Retina Visions

Precision in Pixels: Automating asset inspection with machine learning

Precision in Pixels: Automating asset inspection with machine learning

Banyule City Council trial

Our eyes on your roads

Stereo Vision

Trusted AI technology provider

The Problem

Data Catalogue: Footpath

Just the beginning

Cutting-edge technology

Outdated Workflow

Setting the industry standard

Data Catalogue: Road

Defect identification & reporting

The Solution

Our eyes on your roads

- Footage via a Google Pixel camera soft-installed onto the windscreen
- Single cable plugged into power outlet
- Tamper proof, plug-and-play system: No interaction required from driver, automatic stop-start recording in line with ignition and movement
- Camera sends live stream of footage to Retina Visions' local Amazon Web Servers
- Defects identified by models and made available in web portal. Data integrated into client's EAM via API
- Constant evolution: Our model automatically trains and improves itself through machine learning

The Problem: Draining Time and Efficiency

- Legacy approach requires human inspections to log individual defects
- Reliance on public complaints to pinpoint problem areas
- Manual data entry reduces accuracy (subjectivity) and efficiency
- Low inspection frequency stretches time frames

The traditional model

Inspector conducts targeted inspections

Inspector exits vehicle for inspection

Inspector manually enters data into a paper-based template

Employee in the office manually enters data into asset maintenance system

Reliance on public reporting via call centre

Inspector manually enters data into a tablet

There is a better system already being used by Councils and State Governments. Here's how it works...

Harness the power of AI

- Our camera is used to conduct automated assessment across an exhaustive list of road and path defects each time the vehicle is driven

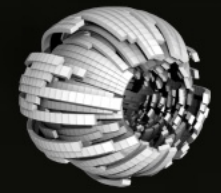
- Footage is uploaded to servers where it is processed and graded in near real time utilising artificial intelligence

- Output data is automatically sent to the Asset Maintenance System or data lake via API

Our clients trust us...

- Queensland Department of Transport and Main Roads
- Transport for NSW
- Moreton Bay Regional Council
- Canterbury Bankstown Council
- Transurban
- Downer
- Shoalhaven City Council
- Griffith City Council

We are making a material difference to the workforce efficiencies and bottom line of all our clients...



"Improved capture of road corridor defects (we know our network better)"

"Better use of operational resources to address defects"

"Increased output and efficiency of outdoor staff / contractors"

"Improved prioritisation of work orders to address defects"

Shoalhaven City Council

"Greater ability to filter and triage defects by risk and consequence"

"Faster response times for severe defects"

"Proof of damage for Natural Disasters"

"Reduced safety risks (particularly high-speed roads)"

Inside our cutting-edge technology...

- What is Machine Learning? Automated improvements and algorithm training creates a system that teaches itself to deliver perfect performance
- Computer Vision empowers automated decision making and identification of defects
- The synergy of these two technologies allows for an automated, accurate, comprehensive system that outperforms traditional models and creates a cost-effective, comprehensive defect catalogue

REC
REFUGE ISLAND
RETINA VISIONS v1.06
CLICK TO PLAY RETINA VISIONS' SYSTEM DEMONSTRATION VIDEO
00:00:06:18

Retina Visions' system capabilities are expanding

- Stormwater assessment
- Rail assessment
- Roughness index readings
- Signage inventory
- Defect measurements

Retina Visions' cameras identify and analyse an exhaustive list of defects...

ROADWAY

SIGNAGE

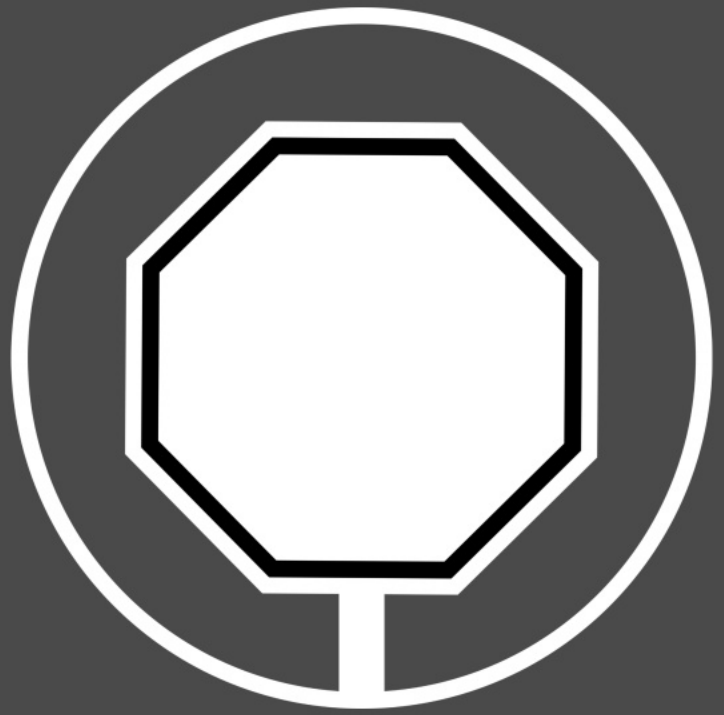
LINEMARKING

Data Catalogue: Roadway

- Kerb & Channel
- Litter / Debris
- Barriers / Guardrails
- Potholes
- Cracking
- Crocodile Cracking
- Shoving
- Rutting
- Raveling
- Flushing
- Vegetation
- Overhanging Branches
- Edge Damage
- Ponding Water
- Sweeping
- Roadkill
- Graffiti

Data Catalogue: Signage

- Speed limit signage
- Parking signs
- Stop / Give way signage
- Roadwork
- School Zones
- Bent / Faded signage
- Bent guideposts



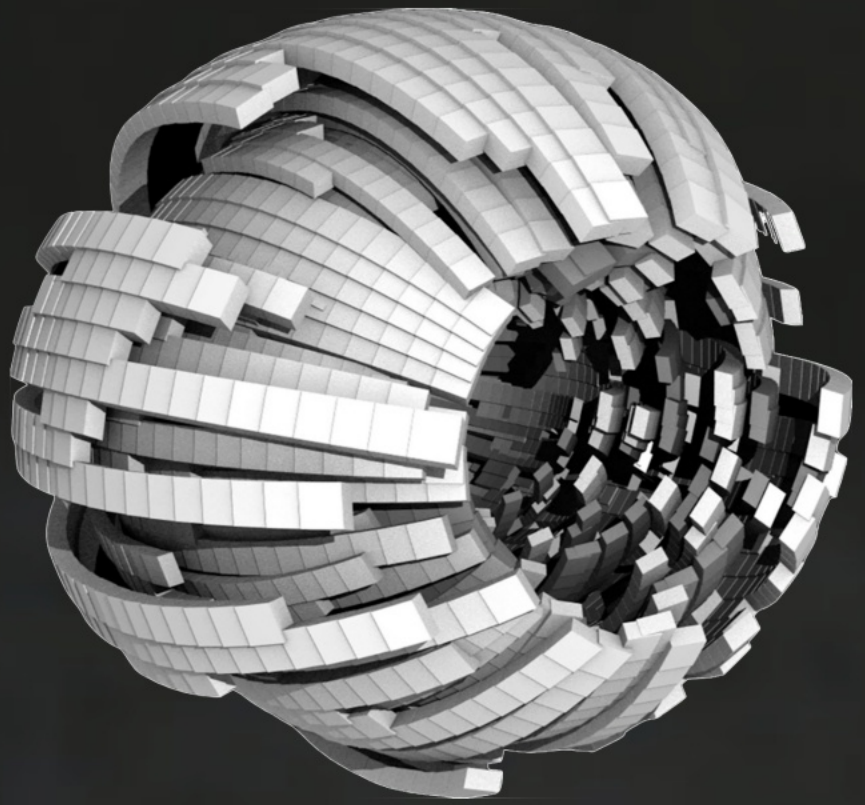
Data Catalogue: Linemarking

- Faded chevron paint
- Faded messaging
    - Speed limits
    - Bike and bus lane markings
    - Pedestrian crossings
    - Street parking
- Faded linemarking

Data Catalogue: Footpath

- Cracking
- Displacement
- Crocodile Cracking
- Damaged Tactiles
- Edge Damage
- Edge Drop
- Faded Linemarking
- Litter/Debris
- Overhanging Branches
- Ponding Water
- Pothole
- Sweeping
- Temporary Repair
- Vegetation

How Retina Visions is setting the new industry standard



30%

179%

x3

75%

x8

30% reduction in public phone complaints

Reduces admin tasks – our flexible API has ability to integrate into existing EAMs

179% increase in number of defects fixed

Real-time processing, high accuracy, high frequency

x3 increase in defect identification

A broad and ever-increasing catalogue of defect types – Retina Visions has been shown to triple the number of defects being identified

75% efficiency improvement in road assessment

Increased opportunity to redeploy resources to other critical operational activities

x8 efficiency improvement in footpath assessment

We have turbocharged defect identification on footpaths with our AI capabilities

Retina Visions

Precision in Pixels: Automating asset inspection with machine learning