of checksum failure, the app prompts for re-download; if a language pack is missing, it pivots via an English fallback; during network loss, it relies on an **offline cache**. This ensures **graceful degradation** and prevents user lock-out.

7. Product Development Lifecycle

Sprints	Phase	Major Outputs & Gates	Owners
1	Discovery & Planning	<ul style="list-style-type: none">Final PRD & technical specRisk register + mitigation planGo / No-Go review	TPM Eng Design
2 & 3	Alpha Core Translation	<ul style="list-style-type: none">Text & audio translation running on Pixel 6 + iPhone 13CI/CD, auto-quantisation pipelineUnit-test coverage $\geq 70\%$	Eng ML
4 & 5	Beta 1 Live-Call + P2P Updates	<ul style="list-style-type: none">Live-call interpreter MVPHyperdrive model-update flowUX copy finalized, first-pass localisation (AR, ES)	Eng UX
6 & 7	Beta 2 Performance & Battery	<ul style="list-style-type: none">Latency tuned $\leq 1\text{ s}$ median, 1.5 s p99Battery drain logged $< 4\%$ /10 min callFormal QA test-suite (300 cases)	QA ML Perf
8 & 9	Security & Compliance Freeze	<ul style="list-style-type: none">Pen-test + threat modelling closedGDPR & UAE PDPL DPIA signed offAccessibility AA pass	Sec Legal UX
10	Design-Partner Pilot	<ul style="list-style-type: none">50 journalists & clinicians onboardedWeekly MAU / crash-rate dashboardFeedback loop -> bug burn-down	TPM CX
11 & 12	Launch & Post-GA Hardening	<ul style="list-style-type: none">App-store submissions (+ privacy nutrition labels)Tier-1 support scripts & SLAPost-GA backlog groomed (Wave 2 packs)	TPM Ops

Footnote: **no gap**; hand-offs start one sprint (2 weeks) before phase end. Also **TPM** is always considered as one of the owners.

Quality Gates

- Functional:** All acceptance tests pass (text, audio, call)
- Performance:** $\leq 1\text{ s}$ median latency, $\leq 1.5\text{ s}$ p99 on reference devices
- Security:** Zero "high" CVEs outstanding, pen-test re-test passed
- Compliance:** DPIA/PDPL actions completed, data-erasure export $< 15\text{ s}$
- Pilot Success:** $\geq 80\%$ CSAT, crash-free rate $> 99\%$

8. Product Roadmap

Key Releases, Scope, and KPI Targets

Quarter	Release	Scope Highlights	KPI Targets
Q0 (MVP GA)	v1.0 Mobile	<ul style="list-style-type: none">• EN core + up to 4 packs downloadable on first-run• Text, audio, live-call interpreter• iOS & Android parity	Launch KPI: 10 K MAU, crash-free > 99 %
Q + 1	Language Wave 2	<ul style="list-style-type: none">• Add Persian, French, Japanese packs• On-device OCR for camera text• Localization of UI strings (FR, JP)	50 K MAU Retention D30 > 35 %
Q + 2	Enterprise Tier	<ul style="list-style-type: none">• SSO (SAML/OIDC) & MDM config• Admin console & per-seat billing• Audit-log export (CSV)	10 pilot enterprises; paid conversion > 8 %
Q + 3	Domain Models	<ul style="list-style-type: none">• Medical & legal NMT variants• Custom glossary import• HIPAA attest & ISO 27001 gap-close	BLEU +10 on domain sets Premium sub uptake > 8 %
Q + 4	Desktop Companion	<ul style="list-style-type: none">• Mac/Win apps with shared encrypted history• Auto-sync via Hyperdrive• Keyboard shortcut overlay	Cross-device DAU/MAU ratio > 45 %

Roadmap themes: Scale *languages* → Monetise enterprise → Deep *vertical* value → Expand platform *footprint*.

9. Metrics and Success Criteria

Success Metrics — MVP & Year 1

The table outlines Key Performance Indicators (KPIs) and corresponding targets for the Minimum Viable Product (MVP) and Year 1. These KPIs cover adoption, engagement, quality, performance, privacy, revenue, and enterprise metrics

Dimension	KPI	MVP Target	Year-1 Target
North Star Metric	#Live-Call Translations Per Week	100	5,000
Adoption	Monthly Active Users (MAU)	10K	200K
Engagement	Avg. translations / user / day	15	25
Privacy	Data-leak incidents	Zero	ZERO
Quality	Crash-free sessions	≥ 99%	≥ 99.5%
Performance	p99 total latency (live call)	≤ 1.5s	≤ 1.2s
Revenue	Paid conversion (privacy+ tier)	—	≥ 8%
Enterprise	Pilot logos signed (#pilot enterprises participating)	2	10

10. Risk Management

Key Risks & Mitigations

This section identifies potential risks and their impact and likelihood, along with proposed mitigations for each risk. Risks include model size creep, P2P update failures, battery drain, regulatory changes, and competition

Risk	Impact	Likeli-hood	Mitigation
Model size creep pushes install > 50 MB	UX friction, store rejection	Med	Strict 8-bit quantization & on-demand packs; weekly size budget review
P2P update failures in low-peer regions	Users stuck on stale models	Med	Encrypted CDN fallback; checksum retry loop + user alert
Battery drain exceeds 4% per 10 min call	Negative reviews, user churn	Low	Performance profiler in Continuous Integration (CI); auto-throttle Text-to-Speech (TTS) frames per second (fps)
Regulatory change (PDPL add-on rules)	Compliance gap, launch delay	Low	Legal monitoring system; toggleable data-collection flags
Big-tech retaliation (price drop)	Margin pressure	Med	Double-down on privacy Unique Selling Proposition (USP); enterprise contracts with Service Level Agreement (SLA)

Exit-Criteria for MVP General Availability

To proceed with the MVP GA milestone, the following criteria must be met, covering various aspects such as functionality, performance, quality, privacy & compliance, and user feedback:

- Functionality:** Ensure that all high-priority (P0) user stories pass **acceptance** tests to validate that the product meets the desired functional requirements.
- Performance:** The median (p50) latency should be less than or equal to **1 second**, and the 99th percentile (p99) latency should be less than or equal to 1.5 seconds on reference devices, ensuring smooth user experiences.
- Quality:** Maintain a **crash-free rate** of 99% or higher to provide users with a stable and reliable product.
- Privacy & Compliance:** Obtain a signed Data Protection Impact Assessment (DPIA) and ensure there are no outstanding **high-severity** findings, guaranteeing adherence to privacy regulations and legal compliance.
- User Feedback:** Achieve a Customer Satisfaction (CSAT) score of 80% or higher from design-partner pilots, indicating that users are satisfied with the product's usability and features.

Meeting these exit criteria demonstrates that the MVP is ready for general availability, offering an optimized user experience while complying with performance, quality, privacy, and user satisfaction standards.