

TEJAS OS: Made in India, Made for India

Free for life. Vocal for local. A desktop operating system for Indian homes, schools and small businesses

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Abstract

TEJAS is a free desktop operating system designed in Mumbai for Indian homes, schools and small offices. It pairs a stable open-source base (Debian 13 with KDE Plasma) with an Indian-first layer: twelve Indian languages selectable at install, Indian-script typing, a family-safe offline AI companion (Tejas AI), and a one-click path for familiar Windows apps. This paper sets out the problem TEJAS answers, its design principles, its architecture and build method, and an honest account of what has and has not yet been tested. Two editions exist as of October 2026: TEJAS Lite, a single 1.9 GB download, and TEJAS Full, about 5 GB with every app included. Both are built automatically in the cloud and published free, with no account needed to download.

1. Introduction

India's desktops run overwhelmingly on one foreign, paid operating system, while most of its people read and think first in an Indian language. In September 2026, Windows held 82.3% of India's desktop share, Linux 10.5% and macOS under 7% ([StatCounter](#)). Yet only about 10.6% of Indians speak English at all, and 43.6% speak Hindi as their first language ([Census 2011, via Wikipedia](#)).

Three pressures make this the right moment for a free, Indian-first desktop. Microsoft ended Windows 10 support on 14 October 2025, leaving older PCs that cannot run Windows 11 without security fixes unless owners enrol in paid or account-linked extended updates, which run only until 12 October 2027 ([Microsoft](#)). India generated over 14 lakh tonnes of e-waste in 2025-26 ([Lok Sabha reply, via NewsDrum](#)), and every working PC retired early adds to it. And families now want help from AI, but most assistants send children's questions to servers abroad.

TEJAS (Sanskrit for radiance) is the author's answer: Made in India, in that it is designed, assembled, branded, translated and built here; Made for India, in that every default assumes an Indian home, an Indian language and an older PC.

2. Background: India's earlier operating systems

India has built operating systems before, and each was built on open source and aimed at institutions rather than families. TEJAS follows the same honest route of building on a proven open base, but targets the household.

System	Built by	Base	For	Status and lesson
BOSS Linux	C-DAC (NRCFOSS)	Debian	Government, education	Version 10 "Pragya" in March 2024; 19 languages. Strong language work, but little public adoption data and limited public visibility.
Maya OS	DRDO, C-DAC, NIC	Ubuntu	Ministry of Defence	Available 15 August 2023, with the Chakravyuh endpoint protection. Proves an Indian team can replace Windows at scale, but it is not public.
BharOS	JandK Operations (IIT Madras incubated)	Android	Phones for secure groups	Launched 19 January 2023. Closed source, with little public install or update guidance.

The gap all three leave is a desktop an ordinary Indian family can download, install and use in its own language, with no account, licence or institution in between.

3. Problem and research questions

The problem is that a typical Indian family PC is old, runs an expiring paid system in a second language, and offers children no safe, private help. TEJAS sets out to answer five questions:

1. **Cost:** can a family get a complete, current desktop (office, browser, media, creative tools) at zero licence cost, legally and permanently?
2. **Language:** can the whole system, not just a keyboard, run in the family's own Indian language, chosen at install?
3. **Old hardware:** can a PC that cannot run Windows 11 stay safe and useful for years more?

4. **Familiarity:** can someone who knows only Windows install and use it from a picture guide, without help?
5. **Privacy and safety:** can a child get an AI helper that works offline, keeps data at home and follows family safety rules?

This paper reports how TEJAS is designed to meet each question. It does not yet claim measured answers; section 9 lists what still needs field testing.

4. Design principles

TEJAS is built on six principles, each answering one of the research questions.

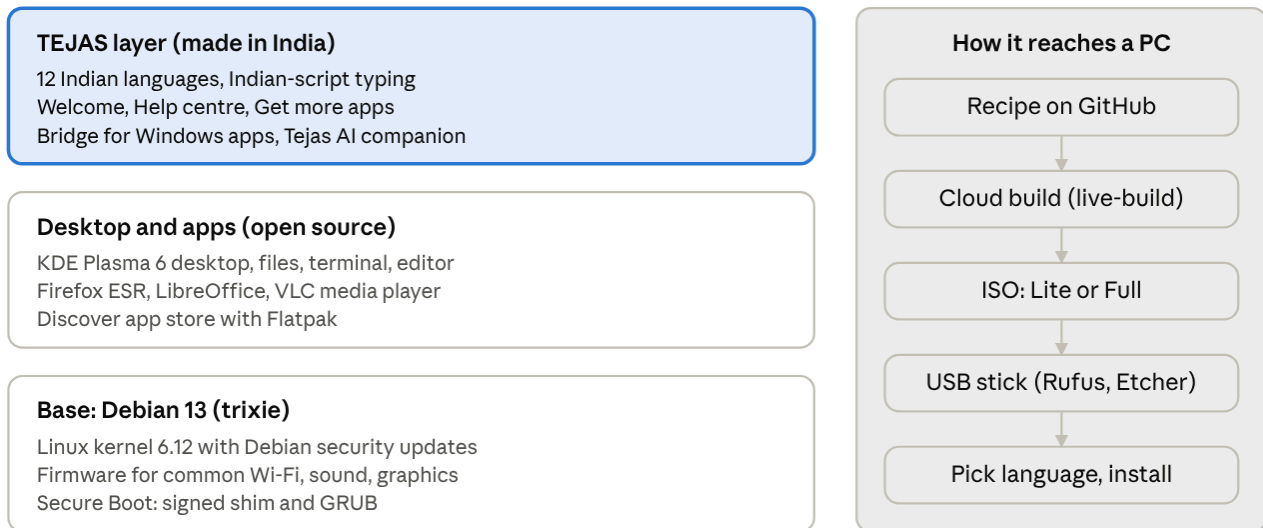
- **Free for life.** Every component is free and open-source software; no licence key, subscription or account is ever required.
- **Indian language first.** Twelve Indian languages are installed, not downloaded later, and the installer opens on India (Asia/Kolkata).
- **Familiar on day one.** A Windows-like layout: taskbar, Start menu, This PC, Recycle Bin, and a Help centre written in plain words.
- **Light enough for old PCs.** A Lite edition that fits a 4 GB pen drive, with heavy apps one click away instead of preloaded.
- **Private by default.** No telemetry; the AI companion runs on the family's own computer.
- **Vocal for local, honest about its roots.** TEJAS is Indian in design, language, branding and assembly, and openly built on Debian and KDE, the same route BOSS and Maya OS took. Choosing TEJAS backs an Indian-made product, and anyone in India can rebuild and improve it.

In short, Made in India means the decisions, the experience and the build happen here; Made for India means the defaults fit an Indian family rather than a global average.

5. System architecture

TEJAS is three layers: an Indian-made layer on top of open-source desktop apps, on top of Debian 13. Only the top layer is new; the two below are proven, maintained by global communities and updated for security by Debian.

TEJAS adds an Indian-first layer on a proven open base



TEJAS architecture · 3 layers and the path to a PC

The installer (Calamares, rebranded "Install TEJAS") copies the live system to the PC's disk, so what a family tries from the pen drive is exactly what it gets.

6. Indian language support

TEJAS ships twelve Indian languages in both editions, and the person picks one in the installer's first step; the whole desktop then runs in it. The languages are Hindi, Punjabi, Marathi, Gujarati, Bengali, Tamil, Telugu, Kannada, Malayalam, Odia, Assamese and Urdu.

Layer	What TEJAS includes
Menus and system apps	KDE Plasma translations kept for all twelve languages (other languages removed from Lite to save space)
Web	Firefox language packs for eleven of them (Debian 13 has no Malayalam pack; Firefox falls back to English there)
Office	LibreOffice Indian language packs, plus Hindi, Gujarati, Bengali, Malayalam and Telugu spell-checkers
Fonts	Noto and the Indic font set, so every script renders correctly

Layer	What TEJAS includes
Typing	fcitx5 with m17n: Ctrl+Space switches between English, phonetic Hindi, Hindi InScript and phonetic Punjabi
Installer	Calamares opens on India (Asia/Kolkata); every language listed, no internet lookup needed

The language can be changed later in System Settings, Region and Language, with no reinstall.

7. Build and distribution

Every TEJAS release is built automatically from its source recipe in the cloud, so anyone can rebuild the same ISO and check it. A change pushed to the project on GitHub starts a build inside a clean Debian 13 container; live-build assembles the system, and the finished ISO is published to a public download page with a SHA-256 checksum.

Edition	Download	What's inside	Pen drive
TEJAS Lite	One file, about 1.9 GB	Desktop, Firefox, LibreOffice Writer, Calc and Impress, media players, app store, installer, common Wi-Fi, sound and graphics drivers	4 GB or more
TEJAS Full	About 5 GB, in 3 pieces with a one-click join file	Everything in Lite, plus GIMP, Krita, Inkscape, Kdenlive, OBS, Blender, Thunderbird, games, Wine and all firmware	8 GB or more

Two engineering choices made distribution work for ordinary users. GitHub caps release files at 2 GB, so Lite was slimmed to fit one file: extra East Asian font sets, unused translations, manuals and compiler tools were removed, and big apps moved to a "Get more apps" tick-list. The full edition is split, and a Windows batch file rejoins the pieces and verifies the checksum. Both editions carry signed boot files (shim and signed GRUB) so they can start on PCs with Secure Boot switched on; the USB stick is written with Rufus in DD Image mode or with balenaEtcher.

Downloads: github.com/Jkrocks/JK/releases/tag/tejas-os-v1.0.

8. Companion: Tejas AI

Tejas AI is the family assistant designed alongside TEJAS: it hears, talks, remembers each family member and helps children with homework, reminders and questions, running on the family's own computer. The home computer runs the brain and serves every screen in the house: the TV, laptops and phones on the same Wi-Fi.

- **Brain:** a local language model through Ollama, chosen by the computer's memory (for example Qwen 2.5 at 3B, 7B or 14B), with a SymPy maths engine so calculations are checked, never guessed. An optional free online brain (Groq) helps PCs too weak to run a model.
- **Ears and voice:** faster-whisper for listening and a warm Piper voice for speaking, both offline after one download.
- **Memory and tools:** profiles, remembered facts, reminders that ring on every screen, a home library of school books, and cached news.
- **Safety:** a safety layer catches self-harm, danger and stranger-secret messages before the model answers; self-harm gets a fixed caring reply with India's Tele-MANAS number (14416) and a flag for parents. A parent PIN guards settings and history.
- **Every screen:** a desktop app for Windows, macOS and Linux, Android and Android TV apps, an iPhone path through the browser, and a web version.

Together, TEJAS and Tejas AI give a family a free computer and a private helper that speaks its language.

9. Evaluation status and limitations

TEJAS is built and published but not yet field-tested, so its claims are design claims until real families use it. What has been verified so far is narrow: both editions build cleanly and reproducibly in the cloud, the downloads are public and checksummed, and Tejas AI's test suite (21 tests) passes on Windows, macOS and Linux.

Area	Verified	Still to test
Bootimg	Builds succeed with Secure Boot files included	Boot on real PCs, with and without Secure Boot
Install	Installer configured for India	A full install, end to end, on old and new hardware
Languages	Packs and translations included	Each of the twelve languages checked by a native reader

Area	Verified	Still to test
Old hardware	Lite fits one 1.9 GB file	Speed on a typical 4 GB RAM, Windows 10-era PC
Tejas AI	Automated tests pass	Local voice models on real hardware; the iPhone app needs a paid Apple account to install

Known limits: TEJAS depends on upstream Debian and KDE for security updates; some Windows-only software will not run even through Wine; and there is no support team yet.

10. Roadmap to scale

The next step is evidence: put TEJAS on real PCs in real homes, then grow through schools and community repair shops. Four phases, each gated by what the one before proves:

1. **Pilot (10 to 20 PCs).** Install on the author's family and friends' old machines; record boot success, install time, speed and language quality. Gate: installs succeed without expert help.
2. **Language review.** Native readers check each of the twelve languages; add the remaining scheduled languages (such as Sanskrit, Nepali and Konkani) where translations exist.
3. **Schools and cyber cafes.** A one-page Hindi and English guide (already drafted as the TEJAS OS Guide), a USB kit, and a partner school lab. Gate: a teacher can install and run a class with it.
4. **Community and updates.** A public issue tracker, a monthly security rebuild, and a Tejas AI that comes preinstalled.

Open questions for the next version: which Indian languages families actually choose, the minimum PC that runs TEJAS comfortably, and whether a local model in Hindi is good enough for homework help.

11. Conclusion

TEJAS shows that one designer in Mumbai can assemble a complete, free, Indian-language desktop and ship it to anyone with a download link, by standing on the same open foundations India's institutions already trust. Its contribution is not a new kernel but a new default: a computer that starts in your language, costs nothing, keeps old PCs alive and gives children a private helper. The work now is to prove it in Indian homes. Free for life, and vocal for local: an operating system India can own, use and improve.

References

1. StatCounter, [Desktop operating system market share, India](#), September 2026.
2. Wikipedia, [Multilingualism in India](#) (Census of India 2011 language figures).
3. Microsoft, [Windows 10 end of support](#).
4. NewsDrum, [India generated 14 lakh MT e-waste in 2025-26](#) (Lok Sabha written reply, CPCB data).
5. Wikipedia, [Bharat Operating System Solutions](#).
6. Wikipedia, [Maya \(operating system\)](#).
7. Wikipedia, [BharOS](#).
8. TEJAS OS 1.0 downloads and build recipe, github.com/Jkrocks/JK.