



H-AI Human Hands-free Helper

Delivering **Happy, Hassle-Free, and
High-Quality** Field Service
Experiences

H-AI, the Human Hands-Free Helper, is an AI-powered assistant that **captures and analyzes everything technicians do in the field** – through video, voice, and text.

It transforms rugged, hands-on work environments into streamlined, error-free reporting processes.

By **eliminating manual data entry** and leveraging AI to **auto-generate post-operation logs**, we ensure technicians focus on what matters most: safe, high-quality repairs.

The result? **Happy, hassle-free, and high-quality** field service experiences – every time.



INTRODUCTION AND ASSUMPTIONS

What we know

What we assume

What we acknowledge what we cannot control

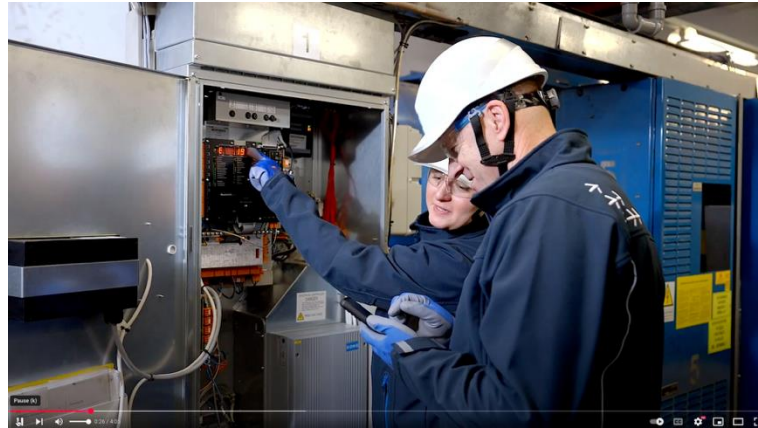


Introduction and Assumptions

What we know (based on our study and research)



1 Technicians work in challenging, sometimes hazardous environments.



2 They're using rugged devices with small screens and limited input capabilities.



3 Post-operation reporting is essential but time-consuming and error-prone.

Introduction and Assumptions

What we assume

1. The AI models have already been **selected and trained**, but it's **not fully fine-tuned yet**. It can be improved through real-world adoption and technician feedback.
2. Technicians have access to some kind of recording device – a rugged phone, a body camera, or even AR glasses in the future.
3. Existing systems contain telemetry data, service tickets, and manuals, but these are **somewhat integrated but not** always.

Introduction and Assumptions

What we acknowledge what we **cannot** control

1. How or where data is captured in the field, and how compliance and data privacy concerns are handled – these depend on the hardware and customer environment.
2. How the AI models are trained – we rely on existing cognitive services and APIs. In this demo, we are using:
 1. VideoLLaMA 3: Frontier Multimodal Foundation Models for Image and Video Understanding
 2. Video-XL: Extra-Long Vision Language Model for Hour-Scale Video Understanding (CVPR 2025 Oral)
 3. ChatGPT-4o for natural language processing and final report generation.
3. The generated maintenance report template in our demo is **just for illustration** – it can be customized and fine-tuned based on scenarios, regions, and languages.

PROBLEM STATEMENT



Our focus today is on **one core challenge**

Problem Statement


Post-operation reporting is **vital** for safety, compliance, and creating a complete maintenance history.

But in the field, **manual data entry is often cumbersome, error-prone, and incomplete.**

Technicians have to work in poor lighting, wear gloves, and **prioritize fixing the elevator over note-taking** – and that can lead to missing or inaccurate data.

This gap affects data quality and slows down the entire service cycle, making it **harder to deliver happy, hassle-free, and high-quality field service experiences.**

Maintenance



Service Order	000829372990
Contract Number	42383929
Customer Name	R. PADMA PRIYA

Site Name	R. PADMA PRIYA
Equipment Number	45135449
Equipment ID	NOT AVAILABLE
Address	79/4, DR.RADHAKRISHNAN SALAIB/H NEW WOODLANDS HOTEL,MYLAPORE
City	CHENNAI
Post Code	600004

Job Description

Attended By

Arrived Time

Work Completed Time

Maintenance modules performed

Comments Customer

Routine maintenance completed, back to normal
1.all cleaning OK
2.all safety checked OK
l24 /7 installed done
now lift working condition

Kumaresan PORMANNAN


07/01/2025 15:46:02

07/01/2025 16:42:10

B: Basic module

This is a record of completion for the above maintenance modules. Should there be any items that we need to bring to your attention, following this visit a member of our team will be in contact.

Customer Signature



Signed By

muthukumar

This e-mail is generated automatically.

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KONE Elevator India Pvt Ltd, East Wing, 5th Flr, Arcot Road, , Saligramam, , No.136, Shyamala Towers, , CHENNAI, 600093

Tel No: +91 44 66254254, Fax: , www.kone.com,

OUR SOLUTION



Demo - **Technician's Day in the Field**

Our Solution - Demo



Let's bring our H-AI solution to life with a real-world example: A short, 20-second POV video of a technician's field operation from TikTok.

The technician arrives on-site and begins repairs. In this clip, he checks parts of the elevator and prepares to apply lubricant using a syringe-like tool.

Rather than typing out notes on a tiny screen, he **simply uses a video recorder to capture** what he's doing.

Throughout the repair, the device records video and audio, ensuring every step is captured **without interrupting** his work.

Once the operation is complete, our AI automatically generates a draft **post-operation log**, which the technician can quickly review and verify.

To be continued...

Our Solution - Demo



In the following slides, we'll demonstrate:

- How the code **processes** video and audio recordings.
- The **prompts** we use to guide the AI, and the outputs generated.
- **Comparisons** between **outputs** from different models.
- An interface that shows how the technician can **review and refine** the generated report.
- Final generated report.

You'll notice that while one model might **capture everything accurately**, another might make small mistakes – but crucially, the technician always has the chance to **correct or validate** the output before the final report is created.”

Our Solution - Demo (Happy Path)



Output

"The technician uses a tool to manipulate and adjust various components of the elevator mechanism, including bolts and pulleys. They also use a syringe filled with a yellowish liquid to apply lubricant or cleaning solution to specific parts."

```
VideoLLaMA3 > inference > example_videollama3.py > ...
32
33 # Video conversation
34 conversation = [
35     {
36         "role": "system", "content": "You are a detailed observer of a video focused on elevator maintenance. Your task is to describe the actions and visual elements."},
37     {
38         "role": "user",
39         "content": [
40             {"type": "video", "video": {"video_path": '/root/code/Video-XL/433.MOV', "fps": 1, "max_frames": 180}},
41             {"type": "text", "text": "Describe the technician's actions. Include the tools being used, the components being accessed."},
42         ],
43     },
44 ]
45 print(infer(conversation))
46
```

python3 - VideoLLaMA3 | 1/4 [00:02<00:07, 2.51s/it]

Our prompts

VideoLLaMA 3: Frontier Multimodal Foundation Models for Image and Video Understanding

Zhang, Boqiang, et al. "VideoLLaMA 3: Frontier Multimodal Foundation Models for Image and Video Understanding." arXiv preprint arXiv:2501.13106 (2025).

Our Solution - Demo (Unhappy Path)



Our prompts

Output

[illegible]

Video Summary:

The video depicts skilled mechanical technicians engaged in detailed maintenance and inspection activities with an industrial elevator machine. The sequence showcases sequential steps, where each task is performed on different components such as drive pulleys, gear housings, and hydraulic lines.

At the beginning of the video:

- A technician **uses a wrench** to loosen a retaining bolt above the upper drive pulley.
- Subsequently, they are seen applying a lubricating substance to an unspecified component.

Following this:

- The individual inspects and manipulates various parts, including removing and replacing a worn V-belt, adjusting settings or applying measurements, and working on different sections like gears on the top level drive component.

As the video progresses:

- The maintenance includes cleaning or preparing surfaces, repositioning and tightening of bolts or fasteners, and inspecting various components for signs of wear or damage.
- There is also evident testing or evaluation activity, as indicated by the technician using tools to assess functionality of the gears before final adjustments or reassembly.

In later frames:

- The technician handles hydraulic lines, ensuring proper connections and fittings, demonstrating thorough inspections and maintenance practices throughout the maintenance session.

Towards the end of the video:

- A final inspection or testing step ensures safety measures, including ensuring all components are correctly aligned and function properly before concluding the maintenance process.

To summarize, the video documents the methodical approach of mechanical technicians as they address specific issues with the industrial elevator machinery, involving inspections, removal of worn components, application of lubricants, adjustments, reconnections, and final verification for safe and functional operation. No replacement parts were mentioned, suggesting a focus on cleaning, maintenance, inspection, and adjustment rather than substantial replacements.

Our Solution - Demo (Unhappy Path)



A technician **uses a wrench** to loosen a retaining bolt above the upper drive pulley.

For example, the AI **incorrectly identifies** the technician as using a wrench to loosen a retaining bolt above the upper drive pulley – even though no wrench was used.

This analysis error is easily detected by the technician, who can quickly correct it before the final report is generated.

Our Solution - Demo (Interface)

Interface

Video Text Verification & Report Generator
Review, verify, and modify text captured from video content, then generate comprehensive reports

Verification | **Text Editor** | Generate Report

Advanced Text Editor | Undo | Redo | Format | Save Changes

- A technician uses a wrench to loosen a retaining bolt above the upper drive pulley.
- Subsequently, they are seen applying a lubricating substance to an unspecified component.

Words: 29 | Characters: 178 | Lines: 3 | History: 1/1

Editor Features:

- Real-time word and character counting
- Undo/Redo functionality with history tracking
- Basic text formatting and cleanup
- Auto-save on navigation (changes persist)

Video Source

Sample Business Meeting
0:00 / 3:00

Duration: 3:00 | Status: Text Captured

Resolution: 1920x1080
Frame Rate: 30 FPS
Audio: Stereo

Capture Info
Text extracted using advanced OCR technology with 94.2% confidence score. Processing completed in 2.3 seconds.

Verification Statistics

28 Total Words | 142 Verified

Completion Rate: 507.1%
Confidence Score: 94.2%
Modification Rate: 100.0%

92.3%
Overall Quality Score
Good

Accuracy Rate: 90.4%
Words Modified: 28
Processing Status: In Progress

Recommendation
Good quality. Consider reviewing unverified sections.

Verification and correction

Video Text Verification & Report Generator
Review, verify, and modify text captured from video content, then generate comprehensive reports

Verification | Text Editor | Generate Report

Verify Selected (0) | Flag Selected (0) | Reset to Original

Interactive Text Verification

Click on words to select them, then verify or flag for review. Double-click to edit individual words.

A technician uses a wrench to loosen a retaining bolt above the upper drive pulley. Subsequently, they are seen applying a lubricating substance to an unspecified component.

Clickable Words | Modified Words | Double-click to Edit

Video Source

Sample Business Meeting
0:00 / 3:00

Duration: 3:00 | Status: Text Captured

Resolution: 1920x1080
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Verification Statistics

Our Solution – Demo (Report Generation)

Instructions and prompts

The technician is seen in a well-lit indoor setting, likely a workshop or maintenance area. Dressed in a light-colored shirt, he uses a syringe to apply lubricant to the door lock mechanism of an elevator. The close-up view highlights his precise movements as he ensures the lubricant reaches the necessary parts of the mechanism. The background shows various tools and equipment, emphasizing the technical nature of the task. The technician's deliberate actions demonstrate a methodical approach to maintaining the elevator's smooth operation.

Here is the maintenance report based on your description:

Maintenance Log Entry – Elevator Door Lock Mechanism

Date: [Enter date of maintenance]

Location: [Enter site or building name]

Technician: [Enter technician name or ID]

Component: Elevator door lock mechanism

Action Taken:

- In a controlled indoor environment, technician applied lubricant using a syringe to 1 mechanism.
- Lubrication was carefully directed to ensure penetration into key moving parts of it
- The procedure was performed with precision, indicating attention to minimizing ov ensuring functional improvement.
- Background environment included typical workshop tools and maintenance equipn adherence to professional servicing standards.

Remarks:

No irregular wear or mechanical faults observed during this session. Lubrication perfon preventive measure to enhance smooth engagement of the door locking mechanism. R periodic reapplication as per maintenance schedule to ensure continued reliability.

Elevator Repair Report

Customer Information:

- Customer Name: MetroRise Property Management
- Contract Number: MR-2024-7893
- Site Address: 1550 Market Street, Suite 300, San Francisco, CA 94103

Equipment Details:

- Equipment Number: ELEV-00567
- Equipment Type: Hydraulic Elevator
- Model: Otis Gen2 HydroLift
- Serial Number: HYL-894523-A

Service Details:

- Service Order Number: SRV-1180423
- Date of Service: 2025-05-30
- Time In: 09:15 AM
- Time Out: 12:45 PM
- Technician Name: Jordan Lee

Reported Issue:

Intermittent door locking failure on the ground floor, and excessive vibration during upward travel.

Diagnosis:

Inspection revealed insufficient lubrication in the door lock mechanism causing delay in locking. Worn V-belt observed in the drive system, contributing to vibration during elevator ascent. Hydraulic connections were slightly loose, requiring torque adjustment. No safety standard violations identified.

Corrective Actions Taken:

- Applied precision lubricant to door lock mechanism using syringe applicator.
- Replaced worn V-belt in the upper drive system.
- Inspected and adjusted gear alignment.
- Retorqued hydraulic line connections and verified seal integrity.
- Conducted functional tests on drive components and ensured smooth door operation.
- Performed software diagnostics – no update necessary; calibration values within normal range.

Parts Replaced:

- V-Belt – VB-1325X – 1

Safety Checks Performed:

- Emergency stop functionality
- Door operation and sensors
- Alarm systems
- Interlocks and safety circuits

Observations & Recommendations:

Recommend full cleaning of door track system during Q3 scheduled maintenance to reduce wear accumulation.

Continue to monitor gear vibration; no immediate risk identified.

Suggest proactive replacement of door rollers in next service cycle to maintain smooth operation.

Customer Acknowledgment:

I acknowledge that the service described above has been completed to my satisfaction.

Customer Signature: _____

Date: 2025-05-30

Technician Signature: _____

Date: 2025-05-30



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Technician Signature: _____

Date: 2025-05-30

OUR GOAL

The AI does the paperwork, Delivering **Happy**, Hassle-Free, and High-Quality Field Service Experiences.





Our Goal

Our goal is simple: to **ease the daily work of field technicians** and eliminate repetitive, error-prone reporting tasks. We want technicians to focus fully on **safe, high-quality work**, while AI seamlessly handles the documentation.

FUTURE PROSPECTS

In the future, we envision going further



Future Prospects

Looking to the future, we see even greater possibilities:

- **Data and Information Integration:** By collecting ticket information and maintenance history from systems like **KSS** (Kone Signalization System) and tools such as **KONE 24/7 Connected Services**, we can fine-tune AI prompts on each visit and make the system smarter and more precise for each scenario.
- **AR and Real-Time Assistance:** With richer data and better-trained models, hardware like **AR glasses** can deliver real-time visual prompts and even step-by-step instructions in the field – turning the AI assistant into a true hands-free guide.
- **Continuous Improvement Cycle:** The more data we collect, the smarter the system becomes – leading to **continuous improvements** in technician workflows, operational safety, and overall customer satisfaction.



We are H-AI.
The Human Hands-Free Helper – your AI-powered assistant in the field.

H-AI **captures and analyzes everything** technicians do: video, voice, and text – all in rugged, hands-on environments.

It **eliminates** manual data entry, auto-generates accurate post-operation reports, and ensures technicians **focus** on what **matters most**: safe, high-quality repairs.

The result?
Happy, hassle-free, and high-quality field service experiences – every time.



AI
elpful
assle-free
uman-centric
armonious
igh-Impact
eroic
euristic
olistic
yper-accurate
igh-quality
appy
elper
igh-efficiency
ands-free



THANKS