

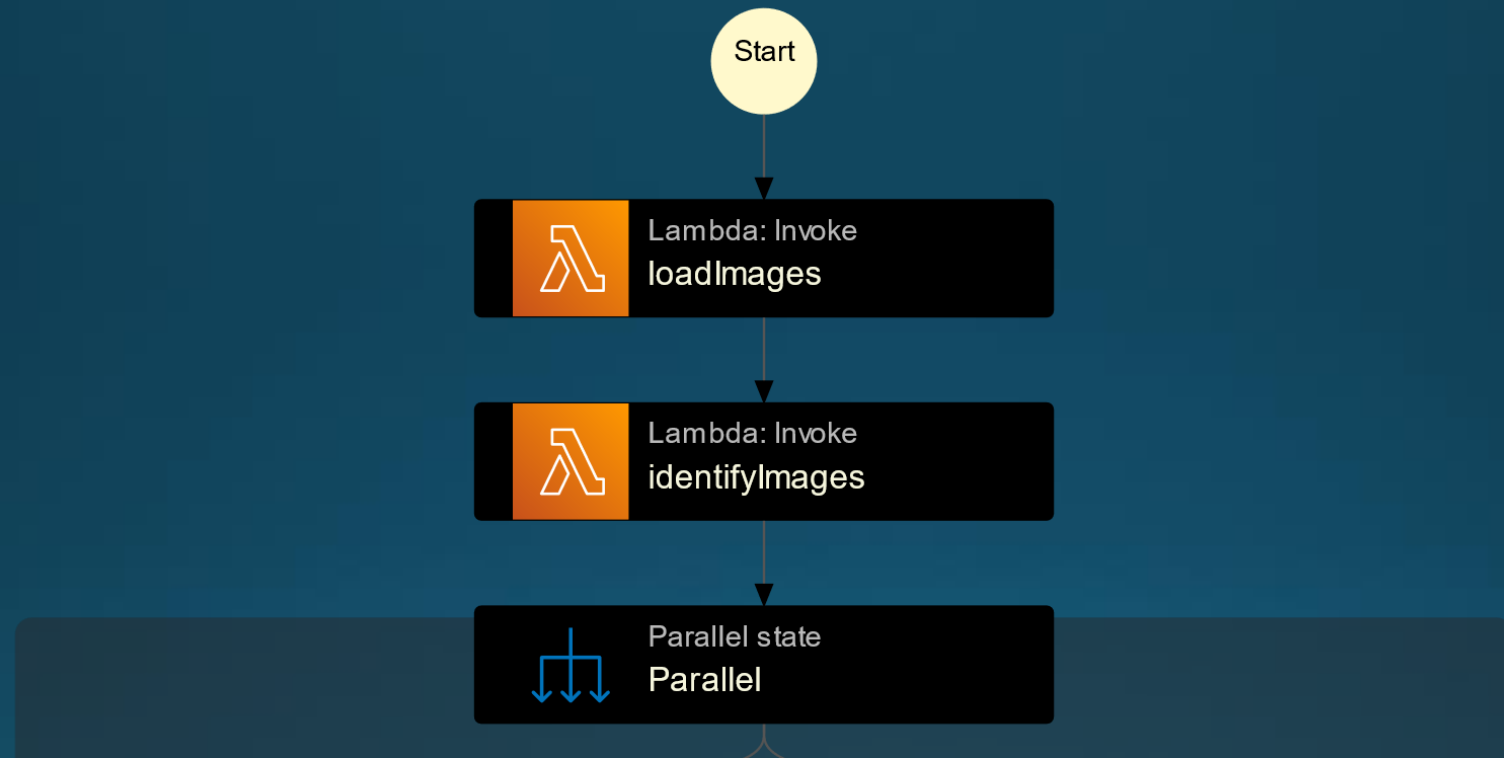
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Road Analysis System

Idea and Features

- Parking Slot Detection
- Traffic Jam Detection
- Special Events (not included)

Workflow



Workflow



1. Review dataset

Verify that your images are labeled correctly. If the dataset needs more images, choose Actions and then the appropriate dataset under Add Images. [Learn more](#)



2. Add labels

You add labels for each type of object, scene, or concept in your dataset. To add or modify labels, choose Start labeling and then choose Edit labels. [Learn more](#)



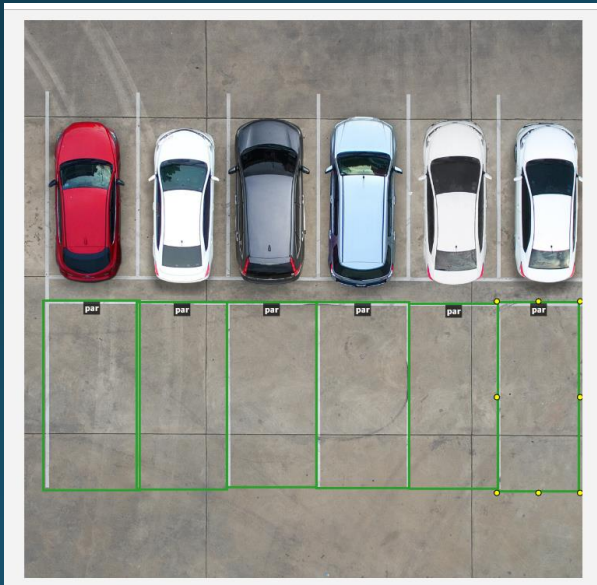
3. Label images

Choose the images that you want to label. If you need to label an entire image, choose Assign labels and assign image-level labels. If you need to label object locations, Choose Draw bounding boxes. Then draw bounding boxes around objects and assign labels. Choose Save changes to finish. [Learn more](#)

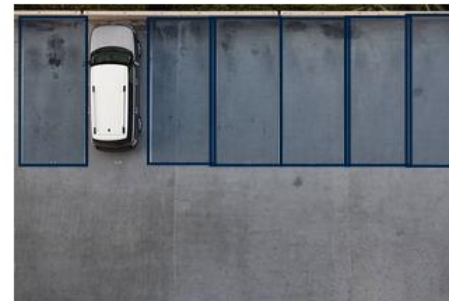


4. Train model

After your datasets are ready, Choose Train model to train your model. Then, evaluate and use the model to find objects, scenes, and concepts in new images. [Learn more](#)



lot20.jpg



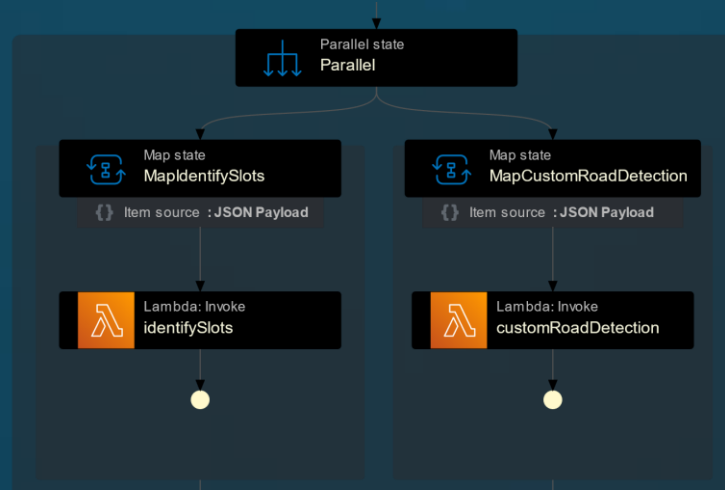
■ parkingSlot X

lot21.jpeg



■ parkingSlot X

Workflow



identifySlots

- invokes our Model
- analyzes Image to detect custom labels
- returns all labels as a list

customRoadDetection

- detects roads and draws a box
- computes the area covered by roads

Workflow

filterSlots

- calculates a margin for the slot size
- removes invalid entries from the list



identifyTrafficJams

- detects whether the image is representing a traffic jam or not

Workflow

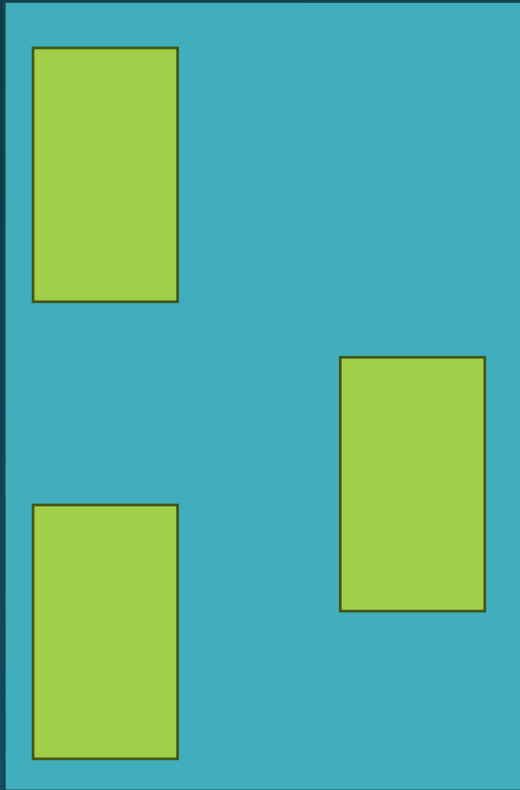


detectSeverity

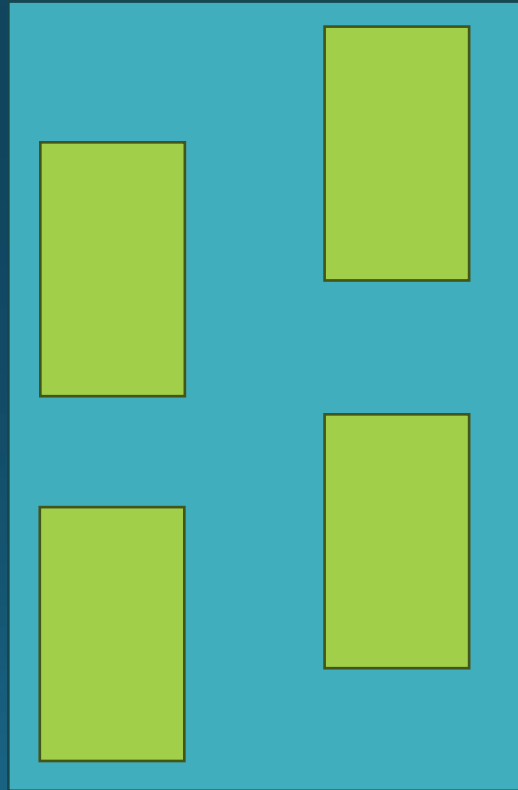
- computes the severity of the traffic jam

detectSeverity

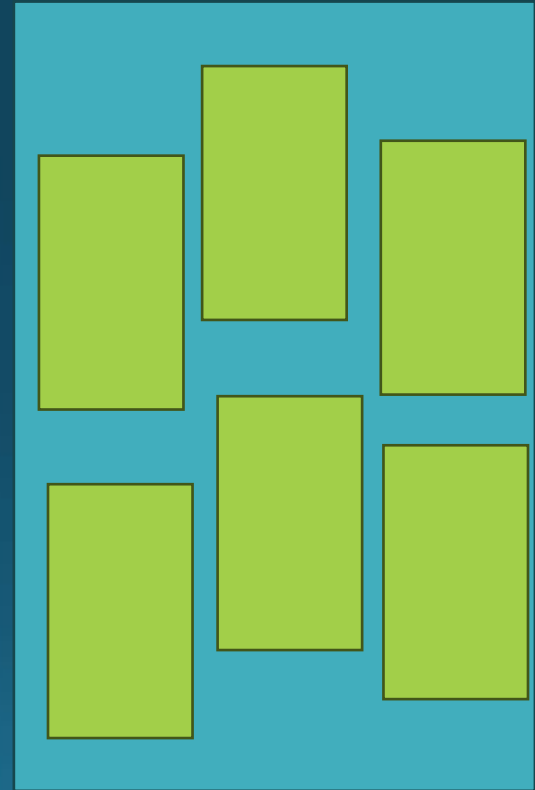
Low



Medium



High



Workflow

countSlots

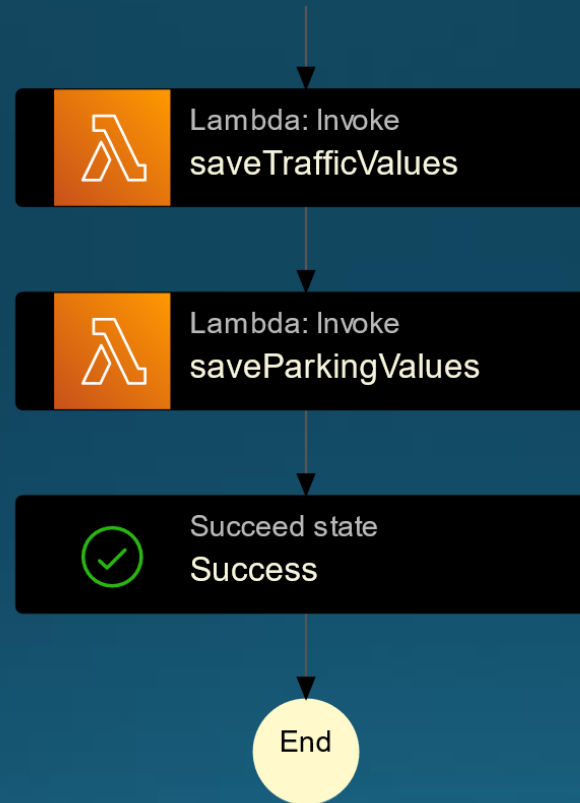
- length of custom label list = count



splitData

- groups the images into „low“, „medium“ and „high“

Workflow



(Live Demo)

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Evaluation

- Execution time: about 4-5 minutes (with models)
- AWS Rekognition Custom Labels
 - Inference hour: \$4 per hour
 - Training hour: \$1 per hour
 - → Trained more than 3 times
 - → Used more than 3 hours
 - → Forgot to stop model for about 1 day → \$160
- EC2
 - Stopped instance but randomly started overnight by itself → \$3