AIRINE

OFFLINE AI ASSISTANT FOR TEACHERS

SHERIFT TEAM

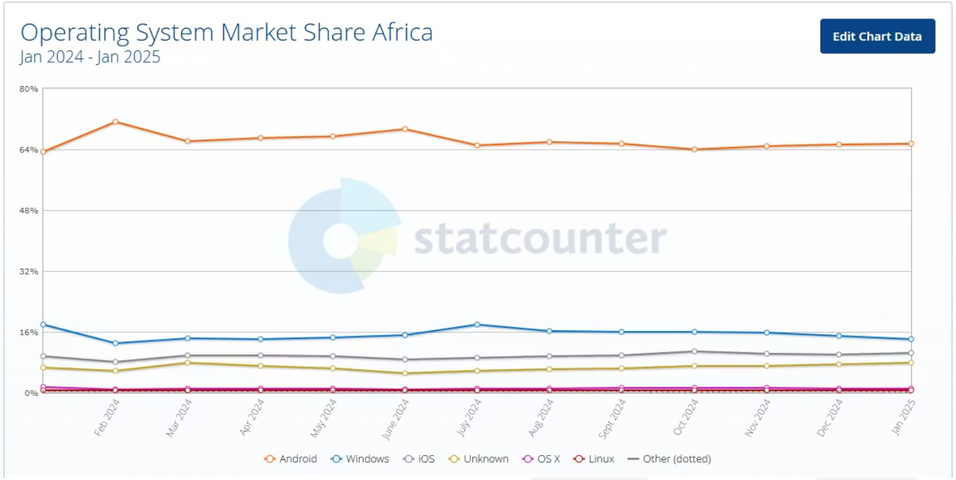
OVERVIEW

In remote regions of the world, teachers face numerous challenges: a lack of educational materials, the absence of modern technologies and Internet access, and a heavy workload due to a large number of students of different ages. These factors significantly reduce the quality of education and limit opportunities for both teachers and students.

OVERVIEW

As of January 2024, Africa had 570 million Internet users, accounting for approximately 43% of the continent's population. The lowest Internet penetration rates were recorded in South Sudan, Burundi, and the Central African Republic (up to 12%) (statista.com)

The primary means of accessing the Internet in Africa is through **mobile phones**, with **Android** dominating among operating systems. As of February 2025, Android held approximately 66% of the operating system market share in Africa. (gs.statcounter.com)



OUR CLIENT

Meet Amina. She is 34 years old and works as a teacher in a small village in Uganda. Her class has more than 40 students of different ages. She has a basic teaching education but often has to teach subjects in which she is not an expert.

Her classroom is poorly equipped: there are no computers, no Internet access, and textbooks are often in short supply. Amina has to divide her attention between younger students learning to read and older ones who need more complex assignments. This lowers the quality of education.

TARGET AUDIENCE

Main problems of our target audience:

- ☑ Lack of or limited access to the Internet.
- ☑ Internet access is primarily available only through Android mobile phones.

Teachers in rural and remote areas of Africa, Asia, and other regions with low levels of digitalization face these challenges in their daily work, which significantly limits the opportunities for effective learning.

ADVANTAGIES OF AIRINE

- ☑ **Offline access** — works without an Internet connection, which is crucial for underdeveloped regions.
- ☑ **Voice interface** — convenient interaction without the need for text input.
- ☑ **Adaptability** — adjusts to the age and level of students and communicates with them in a way they understand.
- ☑ **Support for multiple subjects** — provides explanations, example assignments, and teaching recommendations.

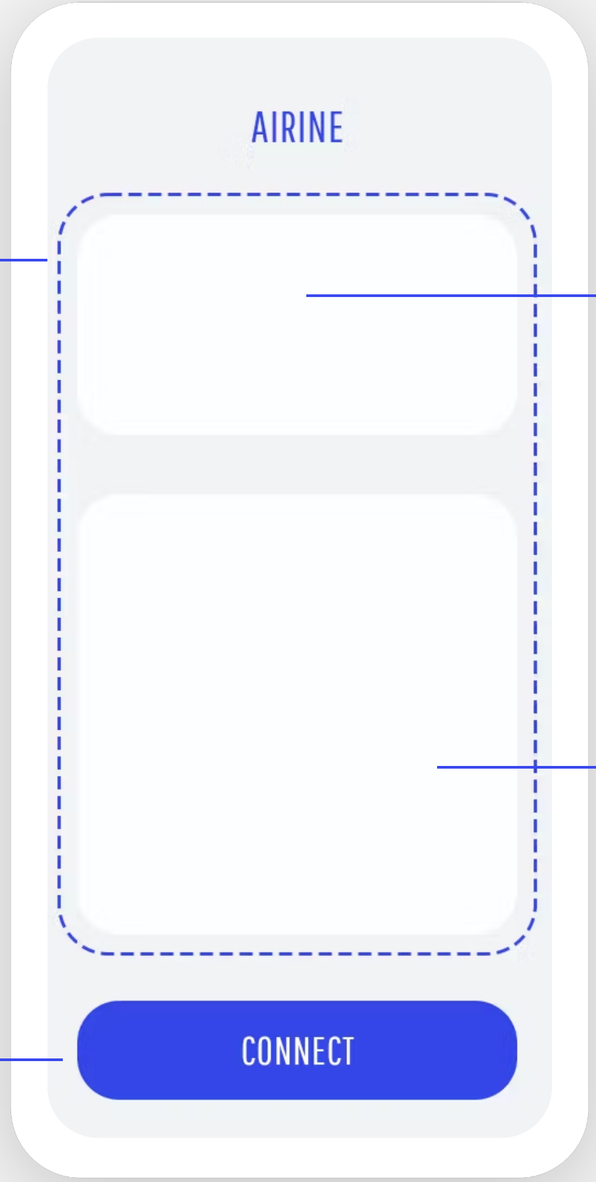
- ☑ **Cross-platform** — available on both desktop and mobile devices.
- ☑ **Efficient time management** — the teacher works with one group while the other works with AIrine.

KEY FEATURES OF AIRINE

Offline access and SSR rendering for stable operation without an Internet connection.

Optimized for low-end devices — supports outdated Android devices with limited memory and low performance.

Compact voice model — runs natively in the browser through a JavaScript server, ensuring fast performance even on low-powered phones.



AI-ASSISTANT

WORKS OFFLINE

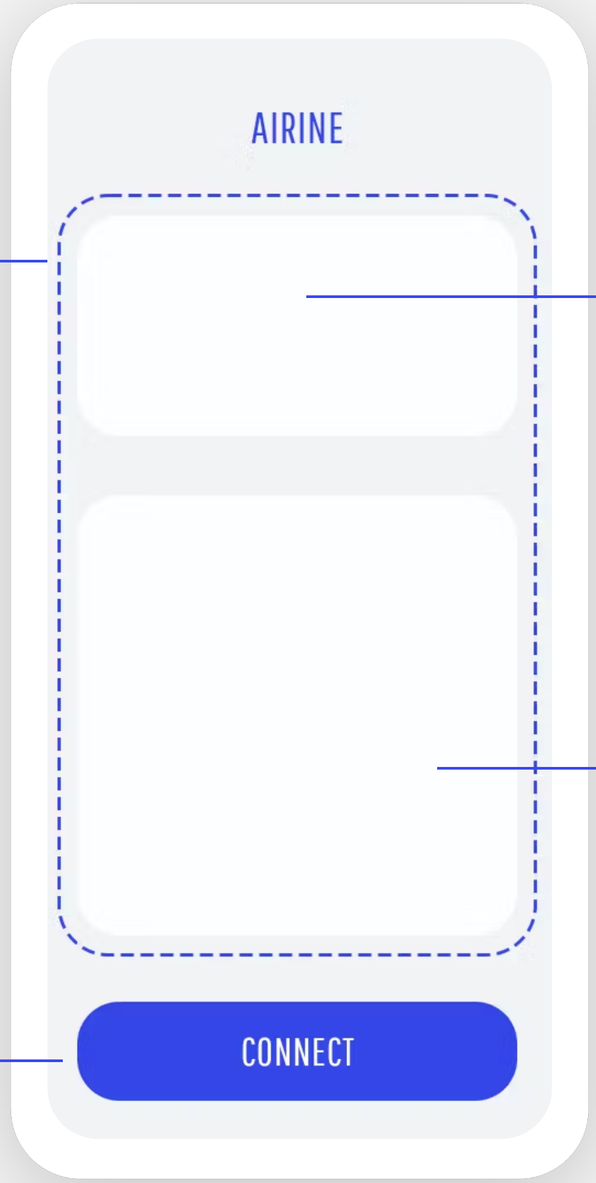
MOBILE VERSION

LOW-END DEVICES SUPPORTED

KEY FEATURES OF AIRINE

Scalability — easy scaling to new regions and devices with minimal costs.

Cost efficiency — low expenses due to optimization and offline functionality.



AI-ASSISTANT

WORKS OFFLINE

MOBILE VERSION

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USE CASE: AIRINE IN ACTION

Now, let's take a look at how Amina's day at school goes with our AI assistant.

The younger children (6-8 years old) are learning to read, and AIrine assists them in this. They ask AIrine questions about letters and sounds, and the voice assistant provides explanations and exercises.

Meanwhile, Amina is working with **the older students** (10-15 years old) on a new math topic.

Assisting struggling students: One of the students is unable to solve a math problem. AIrine helps him break down the solution step by step, offering hints and explanations.

Now, Amina is able to track the progress of all her students and adapt tasks to their level and age. She is less stressed and distracted, and **her lessons are more effective and of higher quality.** Struggling students receive the help they need, while stronger ones get additional challenges.

KEY TECHNOLOGIES

Tech Features:

TERMUX

Linux emulator on Android to create a local server

ANDROID AS NODE

acts as a server for the language model

Key Features:

AIRINE

deploys local nodes on Android for a decentralized system in resource-limited regions

OFFLINE FUNCTIONALITY

local API provides AI tools without the internet. Syncs data when connected.

CLIENT-SIDE

built with Next.js and WebRTC for easy interaction with AI agents.

Advantages:

OFFLINE OPERATION

works without internet, providing access to essential AI tools.

LOW RESOURCE USAGE

optimized for Android devices with limited hardware, using non-GPU models

EASY SCALING

simple expansion to new regions and devices with minimal costs.

NEXT STEPS

What we plan to add to our AI assistant

Mobile version — developing a full-featured mobile version for easy use on smartphones.

Feature expansion — adding new educational tools, such as creating personalized lesson plans, assignments with voice feedback, and personalized recommendations for students.

Support for additional languages — expanding language support to work in different regions.

Integration with external sources — connecting to online resources and educational platforms to update content and expand the knowledge base.

SCALABILITY

HOW AI IS USED IN OUR SOLUTION?

AI is integrated into the system through language models and AI tools that run on local nodes. These models provide intelligent assistance, personalized learning, and real-time feedback to users, all without requiring an internet connection.

AI models are deployed on Android devices, enabling decentralized, offline, and scalable solutions that adapt to local needs and resource constraints.

WHY IT OPEN SOURCED?

The project is open source, allowing developers to contribute to its development and expansion. The code is publicly available, enabling others to customize, improve, and scale the system to different regions and use cases.

All components, including the AI models, local node deployment, and server configurations, are open for modification and use by the global community.

According to researchers from the University of California

ChatGPT consumes 0.5 liters of water in a data center for every five queries.

That's why our offline AI assistant is the ideal solution for Africa and global sustainability.

OUR TEAM

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AIrine

NOT THE END

...IT'S ONLY THE BEGINNING

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