

BLIP Systems A/S

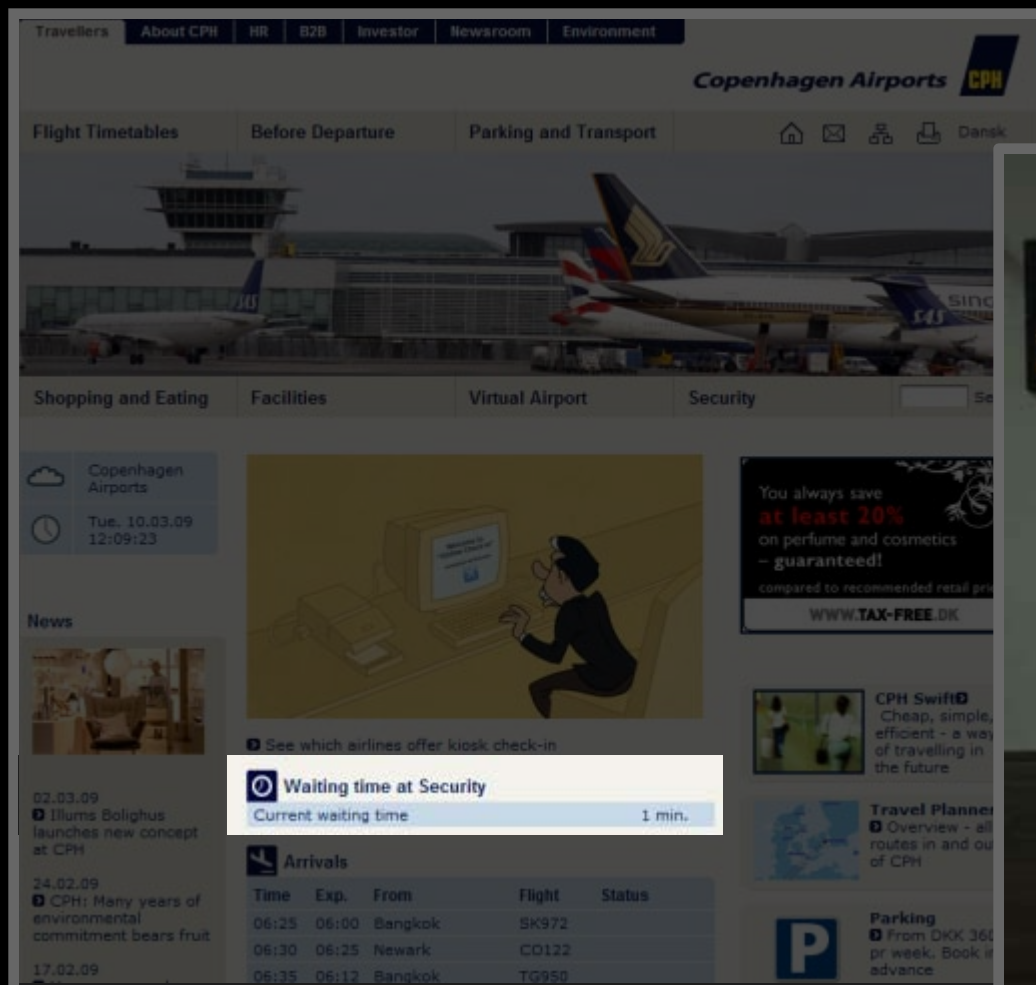
Traffic Analysis

BLIP Systems

- Founded in 2003 by MBO from L.M. Ericsson A/S
- 10 years of experience with Bluetooth
- Mobile marketing and tracking solutions
- World wide partner network for marketing solutions



Tracking in Copenhagen airport

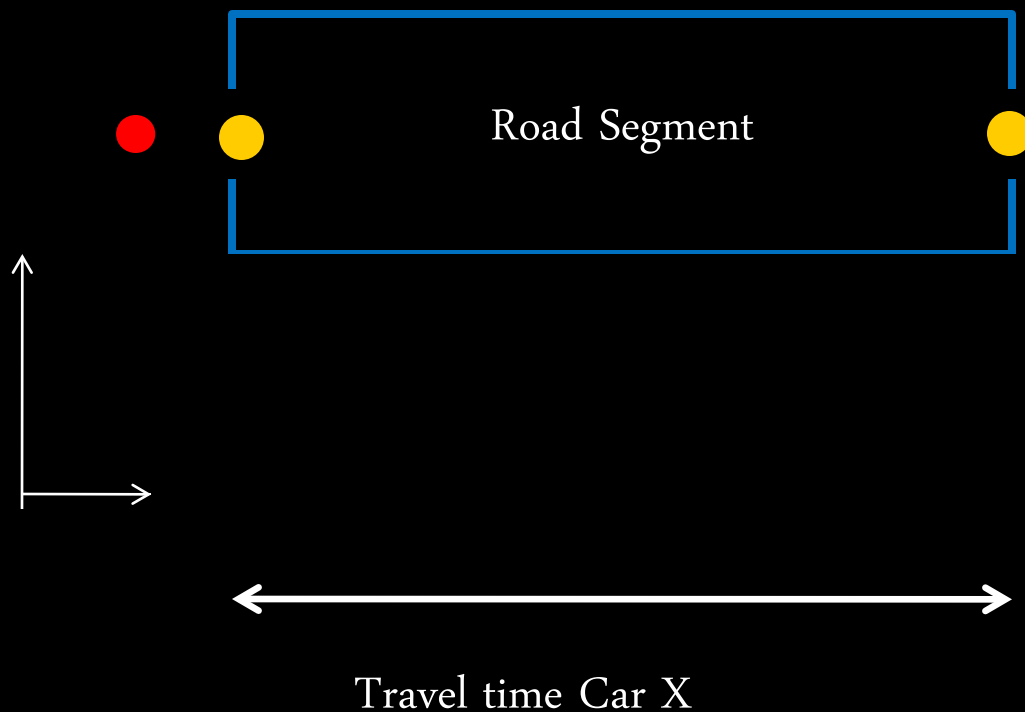


The screenshot shows the Copenhagen Airports website with a navigation menu at the top: Travellers, About CPH, HR, B2B, Investor, Newsroom, Environment. The main header includes Flight Timetables, Before Departure, and Parking and Transport. A large image of an airport terminal is visible. Below the header, there are sections for Shopping and Eating, Facilities, Virtual Airport, and Security. A news section on the left features a headline about a new concept at CPH. A central graphic shows a person at a kiosk. A pop-up window displays 'Waiting time at Security' with a current waiting time of 1 min. An arrivals table is also visible at the bottom.

Time	Exp.	From	Flight	Status
06:25	06:00	Bangkok	SK972	
06:30	06:25	Newark	CO122	
06:35	06:12	Bangkok	TG950	



How it works



AALBORG E45 PILOT

Forbindelsesvejen Aalborg



Humlebakken Aalborg



Pilot Setup

Sensor Details

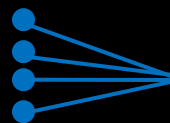
- Easy to deploy, covers multiple lanes (pilot had 4 lanes)
- Dedicated HW, 3 radios
- Permanent power / Periodic power / Battery operation
- Readings sent in real time to server via 3G
- Time in range of sensor recorded e.g. 8 s at 100 km/t
- Direction at sensor can be detected when speed is low
- Sensor error rate less than 4% at highway speeds
- Works under all weather conditions



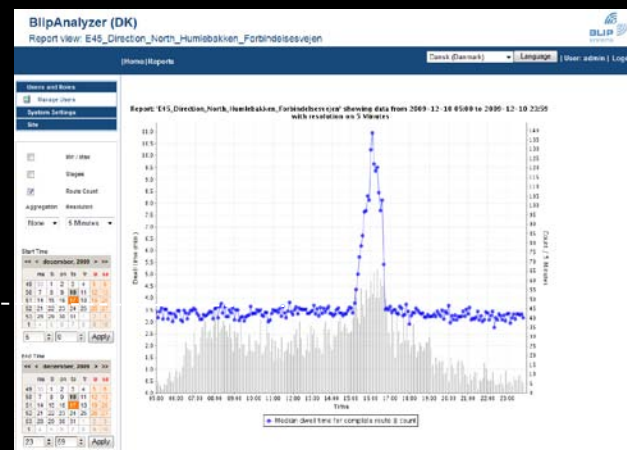
Pilot Setup Cont.



Sensors



BlipTrack Server



View reports via web based interface

Open webservice interface

Pilot Data

- Start 9-12-2009 to 9-2-2010
- 61 days


	Total	Humblebakken	Forbindelsesvejen
Drive by detections	1.696.416	800.125	896.291
Drive by detections daily avg	28.273	13.335	14.938
Unique users in entire period	175.102	149.161	143.702

	E45 North	E45South
Route completions	309.577	243.122
Daily Average	5.199	4.052



Closeup on 10-12-2009

BlipAnalyzer (DK)



Report view: E45_Direction_North_Humlebakken_Forbindelsesvejen

Dansk (Danmark) ▾

Language

User: admin | Logout

[Home](#) | [Reports](#)

Users and Roles

Manage Users

System Settings

Site

Min / Max

Stages

Route Count

Aggregation Resolution

None ▾ 5 Minutes ▾

Start Time

<< < december, 2009 > >>

	ma	ti	on	to	fr	lo	sa
49	30	1	2	3	4	5	6
50	7	8	9	10	11	12	13
51	14	15	16	17	18	19	20
52	21	22	23	24	25	26	27
53	28	29	30	31	1	2	3
1	4	5	6	7	8	9	10

5 ▾ 0 ▾

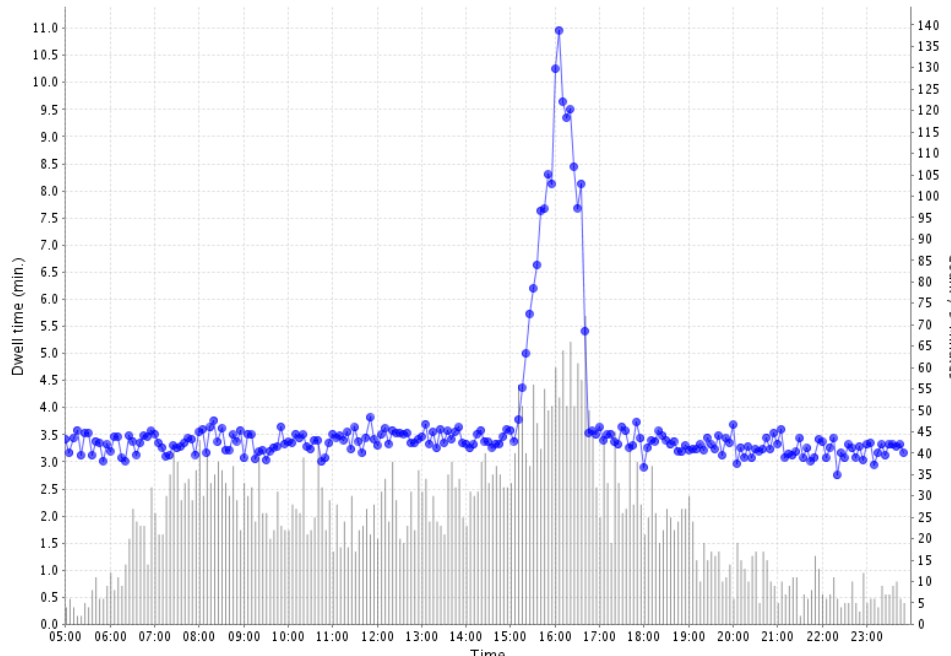
End Time

<< < december, 2009 > >>

	ma	ti	on	to	fr	lo	sa
49	30	1	2	3	4	5	6
50	7	8	9	10	11	12	13
51	14	15	16	17	18	19	20
52	21	22	23	24	25	26	27
53	28	29	30	31	1	2	3
1	4	5	6	7	8	9	10

23 ▾ 59 ▾

Report: 'E45_Direction_North_Humlebakken_Forbindelsesvejen' showing data from 2009-12-10 05:00 to 2009-12-10 23:59 with resolution on 5 Minutes



Time

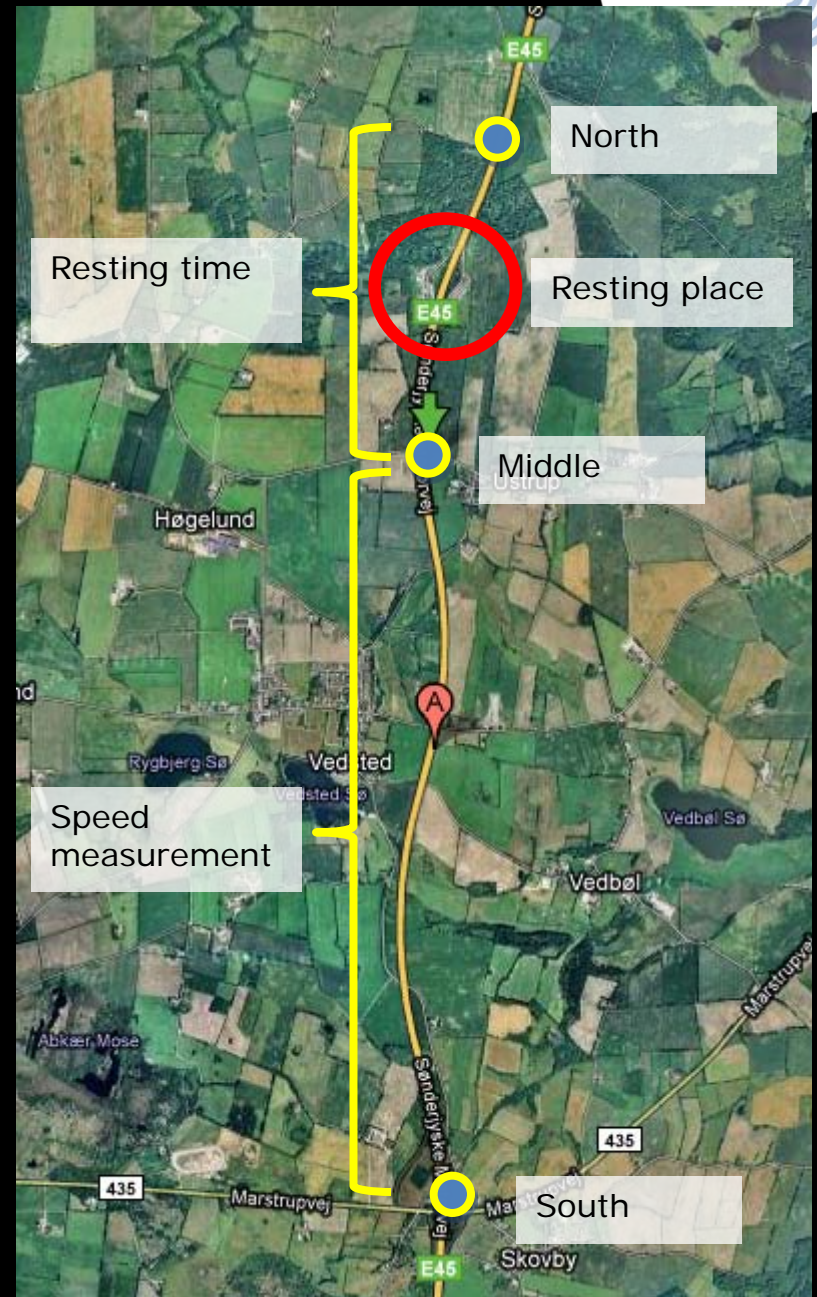
◆ Median dwell time for complete route || count

USTRUP PILOT



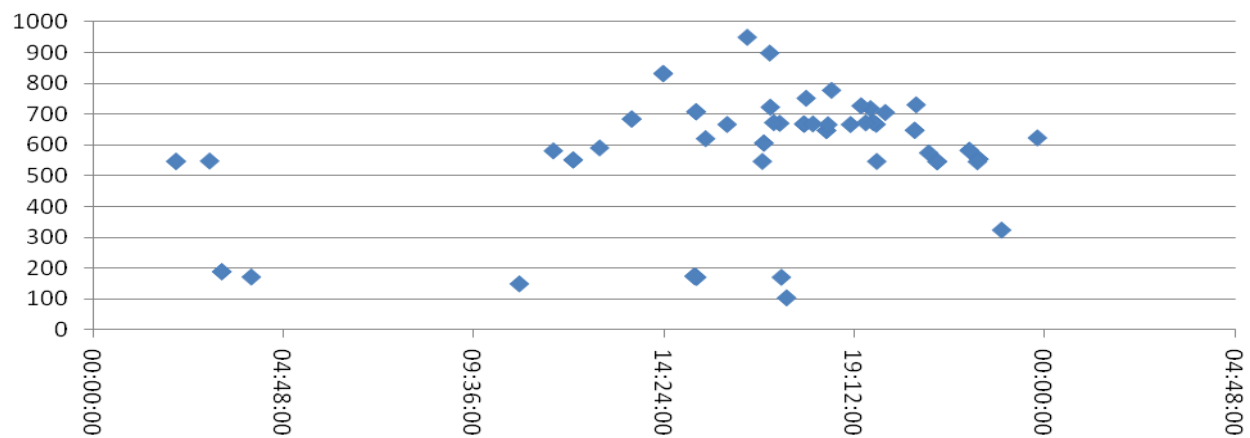
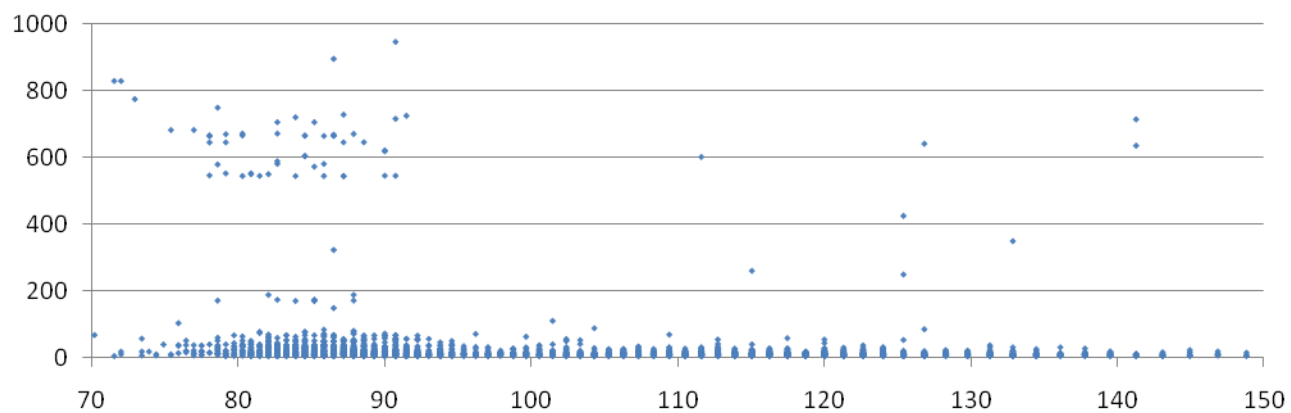
Ustrup Pilot

- Duration one 1 week
- Analyze resting time For trucks



Results

Resting time (min) vs Speed (Km/t)



New projects

- Århus
 - Travel time and flow measurements on Ringvejen.
- Aalborg
 - Downtown pedestrian flow and choice of parking.
- Aalborg harbor area
 - Preferred routes for cargo traffic.
- Hjørring
 - Usage of trains and busses, and connecting transportation.

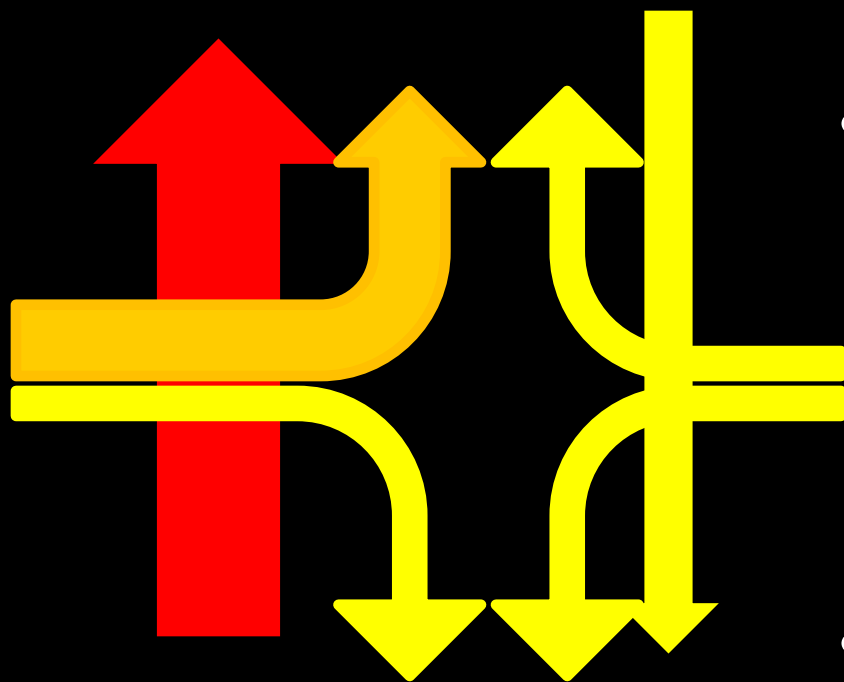
USAGE EXAMPLES

ANPR alternative

- Cheaper alternative
- Not sensitive to weather or lighting
- Easy to mount, and less hardware
- Adequate sample sizes



Flow measurements



- Easy to deploy
- Real time measurement – instant results on signal adjustments
- Automated!

BlipAnalyzer

Flow > Reports > Flow Reports

| Route | Flow | Admin |

User: admin | Profile | Logout

- Reports
- Settings

Graph Settings

Zones

View Level: 1

Select

CPH-01.1

CPH-01.10

Show all level zones

Include Virtual Zones in Result set

Profiles

CentralSec

LocalDep

Resolution

10 Minutes

Start Time

2009-05-01 00:00

End Time

2009-06-03 00:00

Time

Don't show

Footfall

Distinct node

Penetration

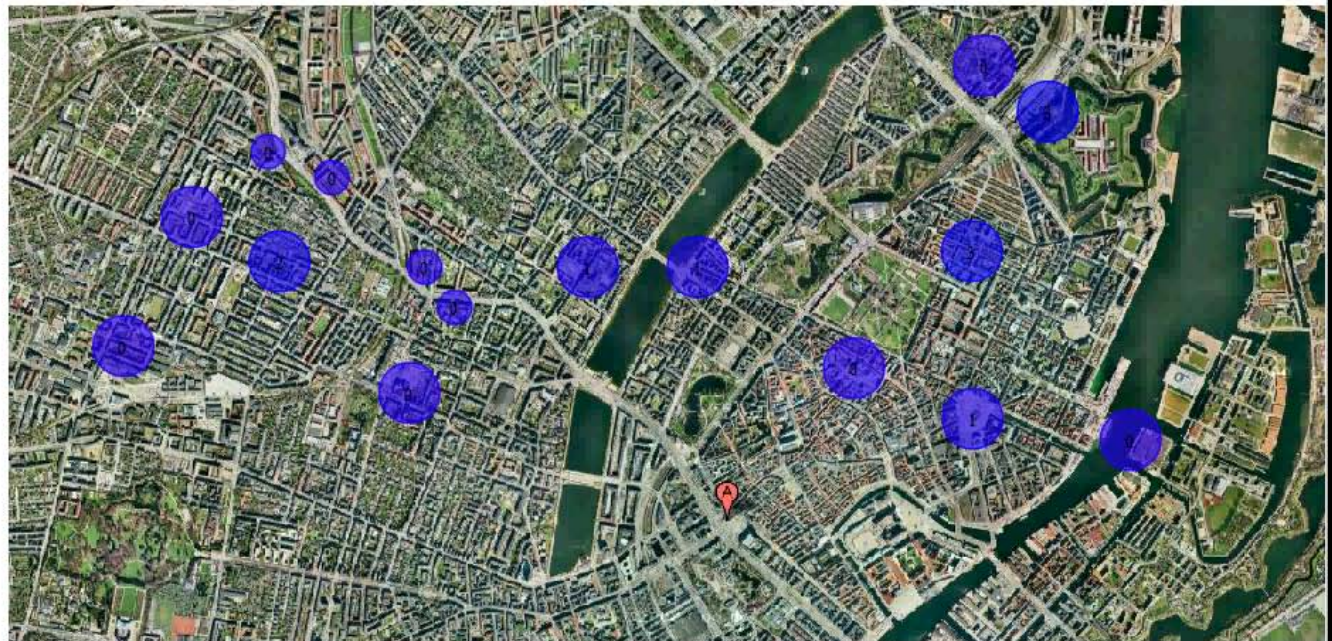
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Update

Save as default

Zoom: Time: Speed:

2009-05-01 00:10



Road works

- Not sensitive to lane adjustments
- Real time delay
- Automated queue warning and speed adjustment



CONCLUSION

Cons

- Not an absolute count.
- Some vehicles have more than one Bluetooth device.
- Vehicle classification

Pros

- Easy to deploy, and not as location sensitive as cameras.
- Low power, can be powered by batteries, solar panels and wind.
- More than adequate sample sizes.
- People bring their own trackable device.

Future

- Adaptation of user interface to more road specific use
- Enhanced filters and reports
- Physical appearance of the sensor, permanent mounted or disposable.

Gathers more data with higher accuracy, in a more cost efficient way compared to manual observations.

Due to the cost of a Bluetooth solution, tasks that earlier couldn't be automated, can.

In many cases Bluetooth can replace ANPR cameras, providing the necessary data far cheaper and more flexible.

**BRIDGES A GAB BETWEEN MANUAL
COUNTING AND ANPR CAMERAS.**

Q&A

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