



From Video to Knowledge in Minutes

Team: Aayush Neupane, Shishir Paudel

Target Market: Students, Educators, eLearning Platforms

Value Proposition: Turns video lectures into interactive quizzes and summaries instantly.

The Pain We Are Solving



Students spend hours watching long videos but **forget key concepts quickly.**



Educators **waste 3–5 hours/week** creating quizzes manually.



Online learning platforms lack **automated comprehension tools.**



Learners struggle due to limited transcription/translation support.

How We Fix It

Our Solution:

Loomia is an end-to-end AI-powered learning tool that transforms videos into:

- ✓ Accurate transcripts (via OpenAI)
- ✓ Clean summaries
- ✓ Auto-generated quizzes
- ✓ Interactive transcript navigation

Pipeline:

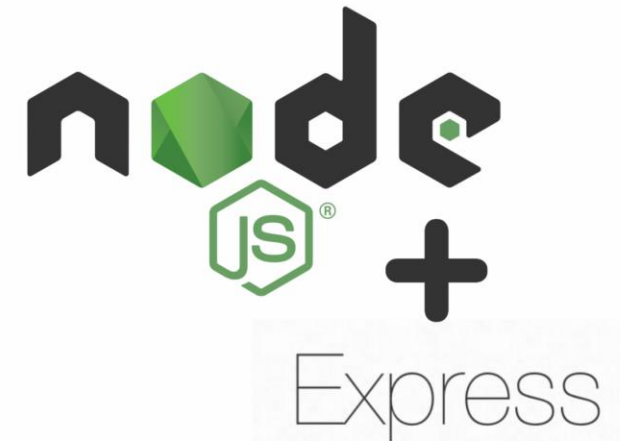
Video → Speech-to-Text → Summaries → Quizzes → Interactive UI

Technical Implementation Note:

Due to restricted AWS Student Account access, we developed a Docker-containerized solution and deployed it on AWS EC2 with scalability. This enabled reliable, distributed processing.

Technologies Used

NEXT.js  OpenAI



Key Winning Features & Justifications

Auto Quiz Generation

- Converts any video lecture into a fully structured quiz
- Educator-ready format

Smart Summarization

- Clean, concise summaries generated instantly
- Helps students revise faster

Save & Retrieve User Data

- Users can save generated quizzes to their account
- Quizzes remain accessible when they log in again
- Works like a personalized learning library

Key Capabilities (Convenience, Exporting, User Benefits)

Export to PDF or Word

- One-click export for quizzes and summaries.
- Teachers can download printable materials.
- Students can keep offline study notes.

Organized Dashboard

- Saved quizzes and summaries are stored securely.
- Users can browse or re-use past work anytime.
- Makes the platform ideal for long-term learning.

Fast Processing Pipeline

- Upload → Transcribe → Summarize → Quiz
- Optimized chunking for smooth performance.
- Real-time progress indicators for the user.

Technical Advantages (Scalability & Speed)

Distributed 3-Container Architecture

Our backend runs on a 3-container distributed system, each container handling a different stage:

How it works?

- Video is split into equal chunks for independent processing
- Three Docker containers process chunks simultaneously (parallel transcription)
- All partial transcriptions are merged in order
- Final transcript is used to generate the summary, quizzes, and interactive transcript

Why It's Powerful

- Much faster processing through parallelization
- Automatically scales horizontally (more containers can be added)
- Handles long videos efficiently
- Reliable performance even with high user load
- Docker + AWS EC2 ensures flexible, smooth scaling

Current Status & Prototype

What We Have Built:

- Full working pipeline: Upload → Transcription → Summary → Quiz Generation
- Frontend with transcript viewer & quiz interface
- Backend containerized using Docker
- Deployed on AWS EC2 instance with proper configuration.
- Database integration (MongoDB)

Technical Challenges Overcome:

- Solved AWS permission limitations using Docker deployment strategy
- Implemented efficient chunking for large video files
- Optimized transcript accuracy and speed

Demo Video



Business Model: How We Make Money

1. BASIC — Free

- Short videos (up to 5 min)
- Basic transcripts & summaries
- Up to 3 saved items
- Limited quiz generation

Purpose:

Attract users, grow traction, convert to paid tiers.

2. PLUS — \$9.99/month (Most Popular)

For regular learners & content creators

- Longer videos (up to ~30 min)
- Higher accuracy transcripts
- Detailed AI summaries
- Unlimited quizzes
- Save up to 50 items

Revenue Driver:

Main user segment; highest expected conversion rate.

3. PREMIUM — \$19.99/month

For teachers, institutions & power users

- Everything in Plus
- Very long videos (lectures/talks)
- Export to **PDF / DOCX / TXT**
- Advanced quiz modes
- Priority processing

High-Value Tier:

Targets educators, tutoring centers, e-learning platforms.

The screenshot displays the 'Choose your Loomia plan' interface. At the top, it states 'All plans include AI transcription, summaries, and quiz generation.' There are three plan cards. The 'BASIC' card is white with a purple border, labeled 'Free' and 'Perfect to try Loomia.' It lists features: 'Short videos (up to 5 min)', 'Basic transcript & summary', 'Up to 3 saved items', and 'Limited quiz questions'. The 'PLUS · MOST POPULAR' card is purple with a white border, labeled '\$9.99 / month' and 'For regular learners & creators.' It lists features: 'Longer videos (up to ~30 min)', 'Higher accuracy transcripts', 'Detailed AI summaries', 'Unlimited quizzes & retries', and 'Save up to 50 items'. The 'PREMIUM' card is white with a purple border, labeled '\$19.99 / month' and 'For teachers & power users.' It lists features: 'Everything in Plus', 'Very long videos (talks/lectures)', 'Export to PDF, DOCX, TXT', 'Advanced quiz modes', and 'Priority processing'. Each card has a button at the bottom: 'Start for free', 'Choose Plus', and 'Choose Premium' respectively.

Plan	Price	Target Audience	Key Features
BASIC	Free	Perfect to try Loomia	Short videos (up to 5 min), Basic transcript & summary, Up to 3 saved items, Limited quiz questions
PLUS · MOST POPULAR	\$9.99 / month	For regular learners & creators	Longer videos (up to ~30 min), Higher accuracy transcripts, Detailed AI summaries, Unlimited quizzes & retries, Save up to 50 items
PREMIUM	\$19.99 / month	For teachers & power users	Everything in Plus, Very long videos (talks/lectures), Export to PDF, DOCX, TXT, Advanced quiz modes, Priority processing

The payment gateway and subscription system are planned for the future development phase.

We held this step until we secure stable AI billing support and expanded AWS resources to ensure a smooth and reliable launch.

Team Members & Contributions

Aayush Neupane

Role: Backend & Architecture Lead

Contributions:

- Designed and implemented the **Docker-based 3-container distributed system**
- AWS deployment, load balancing, and scalability
- AI pipeline integration: transcription → summary → quiz
- Built backend APIs for video processing, saving user data, and authentication

Shishir Paudel

Role: Frontend & UX Lead

Contributions:

- Built the entire **frontend interface** (Next.js)
- Designed UI/UX for quiz viewer, transcript player, and summary pages
- Implemented user dashboard for saved quizzes & data retrieval
- Led testing, styling, and performance optimization

Team Strength

Together, we built a fully functional, scalable, end-to-end e-learning platform combining AI, distributed backend computing, and modern UI/UX.

What We Are Asking & Roadmap Forward

What We Are Asking For

We are seeking support in:

- **Cloud resources** for stable long-term deployment
- **Feedback on scaling and institutional integration**
- **Technical validation** for distributed processing and AI accuracy

Implementation Plan

Phase 1 - Technical Validation

- Improve transcription accuracy & chunk merging
- Validate 3-container performance under load
- Fine-tune quiz and summary generation

Phase 2 - Feature Expansion

- Add payment gateway(Stripe) and implement defined subscription plans.
- Improve export formatting (PDF/DOCX)
- Add translation (up to 20 different languages)

Phase 3 - Market Entry

- Beta launch for students
- Partnerships with schools & tutoring centers
- Begin marketing through TikTok, YouTube, and Discord groups

Phase 4 - Scale-Up

- Add more containers for faster parallel processing
- Move to Kubernetes for auto-scaling
- Introduce institutional billing & dashboards



Thank You !



Any Question ?