

CODE-A-THON 2024

24-hour coding Challenge

Problem Statement 1

Develop a next gen capability for service technicians to record equipment inspections without having to manually write/type.

- » Functional, AI powered, CAT Inspect application.
- » Presentation to highlight the key application functionalities.
- » The MVP (minimal viable product) codebase.

Supporting details:

What is an Inspection?

Inspection is a key process to identify and record any issues observed with equipment. Such issues might include, for example, a broken windshield, worn tires that need replacement, or oil colour that is too dark.

How do inspections help?

Timely inspection prevents unintended breakdown that can cause disruption to work & high servicing cost.

Expected Outcomes:

- Voice Enabled/Guided Inspection
- Prompt to capture specific information per given form. The prompts are derived from the questionnaire.
- Voice Record inspection finding for each section of the form.
- Upon a specific word (Ex: OK/ Record), the next prompt to be played.
- On recognizing specific predefined words (Ex; Broken, High, Low, Rust, etc.), prompt for
- Capturing images of the specific part
- Record the concerned parameter value.
- Upon completing inspection, allow inspector to validate & enhance the report.
- Upon validation of the inspection report, allow storing the report for subsequent retrieval.
- UI for Listing & Viewing completed/in progress Inspections. Include specific report search capability based on report identifier.
- Generate inspection report summary with the needed actions.
- Export Inspection Details to PDF. Images to be included in appropriate sections.
- Enable voice-based inspection in Multiple Languages (for ex. Hindi, English, etc)

Inspection Templates

HEADER

- Truck Serial Number – Example 7301234,730EJ73245,73592849, 735EJBC9723
- Truck Model – Example 730 ,730 EJ,735,745
- Inspection ID – Auto-incremented unique number
- Inspector Name
- Inspection Employee ID
- Date & Time of Inspection
- Location of Inspection
- Geo Coordinates of Inspection (optional, in case of remote location)
- Service Meter Hours (Odometer reading)
- Inspector Signature
- Customer Name /Company name
- CAT Customer ID

1.TIRES

- Tire Pressure for Left Front
- Tire Pressure for Right Front
- Tire Condition for Left Front – (Good, Ok, Needs Replacement)
- Tire Condition for Right Front – (Good, Ok, Needs Replacement)
- Tire Pressure for Left Rear
- Tire Pressure for Right Rear
- Tire Condition for Left Rear – (Good, Ok, Needs Replacement)
- Tire Condition for Right Rear – (Good, Ok, Needs Replacement)
- Overall Tire Summary: (<1000 characters)
- Attached images of each tire in the same order.

2.BATTERY

- Battery Make : Example CAT,ABC, XYZ etc
- Battery replacement date:
- Battery Voltage – Example 12V / 13 V
- Battery Water level (Good , Ok , Low)
- Condition of Battery (Any damage) Y/N. If yes attach image
- Any Leak / Rust in battery (Y / N)
- Battery overall Summary: (<1000 characters)
- Attached images.

3.EXTERIOR

- Rust, Dent or Damage to Exterior: Y/N, If yes explain in notes and attach images
- Oil leak in Suspension (Y/N)
- Overall Summary (1000 Character Notes)
- Attached images.

4.BRAKES

- Brake Fluid level: (Good, Ok , Low)
- Brake Condition for Front – (Good, Ok, Needs Replacement)
- Brake Condition for Rear – (Good, Ok, Needs Replacement)
- Emergency Brake: (Good , Ok , Low)
- Brake Overall Summary (<1000 characters)
- Attached images.

5. ENGINE

- Rust, Dents or Damage in Engine: Y/N. If yes explain in notes and attach images.
- Engine Oil Condition - Good / Bad
- Engine Oil Color - Clean / Brown / Black etc
- Brake Fluid Condition - Good / Bad
- Brake Fluid Color: Clean / Brown / Black etc
- Any oil leak in Engine (Y/N)
- Overall Summary (<1000 characters)
- Attached images.

6. Voice of Customer

- Any feedback from Customer
- Images related to the issues discussed with customer.