

Fair Fares

Microsoft AI Challenge 2020



May 27, 2020

Presented by: Denis Burkov



好評
中

温泉付き住宅地
JR東日本の街

TEL 0120-686-

温泉

2017

Reborn-Art Festival 2017
JRをご利用ください。

0

JR

Speed is life!
モビット



Lauren O'Neil Posted 2 months ago

Fare evasion cost the TTC more than \$70 million last year





Coronavirus **COVID-19**



Coronavirus
COVID-19
Public Health
Advice

Social Distancing Outside

Spending time outdoors is good for our health.
But social responsibility is essential for ALL our health.



Avoid
close contact
with others



Distance
yourself at least
2 metres (6 feet) away
from other people



Small group
sizes should be kept
to a minimum



Don't arrange
to meet up with other



Avoid
an area if it looks
very busy and go

MOBILITY CHANGES IN CANADA

TRANSIT
STATION



-64%

RETAIL &
RECREATION



-54%

WORKPLACE



-47%

GROCERY &
PHARMACY



-15%

RESIDENTIAL

+17%



Source: [Google COVID-19 Mobility Reports](#)

TRANSIT STATION



-64%



Decline in ridership

As Canadians stay at home due to social and physical distancing measures, transit agencies around the country experience a severe decline in ridership and revenue.

For TTC, ridership has been down by 60% as of mid March.



Risk of insolvency

As revenues go down amidst the COVID-19 pandemic, transit agencies' cash position remains to be at risk.

In fact, Mayor's Council Chair estimates that TransLink faces insolvency by June due to the 80% decline in their ridership.

Sources: [Global News](#), [CTV News](#)

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Fare evasion costs than \$70 million



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Don't arrange
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groups



Avoid
an area if it looks
very busy and go
somewhere else
for your walk



Trust

Get riders back

Revenue
Increase revenue



Health and safety
Prevent virus spread

Fair Fares

an AI-powered commuter tracking platform that
enables TTC and other transit agencies to maximize
revenue while maintaining passenger safety



PEOPLE RECOGNITION ALGORITHM

TRAINING



RE-TRAINING

Precision



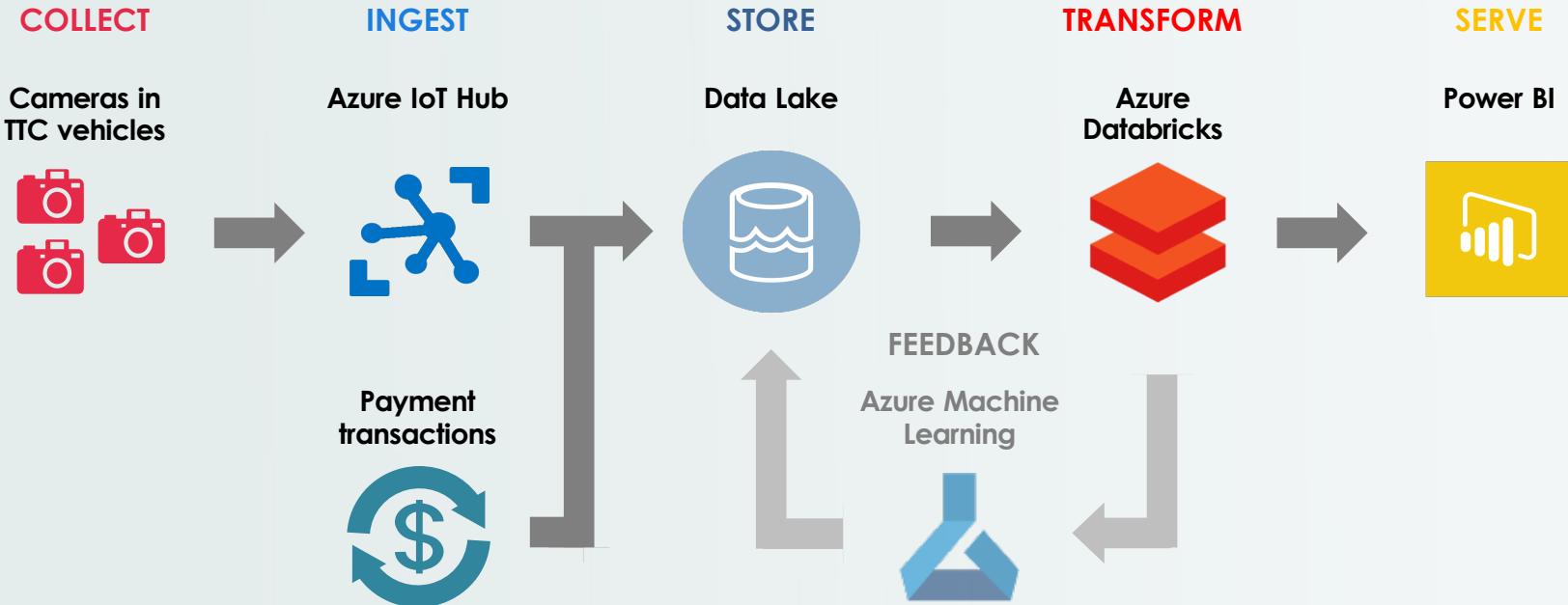
PREDICTIONS

Precision



Tag	Probability
Predictions are shown in red	
person	70.4%
person	65.4%
person	61.0%
person	42.6%
person	42.0%
person	25.7%
person	22.8%
person	22.0%

SOLUTION ARCHITECTURE



Today, there were



Resulting in

\$3,136

Bus route

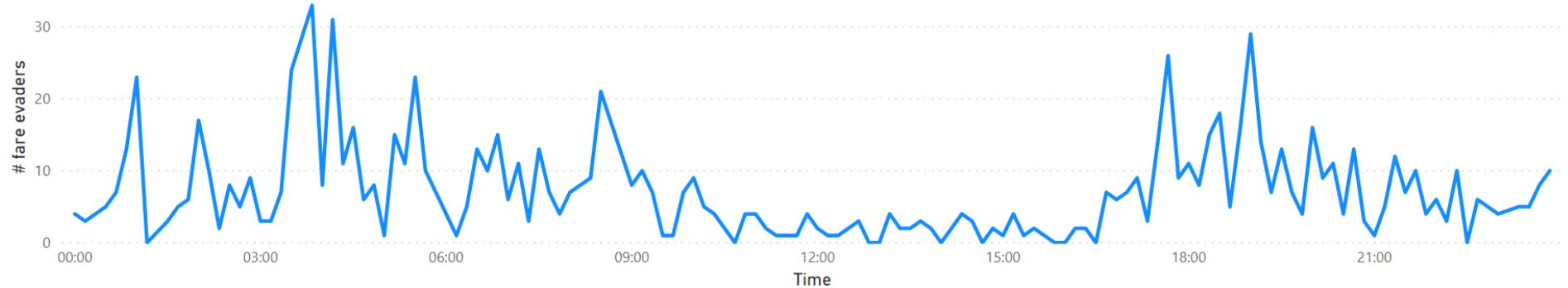
- 41
- 505
- 5A

Fare evaders

Lost revenue

fare evaders by Stop

Queen's Park C...	Queen's Pa...	Keele St at...	Dundas St W...	Keele St at...	Dun...	Keel...	Dun...	Ave...
63	44	42			29	27	27	27
Avenue Rd at D...	Dundas St ...	Keele St at...	Dundas St Ea...	Dundas St...		Old West...	Ke...	Du...
	44	41		Keele St at St...	Keele St at...	Dundas S...		Ke...
Queen's Park C...	Keele St at ...	Dundas St...	Dundas St W...	Keele St at...	Dundas S...	Dundas St...	Dundas St...	



Today, there were



Resulting in

\$1,219

Bus route

- 41
- 505
- 5A

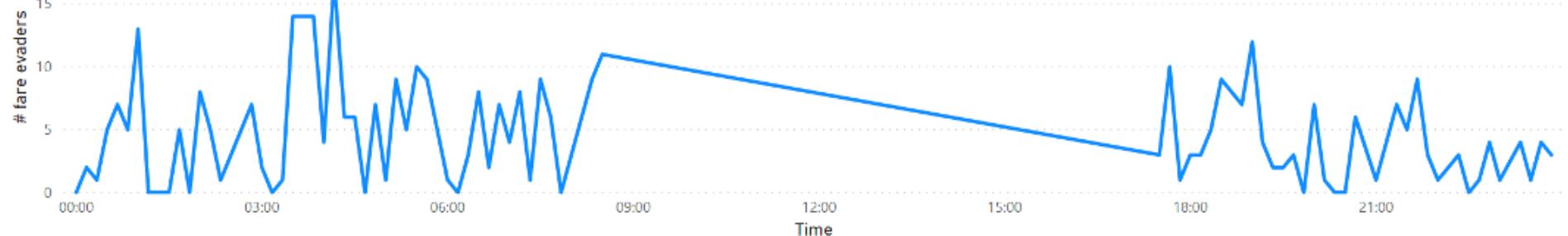
Fare evaders

Lost revenue

fare evaders by Stop

Dundas St East at Par...	Dundas St West at ...	Dundas St West...	Dundas St West at ...	Dunda...	Dunda...
44	38	33	29	20	19
Dundas St East at Jar...	Dundas St East at ...	Dundas St West...	Dundas St East at B...	Dundas St West a...	
39	38	32	27	Dundas St West a...	
			Dundas St West at ...	Dundas St West a...	

20



Today, there were



Resulting in

\$143

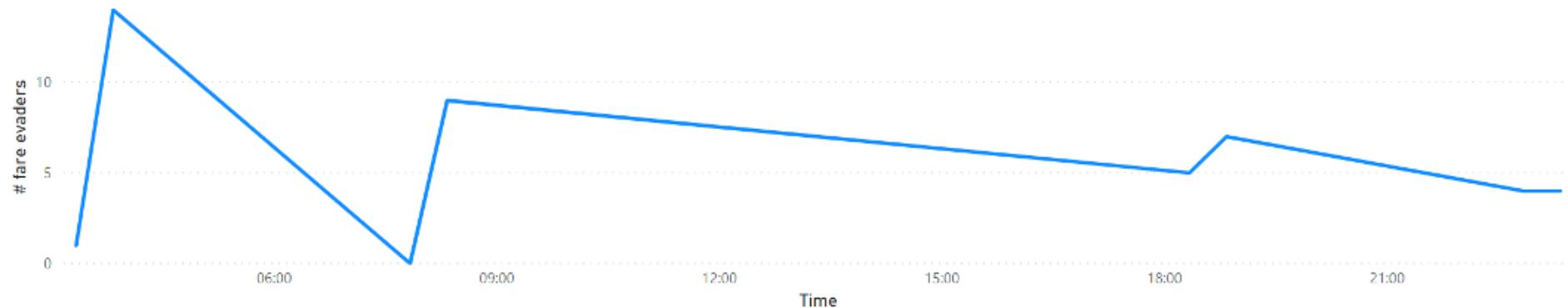
Bus route

- 41
- 505
- 5A

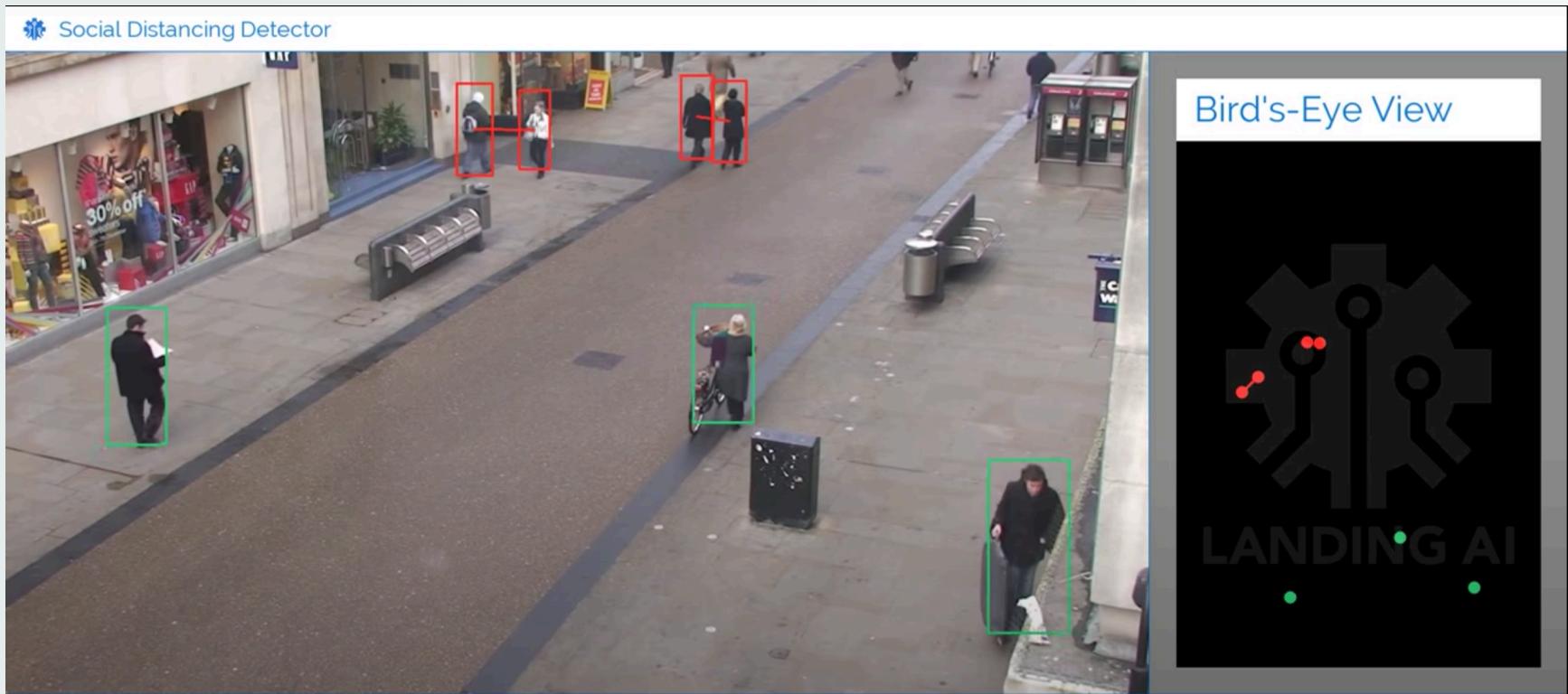
Fare evaders

Lost revenue

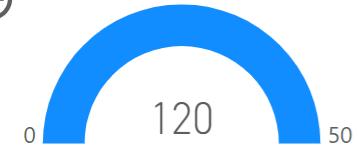
fare evaders by Stop



SOCIAL DISTANCING ALGORITHM



Source: <https://landing.ai/landing-ai-creates-an-ai-tool-to-help-customers-monitor-social-distancing-in-the-workplace/>



ALERT LEVEL

3

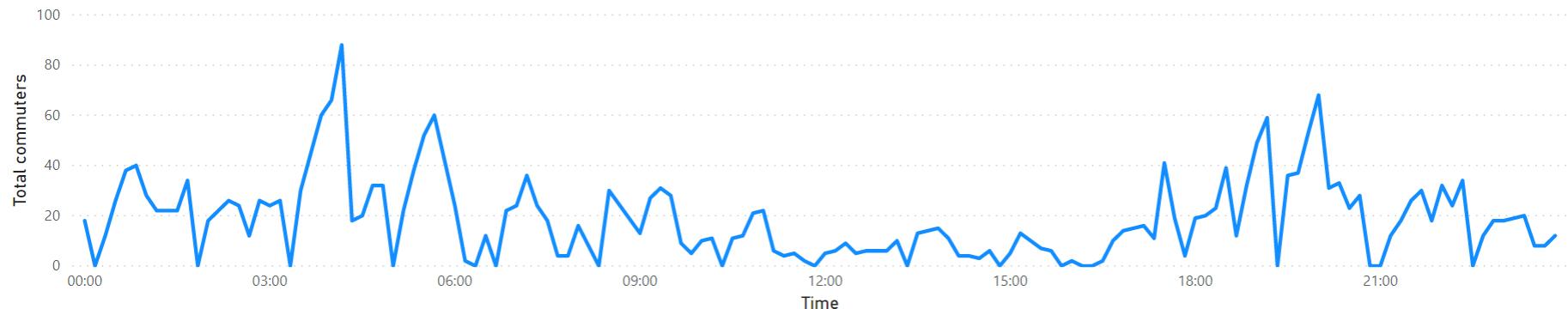
Bus route

- 41
- 505
- 5A

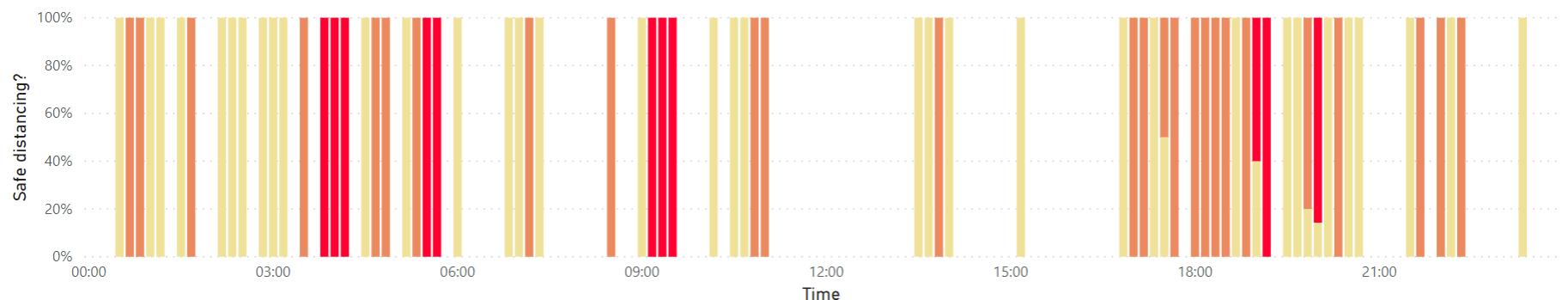


Filters

Total commuters by Time



Safe distancing? ● 0 ● 1 ● 2 ● 3



Go back

Physical distanci...



fairfares new | Data updated 5/26/20



ALERT LEVEL

3

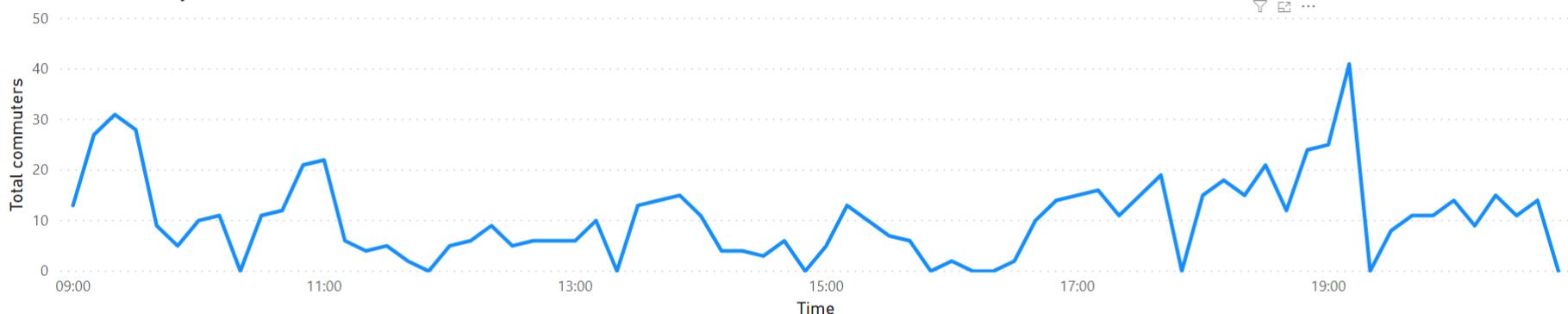
Bus route

- 41
- 505
- 5A

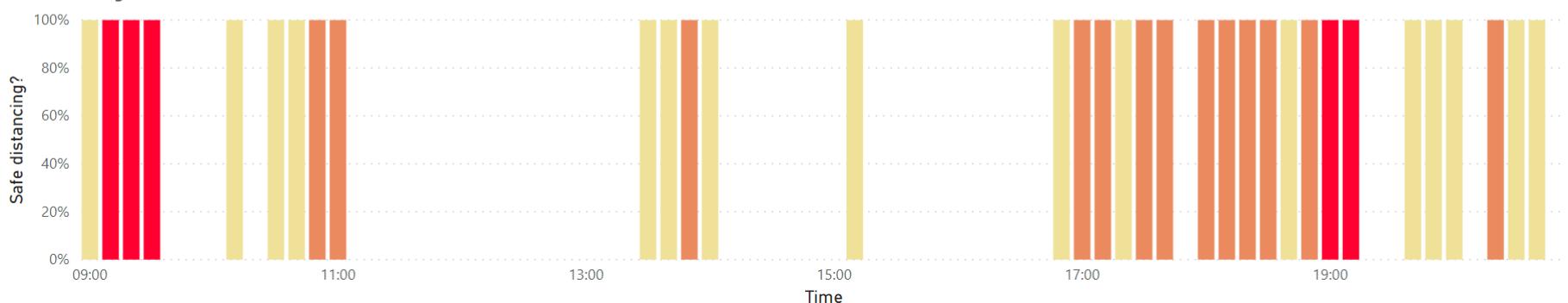


Filters

Total commuters by Time



Safe distancing? ● 0 ● 1 ● 2 ● 3



Go back

Physical distanci...





ALERT LEVEL

3

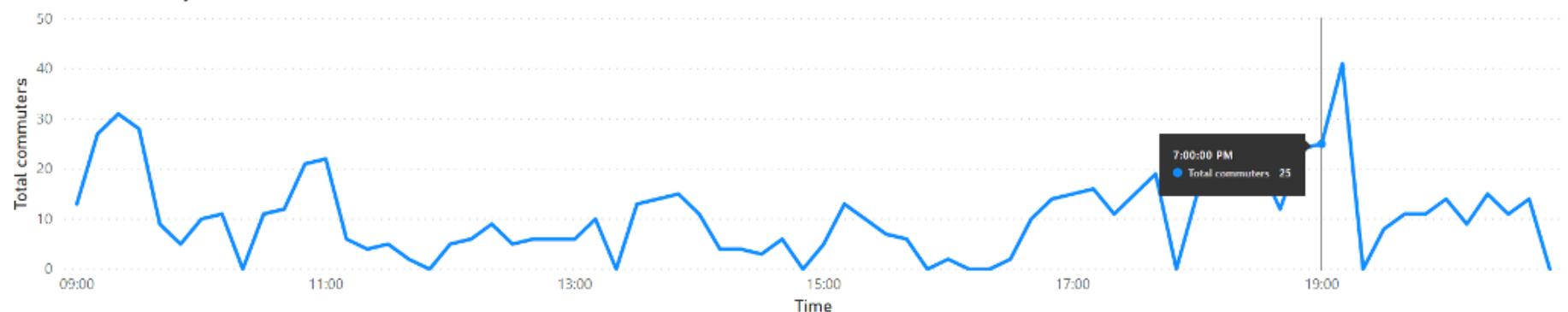
Bus route

- 41
- 505
- 5A

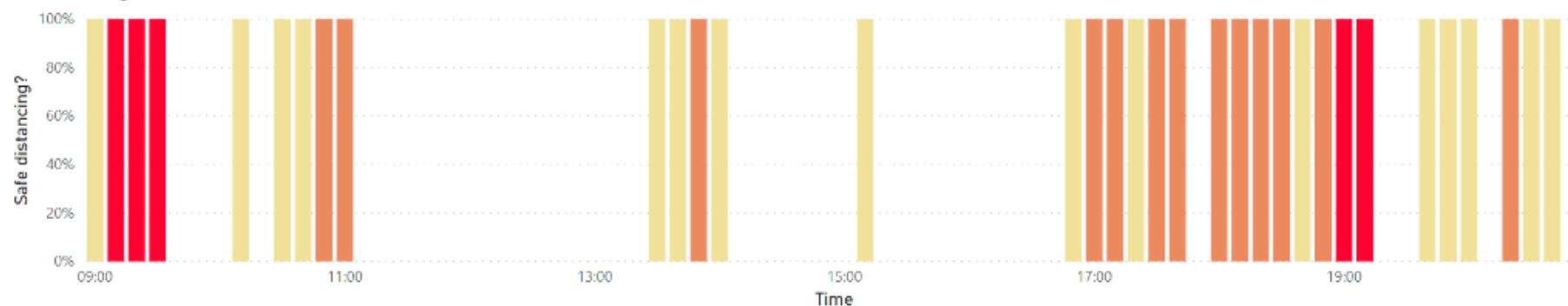


Filters

Total commuters by Time



Safe distancing? ● 0 ● 1 ● 2 ● 3



Go back

Physical distanc...



SECURITY & PRIVACY



Azure security – reliable and accountable

Microsoft Azure provides confidentiality, integrity, and availability of customer data, while also enabling transparent accountability

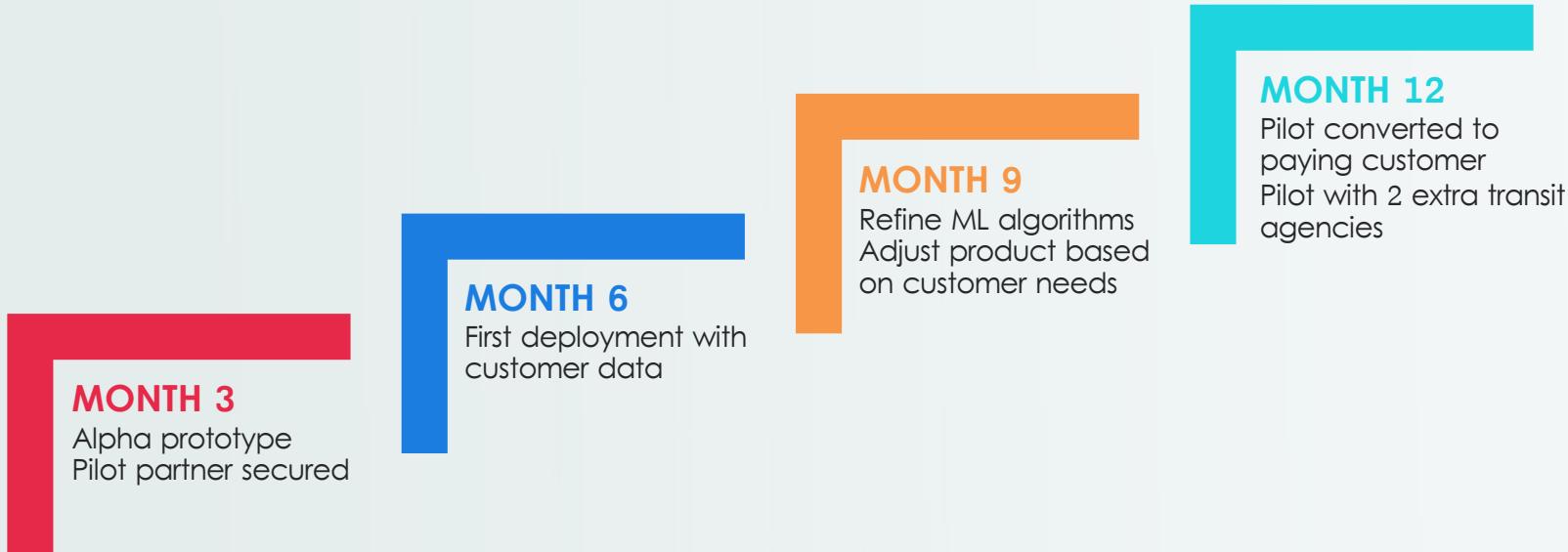
Shared responsibility framework

Will ensure that only certain employees have access to the data, endpoints and access management

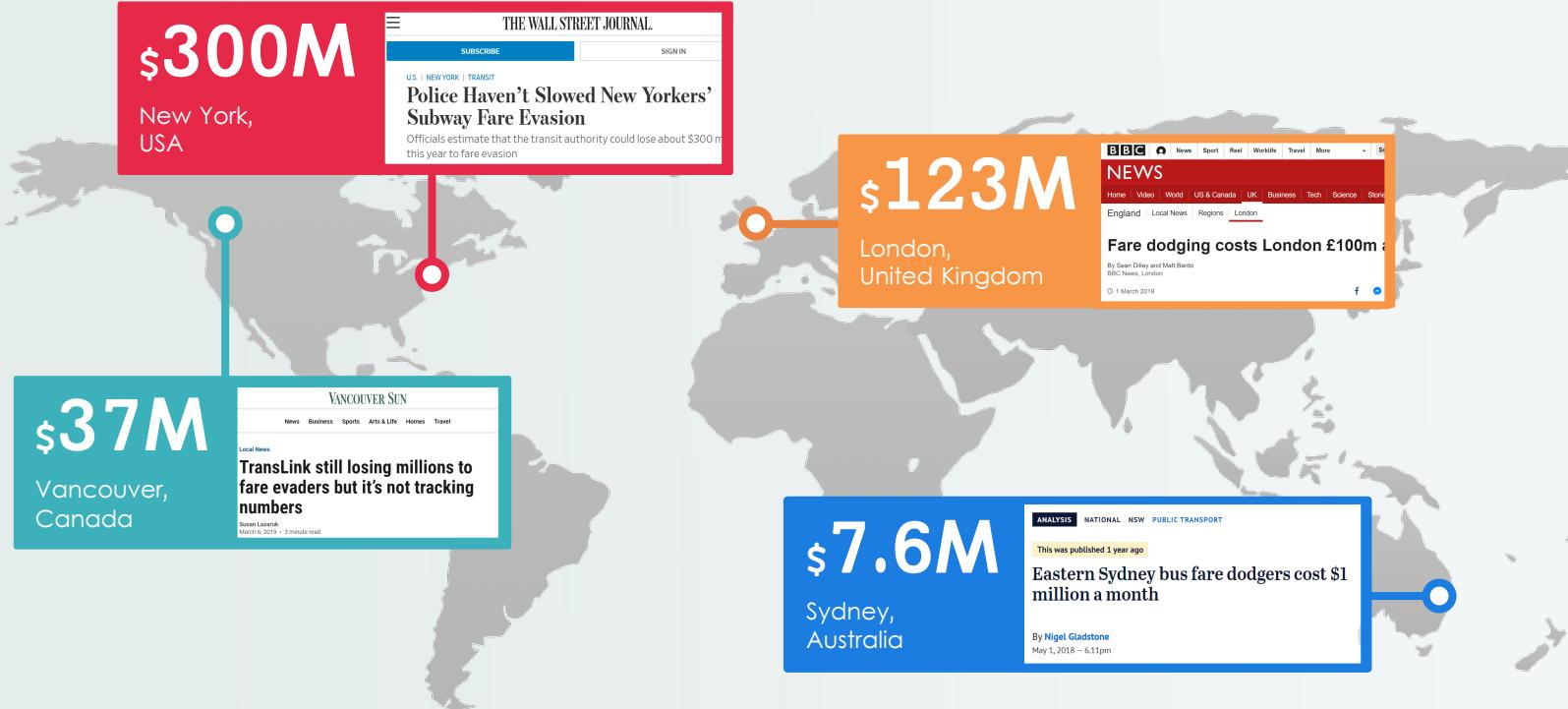
Image blurring

To ensure privacy

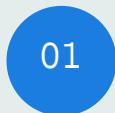
IMPLEMENTATION TIMELINE



NORTH AMERICAN TAM \$10B



Using a two-part pricing strategy



One-time installation fee

\$1.5M



Recurring subscription fee

\$12M*

we will offset our costs
and generate returns

*first year subscription fee

	2021	2022	2023
Revenue	\$12.5M	\$24.5M	\$36.5M
Cost	\$4.25M	\$3.8M	\$4.55M
Profit	\$8.25M	\$20.7M	\$31.95M

Economic opportunity for transit agencies



OUR TEAM



Denis Burkov
Entrepreneurial
Engineer

ENGINEERING
SCIENCE BASc



Michelle Molas
Marketing Guru &
Xoogler

BUSINESS
ADMINISTRATION BSc



**Agilya
Tultabayeva**
Management
Consultant

ENVIRONMENTAL
ENGINEERING BEng



**Melbin Jose
Thomas**
Product Manager

ENGINEERING
GEOSCIENCES
M.Tech

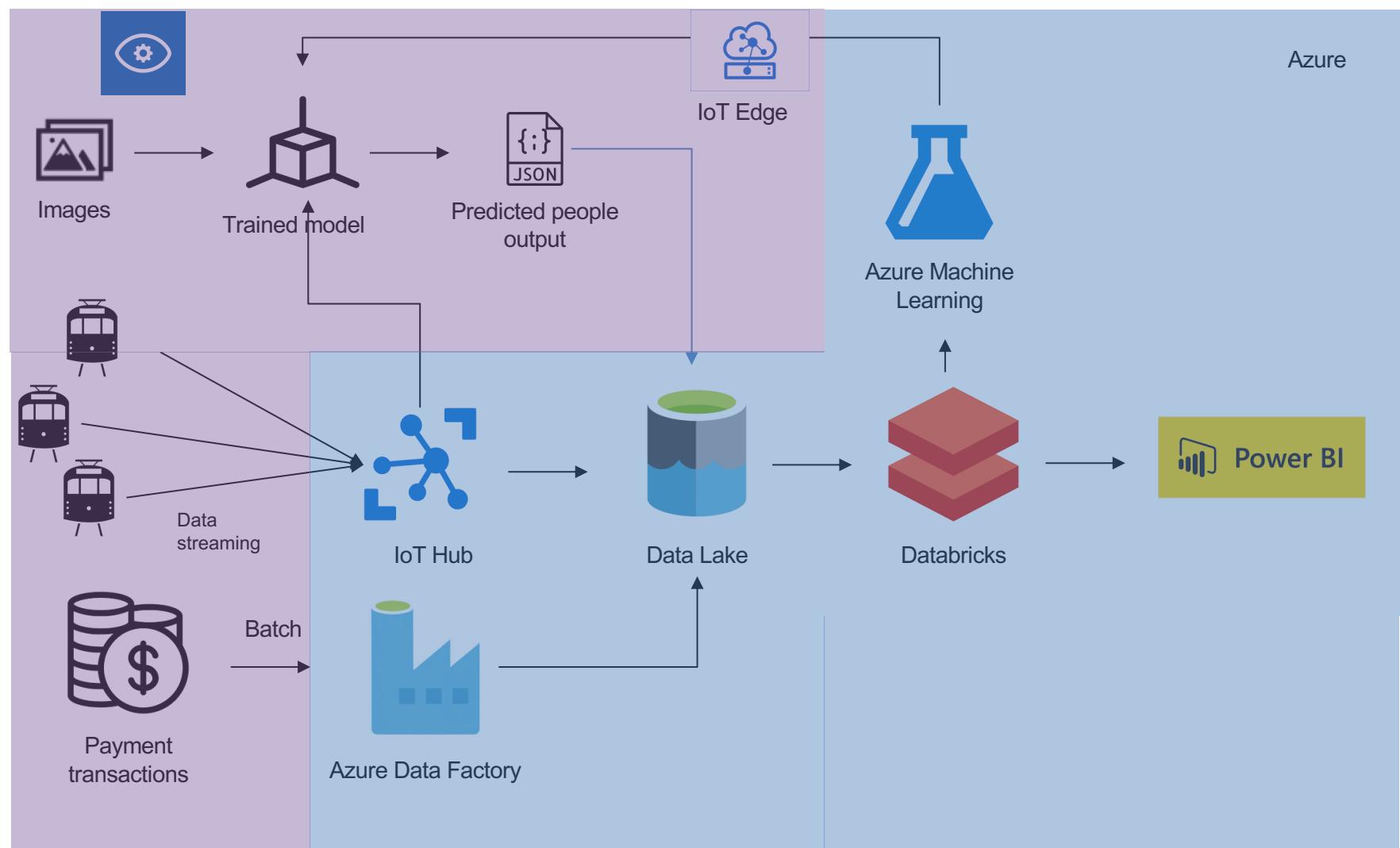


Thank you!



Appendix



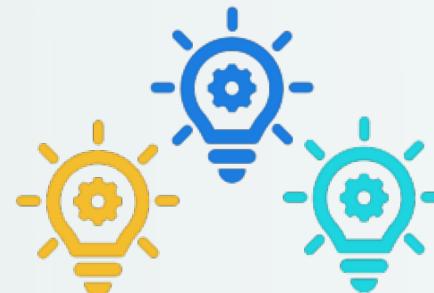


CUSTOMER INSIGHTS

**Inability to
track riders**



**Creative solutions
to mitigate evasion**



Sources: Interviews with Translink and STM representatives

THREE TYPES OF COMMUTERS

Deliberate Evaders



Refuse to pay due to dissatisfaction

Accidental Evaders

TAP HERE

Unable to pay due to faulty machines

Never evaders



Have always paid



Barriers are driven by
quality of service