Data-led approaches to sustainable roads

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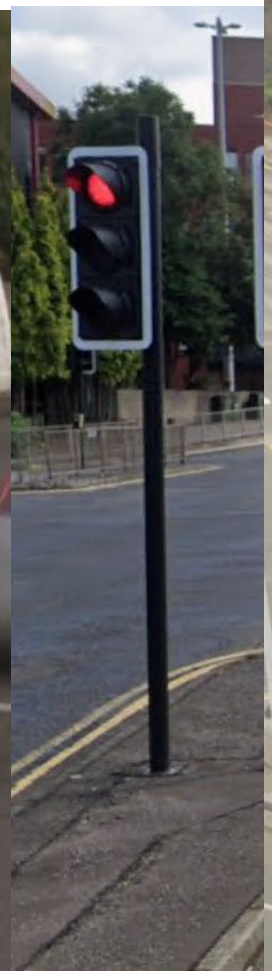
GCC Traffcom

Glasgow City Council

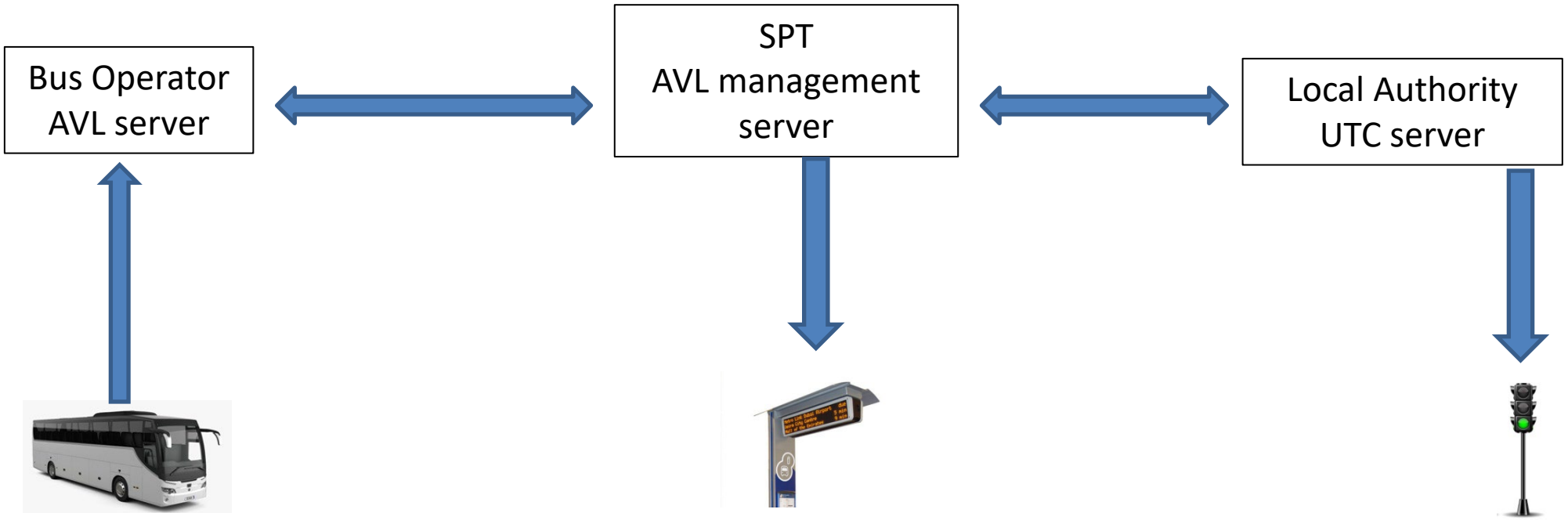
Traffic Signal Upgrades



Urban Traffic Control in Glasgow

- Almost 1000 sets of traffic lights installed around the City
- Most use some form of adaptive control
- Primary method in Glasgow is SCOOT (Split Cycle Offset Optimisation Technique)

SCOOT and Bus Priority



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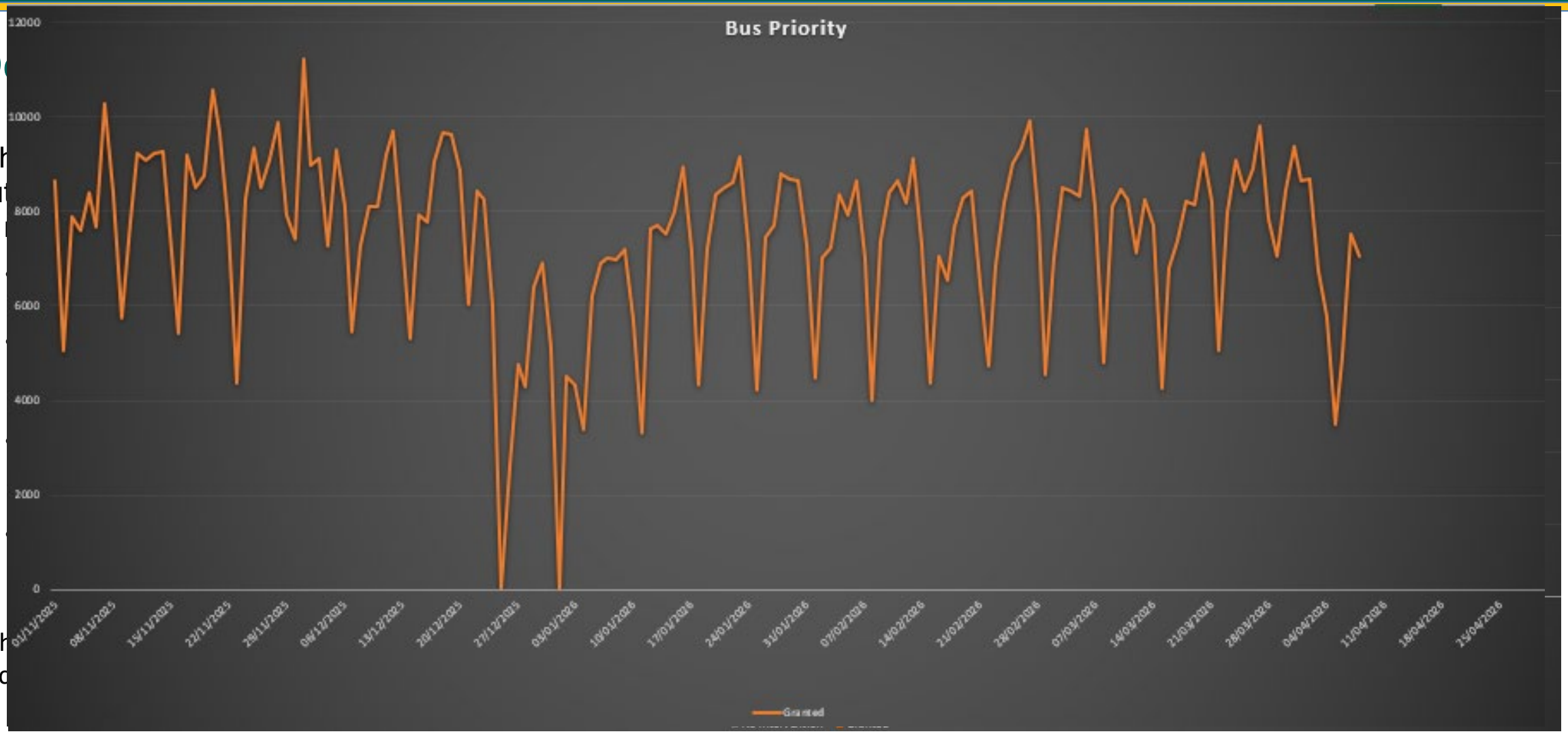

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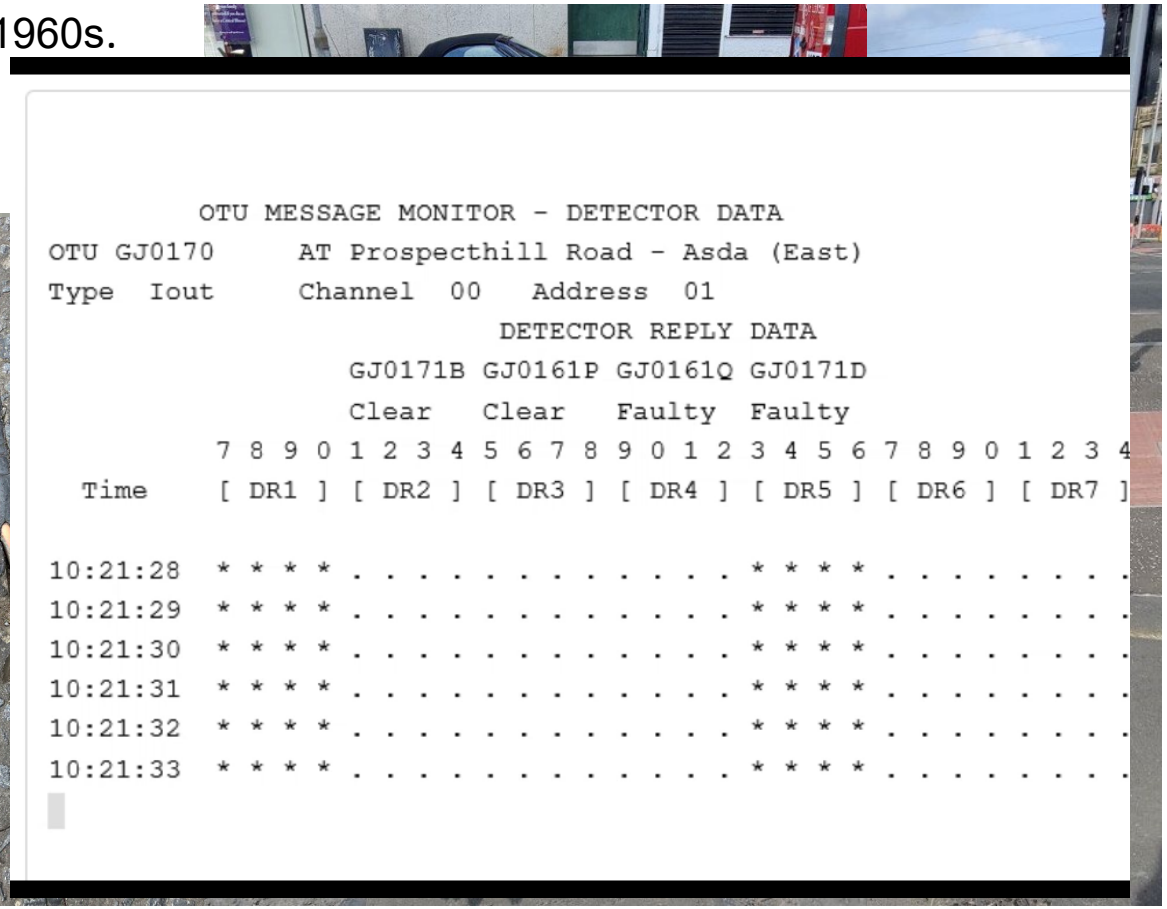
Vehicle detection for SCOOT

Standard for traffic detection has been inductive loops since 1960s.
Proven technology using cables buried in the road surface at
Expensive and disruptive to install, expensive to maintain



```
          OTU MESSAGE MONITOR - DETECTOR DATA
OTU GJ0170      AT Prospecthill Road - Asda (East)
Type  Iout      Channel  00   Address  01
                           DETECTOR REPLY DATA
                    GJ0171B GJ0161P GJ0161Q GJ0171D
                    Clear   Clear   Faulty  Faulty
           7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
  Time     [ DR1 ] [ DR2 ] [ DR3 ] [ DR4 ] [ DR5 ] [ DR6 ] [ DR7 ]

10:21:28   * * * * . . . . . . . . . . . . * * * * . . . . . . . .
10:21:29   * * * * . . . . . . . . . . . . * * * * . . . . . . . .
10:21:30   * * * * . . . . . . . . . . . . * * * * . . . . . . . .
10:21:31   * * * * . . . . . . . . . . . . * * * * . . . . . . . .
10:21:32   * * * * . . . . . . . . . . . . * * * * . . . . . . . .
10:21:33   * * * * . . . . . . . . . . . . * * * * . . . . . . . .
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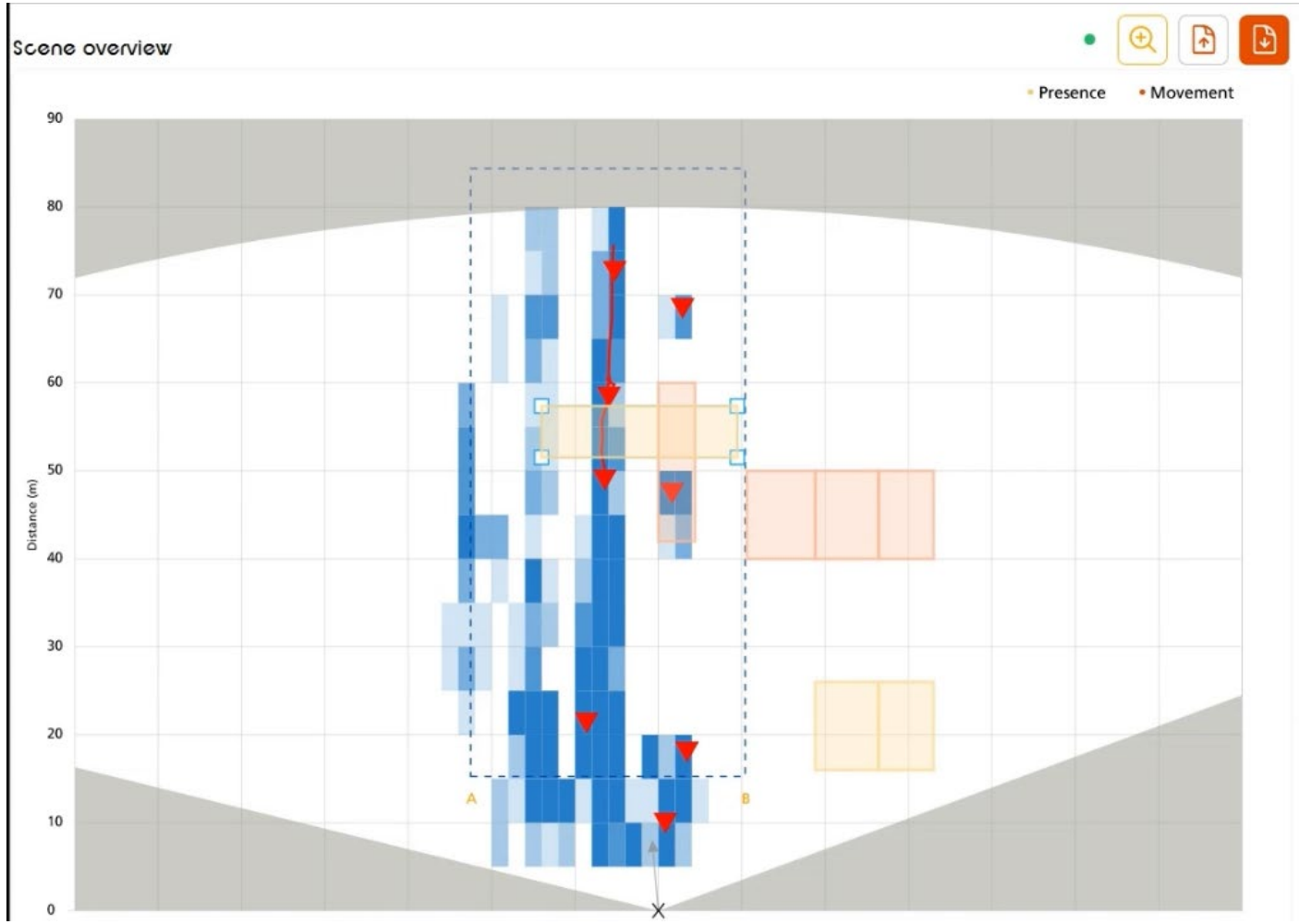
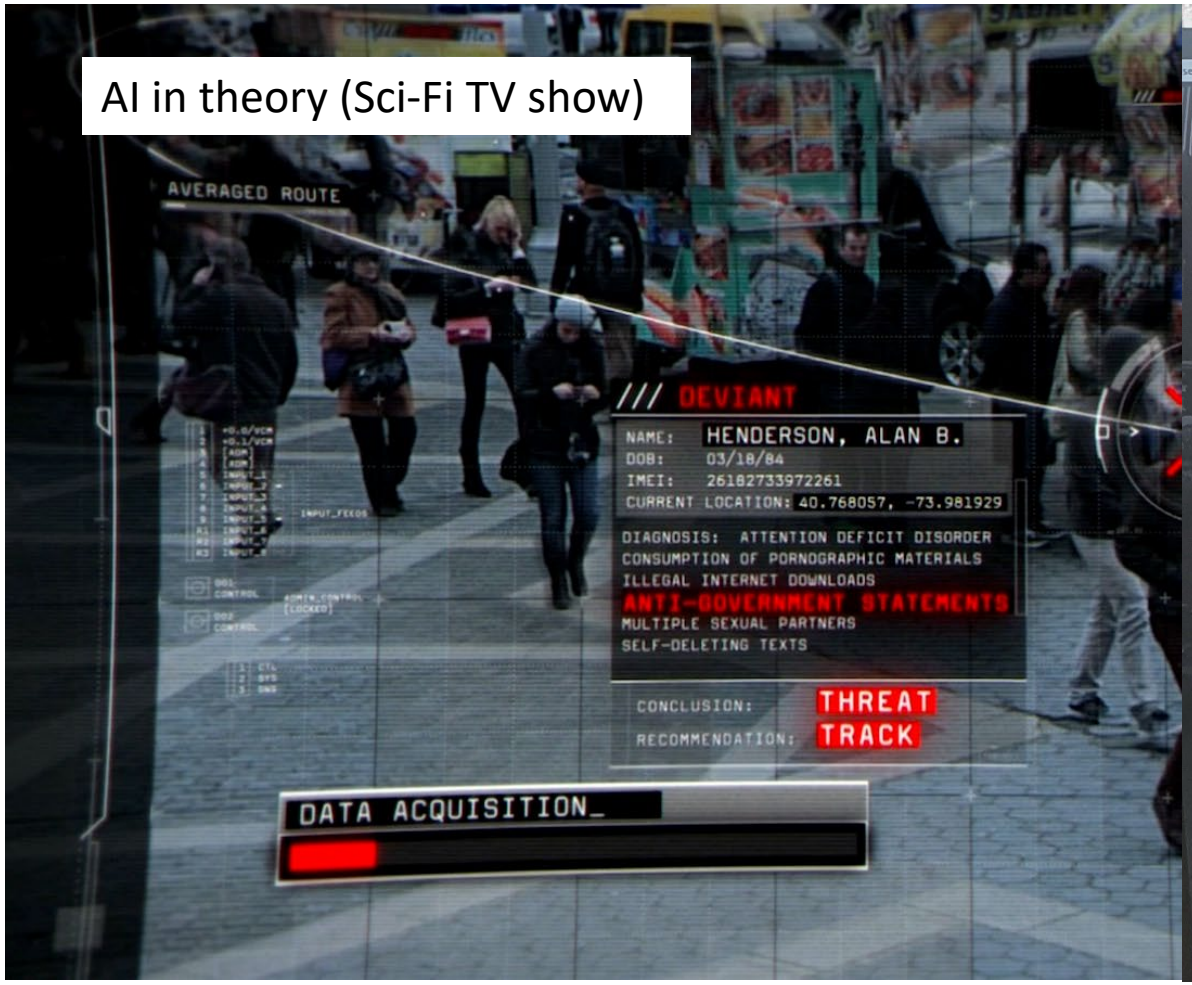
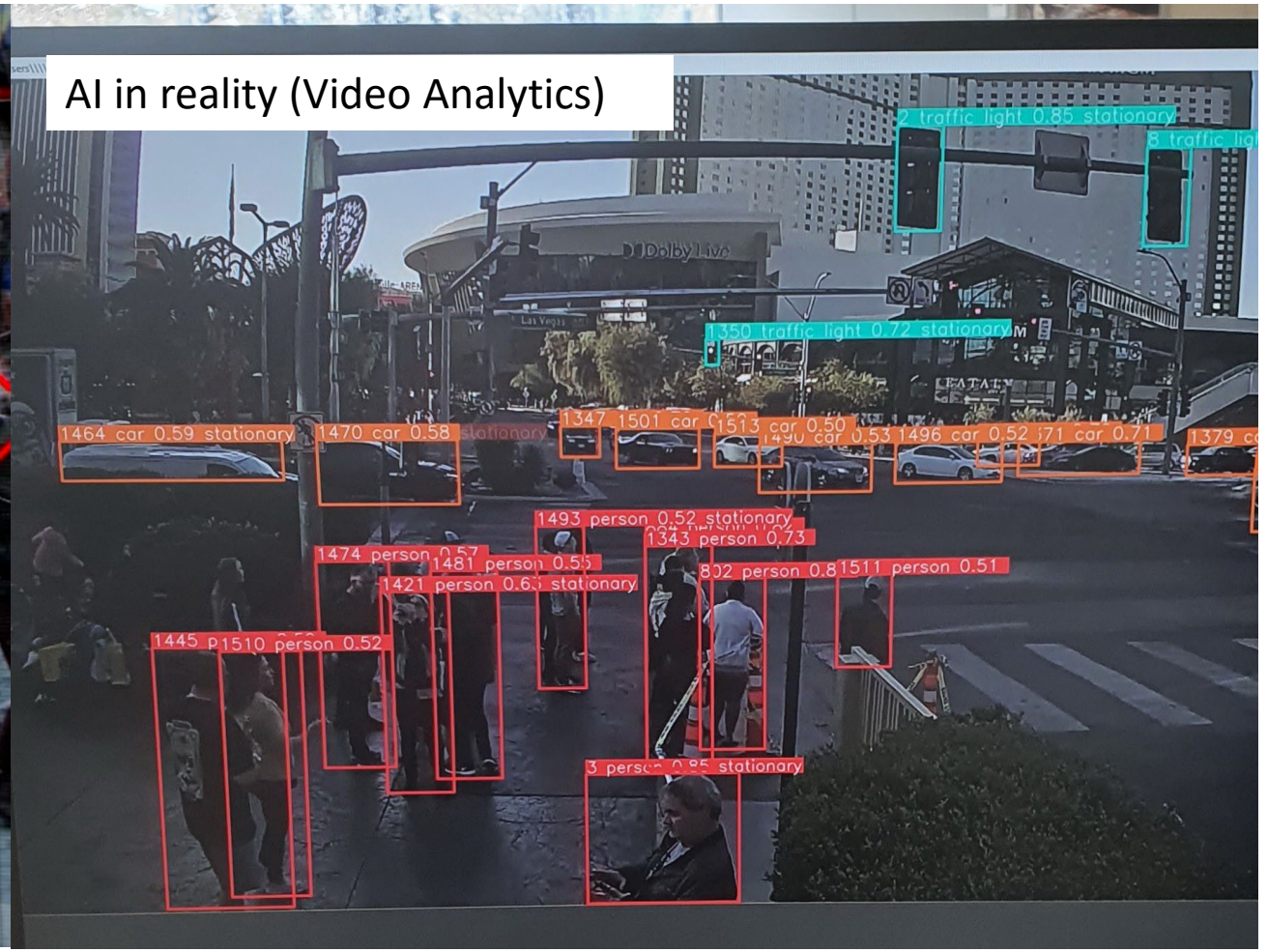


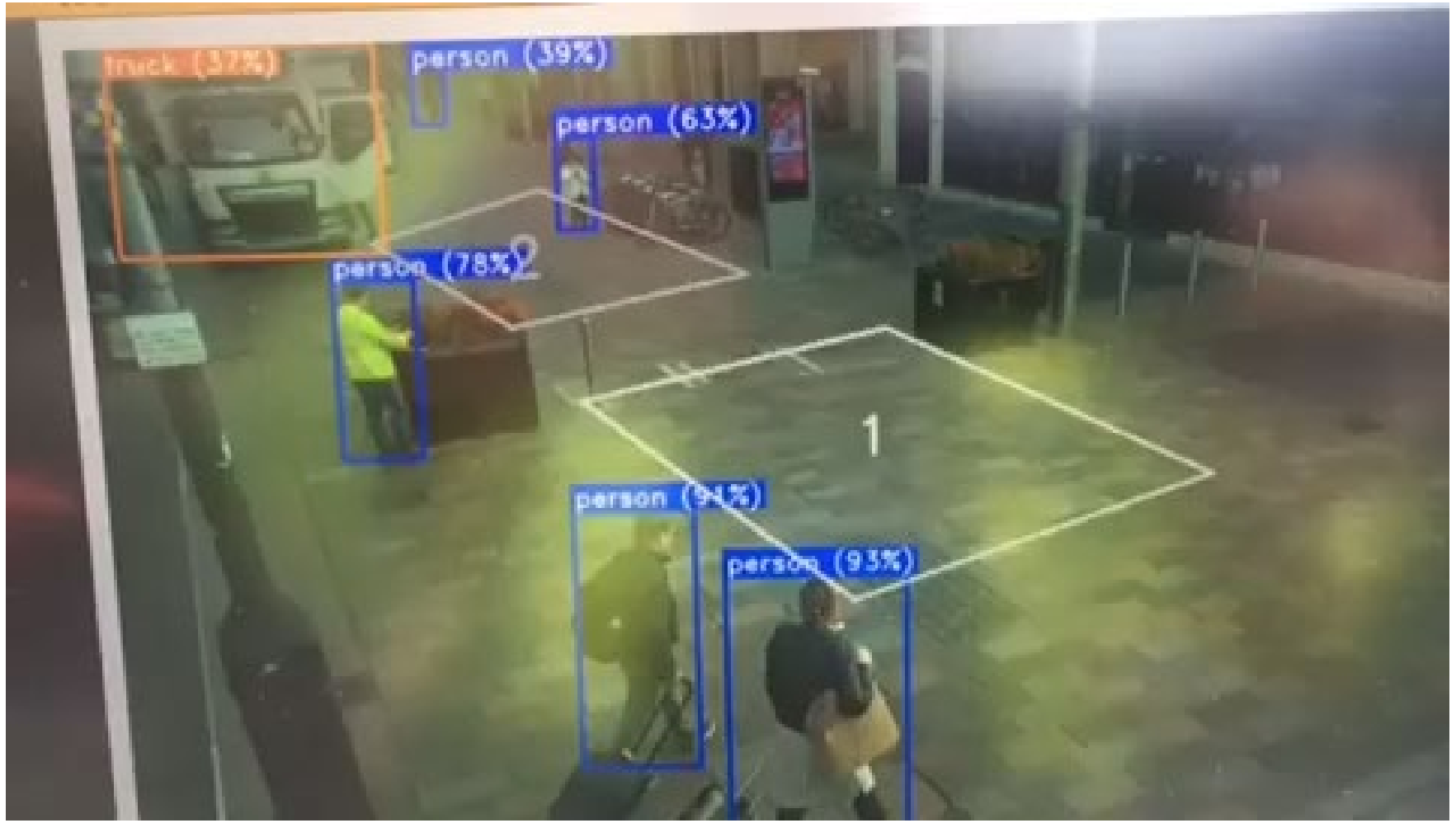
Above ground radar detection

Above Ground Radar (Wide Angle)

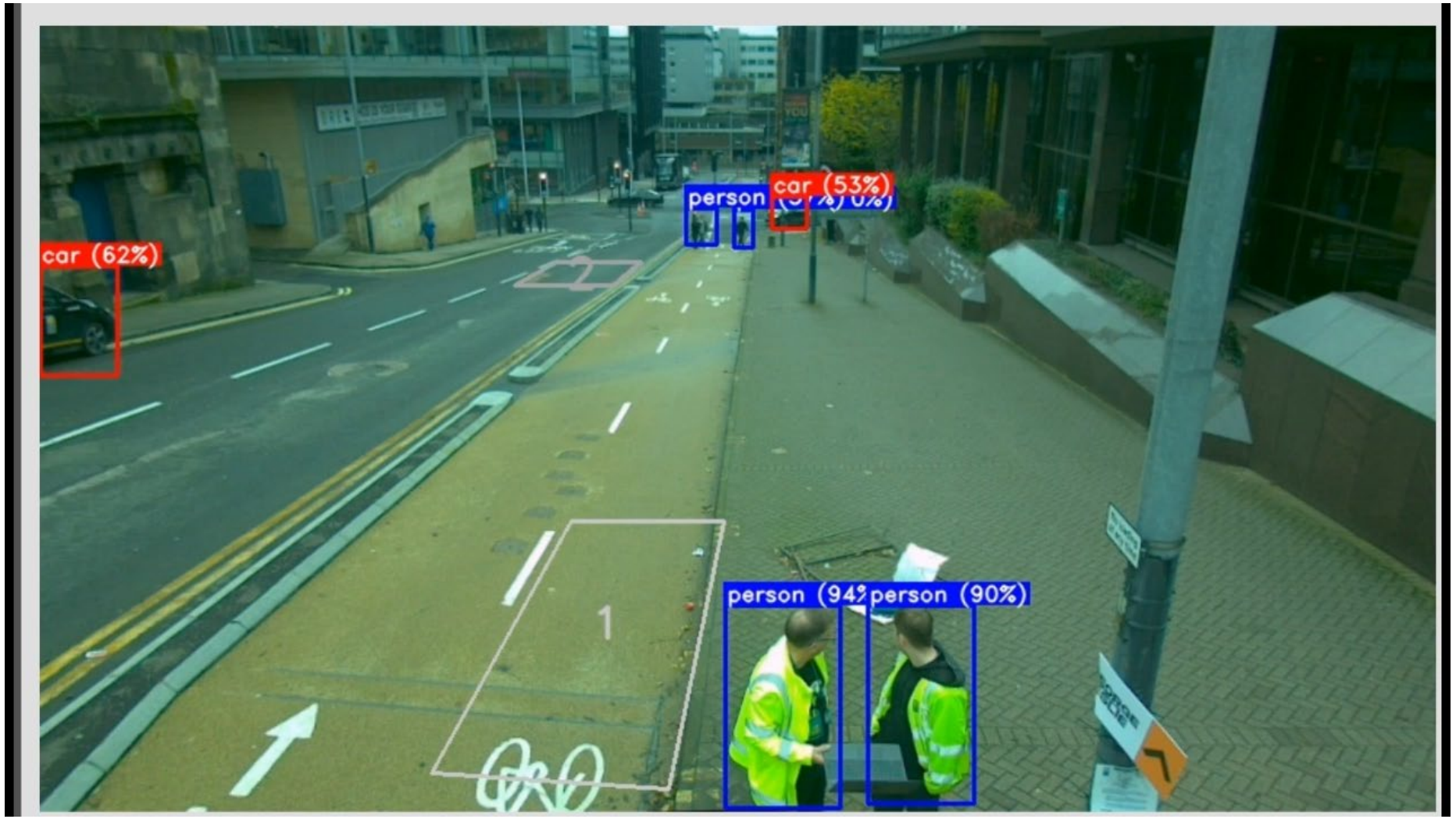

AI in theory (Sci-Fi TV show)
AVERAGED ROUTE
/// DEVIANT
NAME: HENDERSON, ALAN B.
DOB: 03/18/84
IMEI: 26182733972261
CURRENT LOCATION: 40.768057, -73.981929
DIAGNOSIS: ATTENTION DEFICIT DISORDER
CONSUMPTION OF PORNOGRAPHIC MATERIALS
ILLEGAL INTERNET DOWNLOADS
ANTI-GOVERNMENT STATEMENTS
MULTIPLE SEXUAL PARTNERS
SELF-DELETING TEXTS
CONCLUSION: THREAT
RECOMMENDATION: TRACK
DATA ACQUISITION_


AI in reality (Video Analytics)
2 traffic light 0.85 stationary
1350 traffic light 0.72 stationary
1464 car 0.59 stationary
1470 car 0.58
1493 person 0.52 stationary
1343 person 0.73
1481 person 0.55
1421 person 0.63 stationary
1445 person 0.52
1510 person 0.52
1511 person 0.51
3 person 0.85 stationary

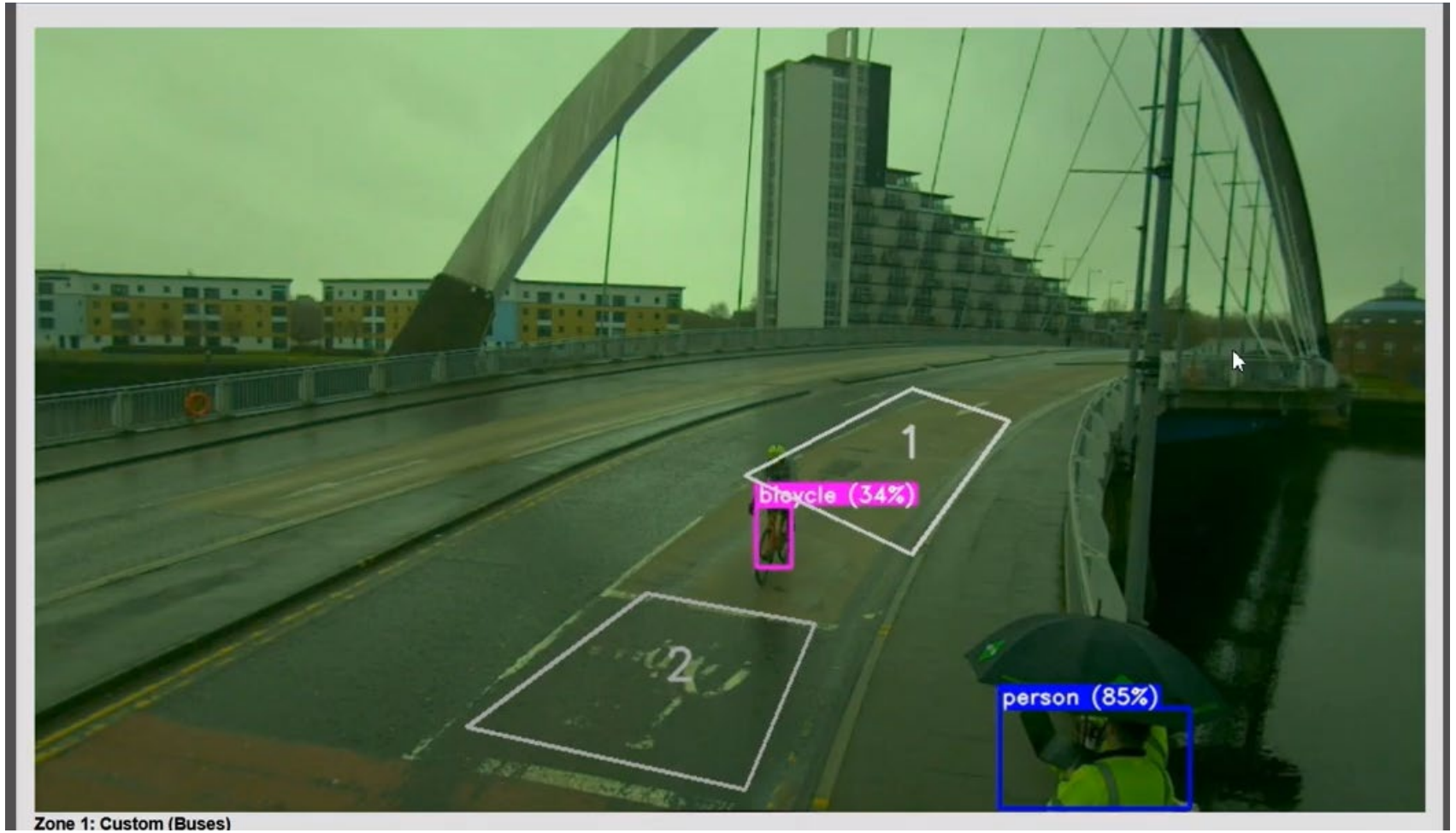
AI classified count



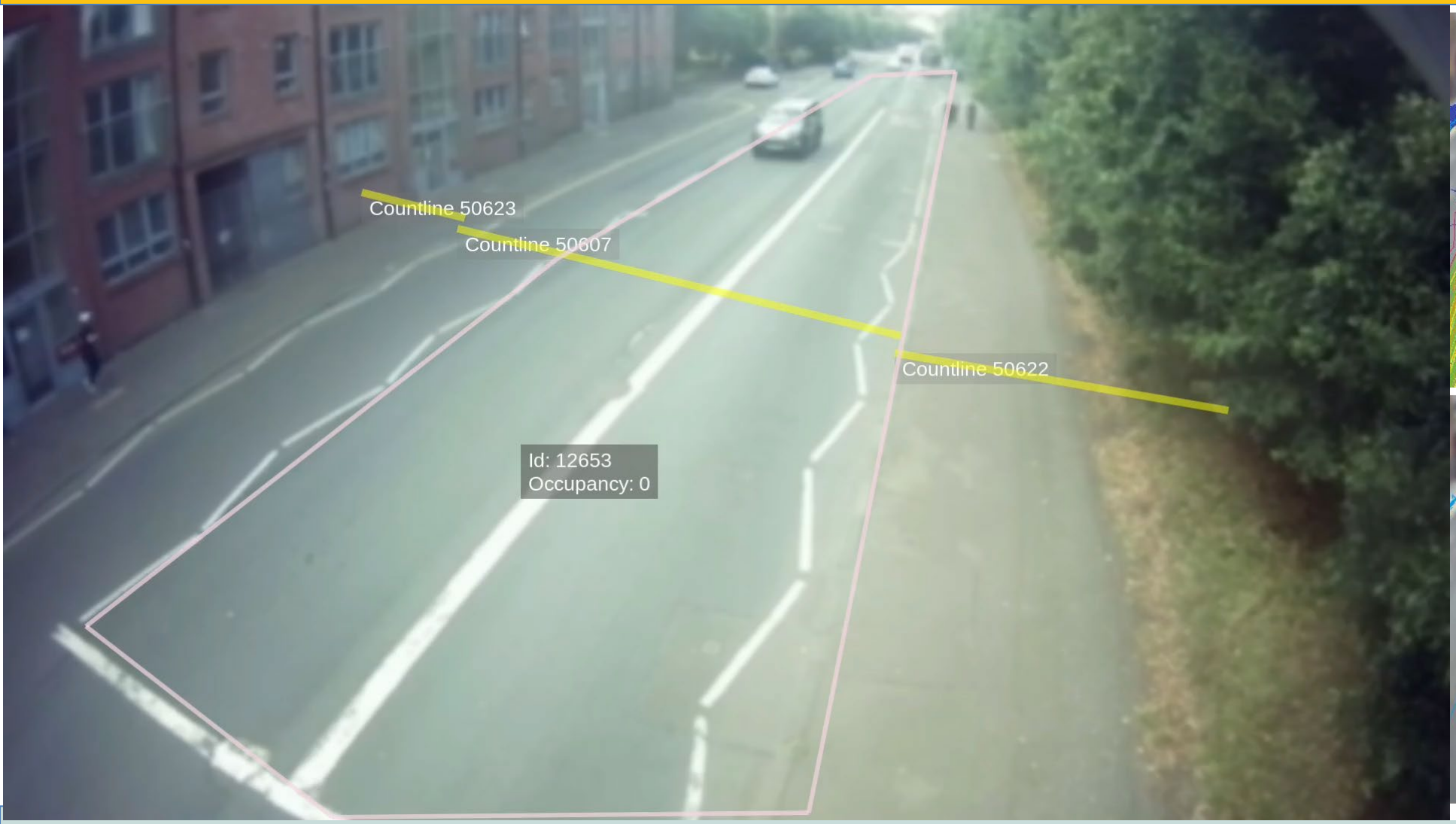
Embedded AI
Vehicle specific detection

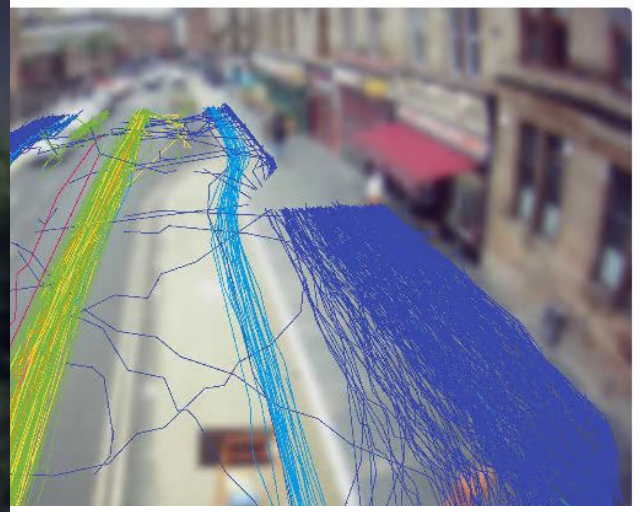


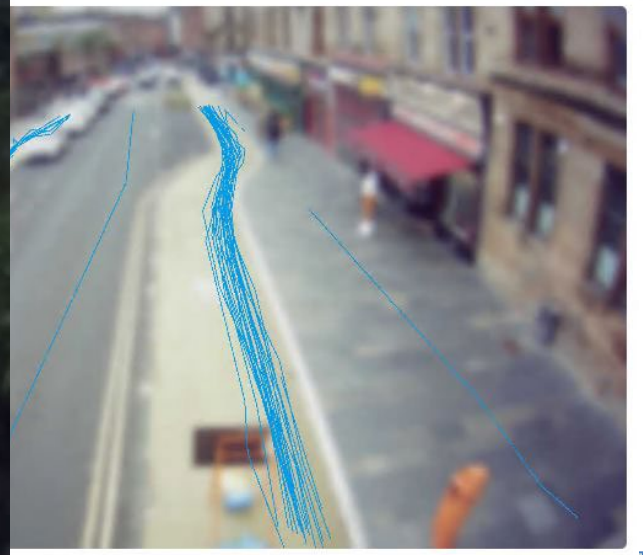
Embedded AI
SCOOT detection
Cycle detection



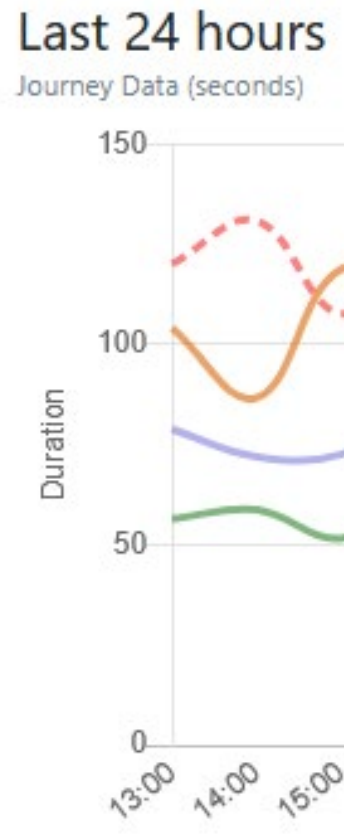
Embedded AI
Cycle detection
Bus detection


Countline 50623
Countline 50607
Countline 50622
Id: 12653
Occupancy: 0

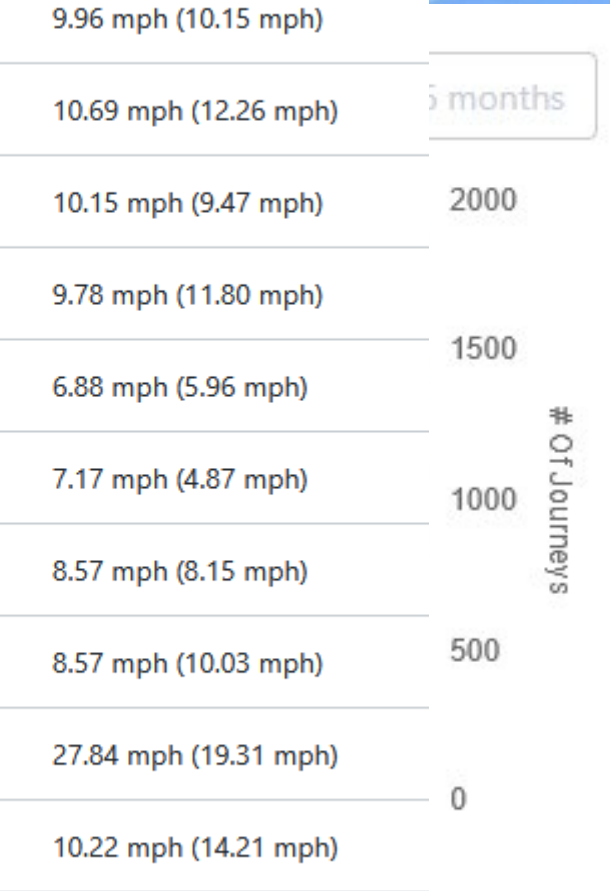




Bluetooth Jou



GK040-BT	GK050*1-BT	2026-05-08 13:09:16	1 mins 59s (1 mins 34s)	12.06 mph (15.32 mph)
GK015-BT	GK040-BT	2026-05-08 13:04:01	4 mins 12s (4 mins 7s)	9.96 mph (10.15 mph)
GB060*1-BT	GK015-BT	2026-05-08 13:00:32	3 mins 29s (3 mins 2s)	10.69 mph (12.26 mph)
GA235-BT	GK040-BT	2026-05-08 12:58:57	9 mins 15s (9 mins 55s)	10.15 mph (9.47 mph)
GA235-BT	GB060*1-BT	2026-05-08 12:58:57	1 mins 34s (1 mins 18s)	9.78 mph (11.80 mph)
GA185*1-BT	GA200-BT	2026-05-08 12:32:52	3 mins 11s (3 mins 41s)	6.88 mph (5.96 mph)
GB060*1-BT	GA185*1-BT	2026-05-08 12:30:12	2 mins 40s (3 mins 55s)	7.17 mph (4.87 mph)
GK040-BT	GA185*1-BT	2026-05-08 12:21:33	11 mins 19s (11 mins 54s)	8.57 mph (8.15 mph)
GK040-BT	GK015-BT	2026-05-08 12:21:33	4 mins 52s (4 mins 10s)	8.57 mph (10.03 mph)
GK050*1-BT	GK040-BT	2026-05-08 12:20:41	52s (1 mins 14s)	27.84 mph (19.31 mph)
GK040-BT	GK050*1-BT	2026-05-08 10:05:54	2 mins 21s (1 mins 41s)	10.22 mph (14.21 mph)
GK015-BT	GK040-BT	2026-05-08 10:01:17	2 mins 45s (3 mins 15s)	15.21 mph (12.87 mph)



Simplifai

Start_Time

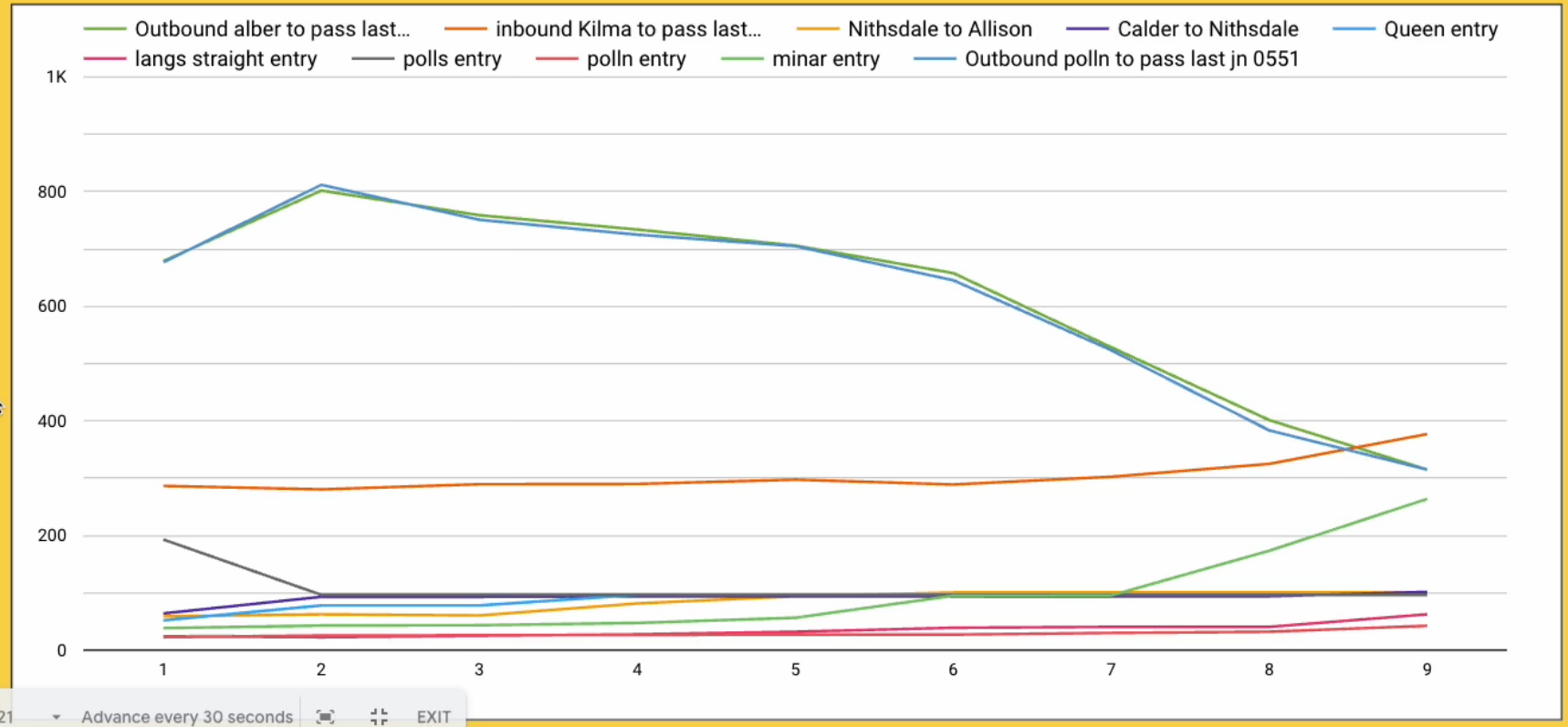
Simulation_run_date_time: 2 Sept ... (1)

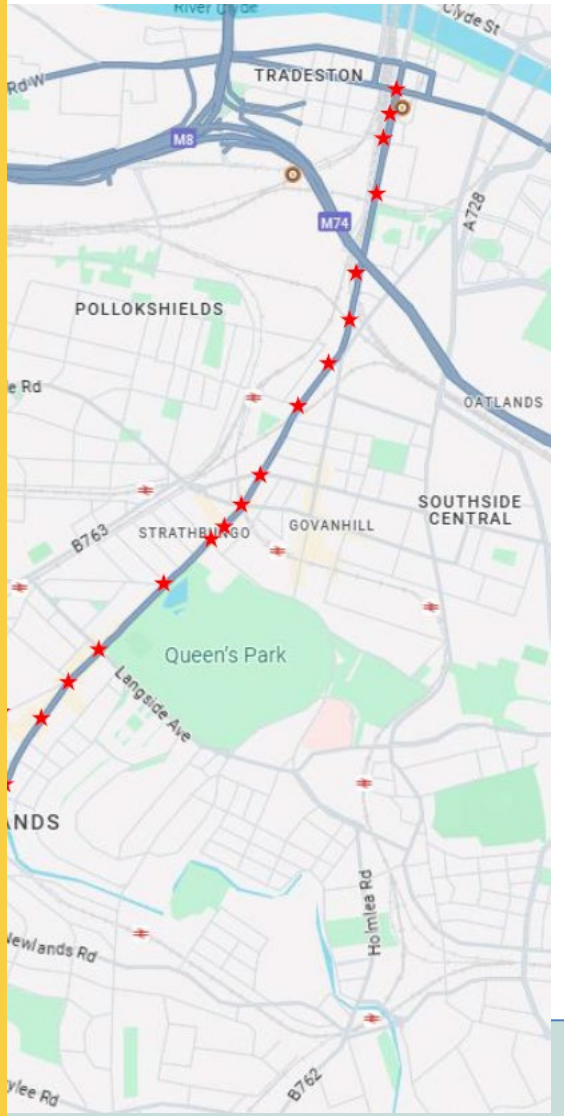
Run_number

Route_Name: Exclude mossr entry, ... (2)

mode

Simulation_details





ge 11 of 21 Advance every 30 seconds EXIT

Pollokshaws AI Project – Initial results (average speed)

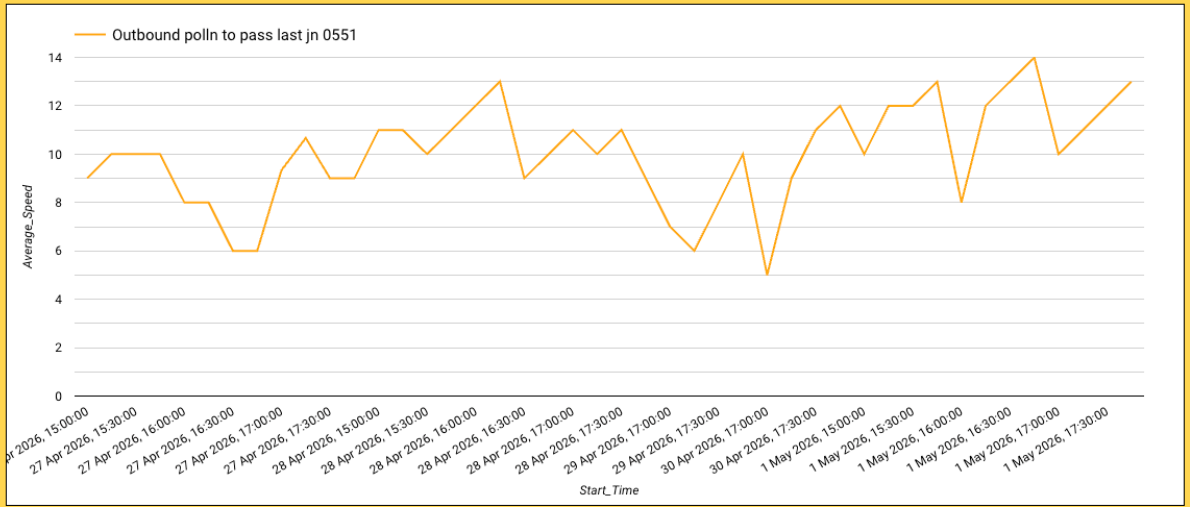
Typical PM Peak speeds – w/comm 27/4/26

Simplifai

Simulation_run_date_time | Run_number

Start_Time (Hour): 15, 16, 17 (3) | Route_Number | Route_Name: Outbound polln to pa... (1)

mode: 10 (1) | Simulation_details | Start_Time (Date): 1 May 2026, 30 ... (5)



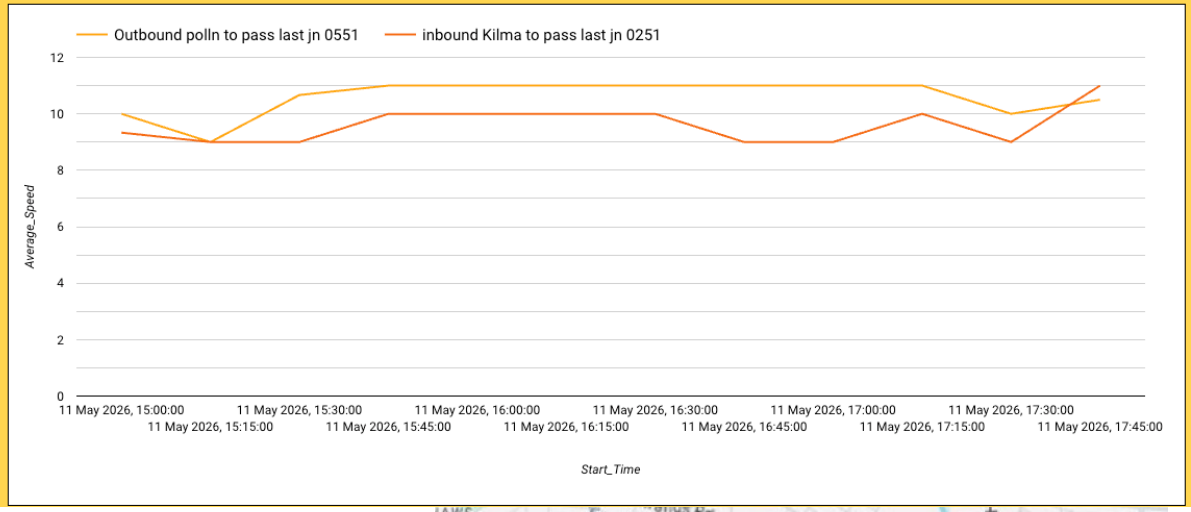
PM Peak speeds – 11/5/26

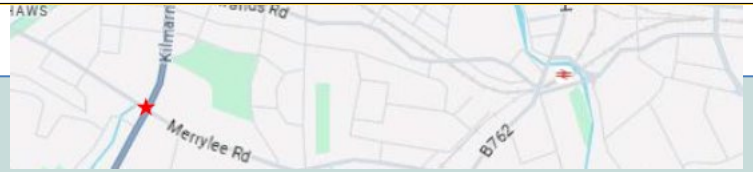
Simplifai

Simulation_run_date_time | Run_number

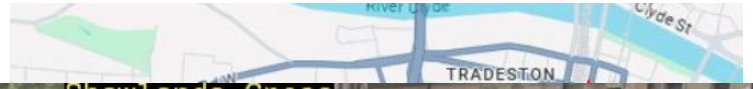
Start_Time (Hour): 15, 16, 17 (3) | Route_Number | Route_Name: inbound Kilma to pas... (2)

mode: 10 (1) | Simulation_details | Start_Time (Date): 11 May 2026 (1)





Pollokshaws AI Project – Initial results (journey time)



AI enabled SCOOT and Bus Priority

Smoother journeys with less delays

Increased reliability of bus services

Able to include journey time from bluetooth sensors

Able to detect buses at longer range and make changes at multiple junctions

Provides rich data for scheme evaluation or further hot spot analysis

Potential to include other data sources (roadworks / incidents / major events)


RISE OF THE MACHINES
QUESTIONS?