

Mobile App Development.

Dharmendra Reddy Chitte

CS 5143 - Online

**User Guide
Grad Assignment**

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Steps for Using the Railroad Boxcar Condition Classifier App:

Welcome Screen:

Upon launching the Railroad Boxcar Condition Classifier app, you'll be greeted with a screen that displays the app's logo and name. Wait a moment for the app to load.

Home Screen - Starting the Classification:

Once the app loads, you'll arrive at the home screen. Here, you have two options to provide an image of the railroad boxcar for classification:

Open Camera: To capture a new photo, tap the 'Open Camera' button. Aim your camera at the boxcar and take a picture. Review your photo and if it's good, tap "Use Photo" to proceed.

Open Photos: To use an existing photo from your gallery, tap the 'Open Photos' button. Browse your library, select your desired image, and confirm by tapping "Use Photo".

Results Screen - Viewing the Prediction:

After providing the image, the app will process it and take you to the results screen. This screen will present you with detailed information about the boxcar's condition, including:
Label: The predicted condition category of the boxcar, such as Level 1- Like New, Level 2 – Light Rust, Level 3- Moderate Rust, Level 3- Severe Rust, or , Level 4- Near Failure.

Predictions: A set of confidence percentages next to each condition level, indicating how likely the boxcar belongs to each category.

Note: For the most accurate results, ensure that the boxcar image is clear, well-lit, and that the boxcar occupies a significant portion of the photo frame.

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Application Home Screen:

4:18



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Image Classifier for Rail Road Box Car

Upload Images through..

From Photos

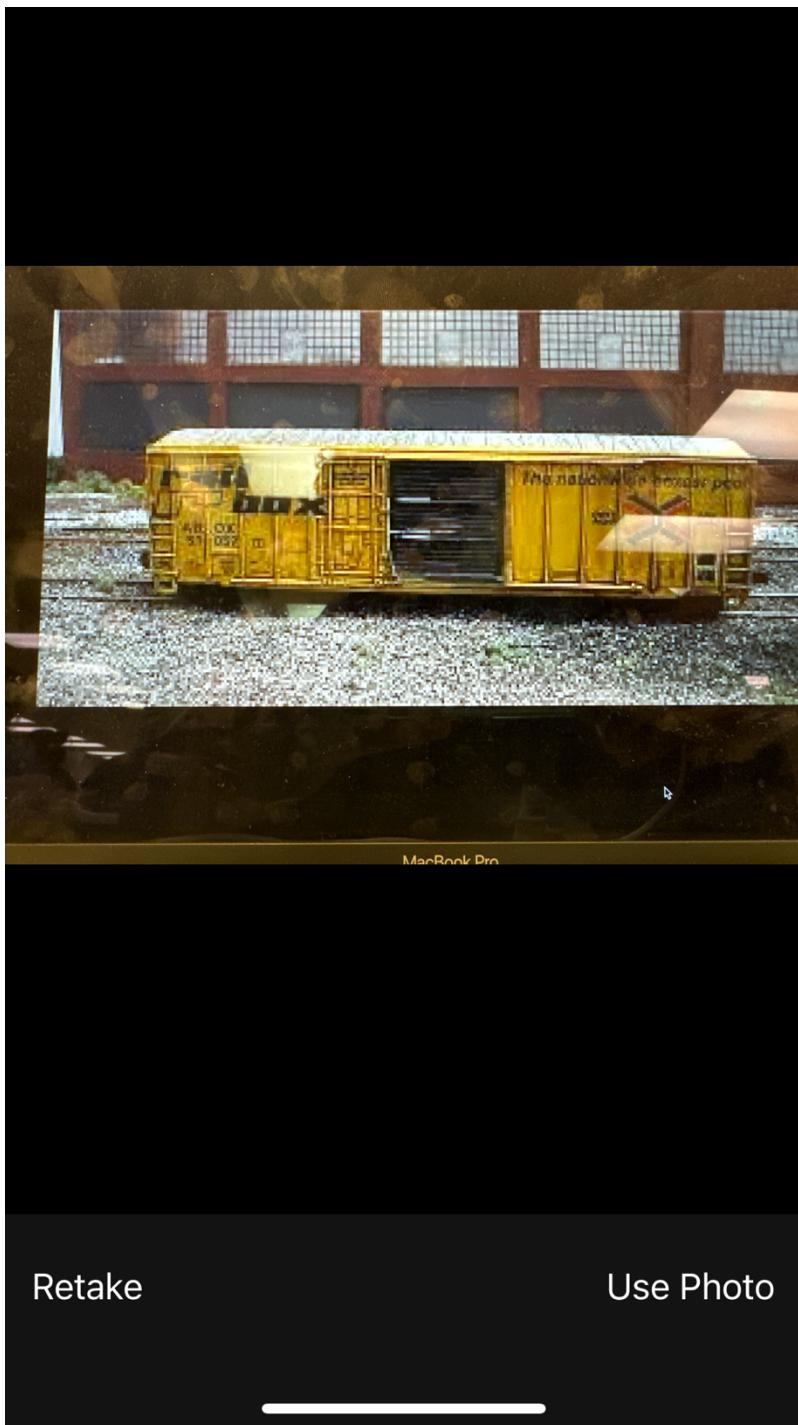
Open Camera

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Uploading Image Through Camera:



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Results for the Rail box uploaded through Camera:

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Results



The condition of box car is Level 3 -
Moderate Rust

Matching Details

Level 1-Like New:0.0

Level 2-Light Rust:0.0

Level 3-Moderate Rust:100.0

Level 4-Severe Rust:0.0

Level 5- Near Failure:0.0

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Uploading Image Through Photos:

Cancel Photos Albums

Photos, People, Places...

 Private Access to Photos X

Your photo library is shown here, but "MAD_Grad_Chitte_DharmendraReddy" can only access the items you select.

[Learn More...](#)

The condition of box car is Level 3 - Moderate Rust

Matching Details

Level 1-Like New:0.0







Image Classifier for Rail Road Box Car

Upload Images through...

From Photos

The condition of box car is Level 4 - Severe Rust

Matching Details

Level 1-Like New:0.0





The condition of box car is Level 5 - Near Failure

Matching Details

Level 1-Like New:0.0







Location Is Included

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Results for the Rail box uploaded through Photos:

[!\[\]\(9dfdaff1d86ba3c1f8353b4d1b61b8c5_img.jpg\) Back](#)

Results



The condition of box car is Level 5 -
Near Failure

Matching Details

Level 1-Like New:0.0

Level 2-Light Rust:0.0

Level 3-Moderate Rust:0.0

Level 4-Severe Rust:0.0

Level 5- Near Failure:100.0

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Understanding Core ML in the Railroad Boxcar Condition Classifier App:

Core ML is a powerful and versatile framework provided by Apple that enables developers to integrate machine learning models into their iOS, macOS, watchOS, and tvOS apps. The Railroad Boxcar Condition Classifier app leverages Core ML to accurately determine the condition of railroad boxcars from images.

How Does Core ML Work in Our App?

- **Model Integration:** We have trained a specialized machine learning model that recognizes various signs of wear and tear on boxcars. This model is integrated into our app using Core ML, allowing for efficient on-device image analysis.
- **On-Device Processing:** Core ML processes data directly on your iOS device, which means your photos are not uploaded to a server. This provides a fast and secure user experience, ensuring your data privacy.
- **Real-Time Predictions:** As you upload or capture a photo of a boxcar, Core ML quickly processes and classifies the image. This real-time prediction happens in seconds, immediately providing you with insights into the boxcar's condition.
- **Optimized for Performance:** Core ML is optimized for performance. It takes advantage of the powerful hardware in iOS devices, utilizing the CPU, GPU, and Neural Engine to provide high-speed computations for machine learning tasks.
- **Dynamic Updates:** Our app's Core ML model can be updated regularly to improve accuracy and adapt to new patterns in boxcar conditions without the need to update the entire app.

Benefits of Using Core ML in Our App

- **Privacy:** All image processing is done on your device, keeping your data private and secure.
- **Speed:** Enjoy near-instantaneous results without the need for an internet connection.
- **Accessibility:** The app doesn't require technical knowledge to use; Core ML's integration is seamless, requiring no additional steps from the user.
- **Efficiency:** Core ML's optimized performance means it won't drain your device's battery during processing.

Remember, while Core ML does the heavy lifting, the accuracy of the results also depends on the quality of the images you provide. Clear, well-lit images where boxcars are prominently featured will yield the best results.

Note: Run in Iphone for Better Results