



Statens vegvesen

Optimalisering for busser i Trondheim

Ørjan Tveit

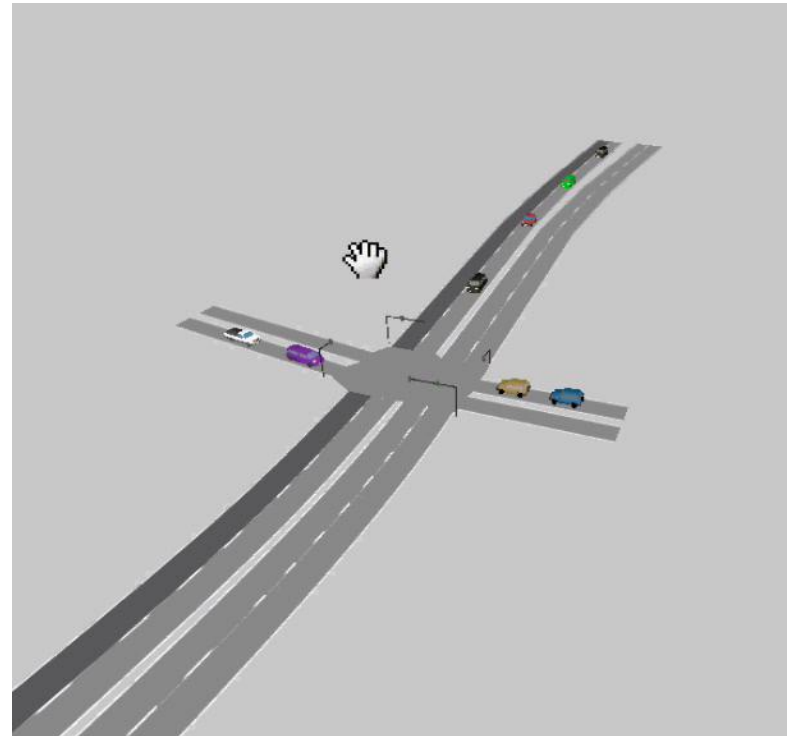
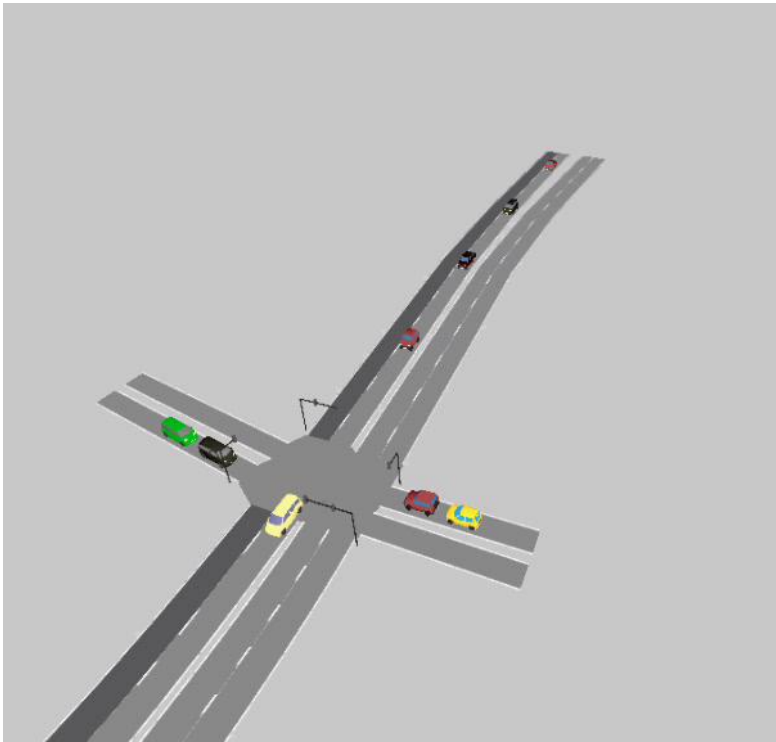
Statens vegvesen Region Midt

Priority of buses in Trondheim

- Aiming for traffic actuated coordinated
- New project combining signaling and priority for buses
- Started the winter season 2010/2011
- An evaluation will be ready this summer

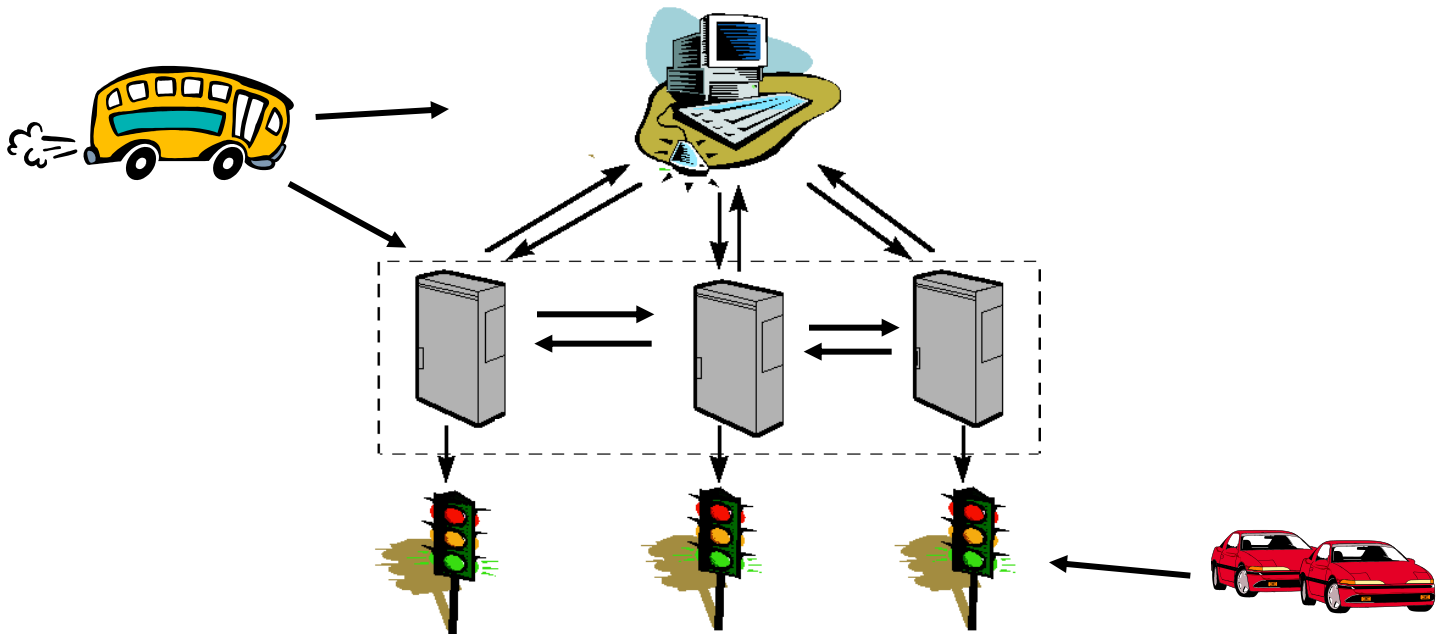


Improvement for buses or cars?



Priority for bus based on SPOT/UTOPIA

SPOT/UTOPIA is a system where local optimization of the signals is coordinated to achieve an overall benefit.



SPOT/UTOPIA konseptet

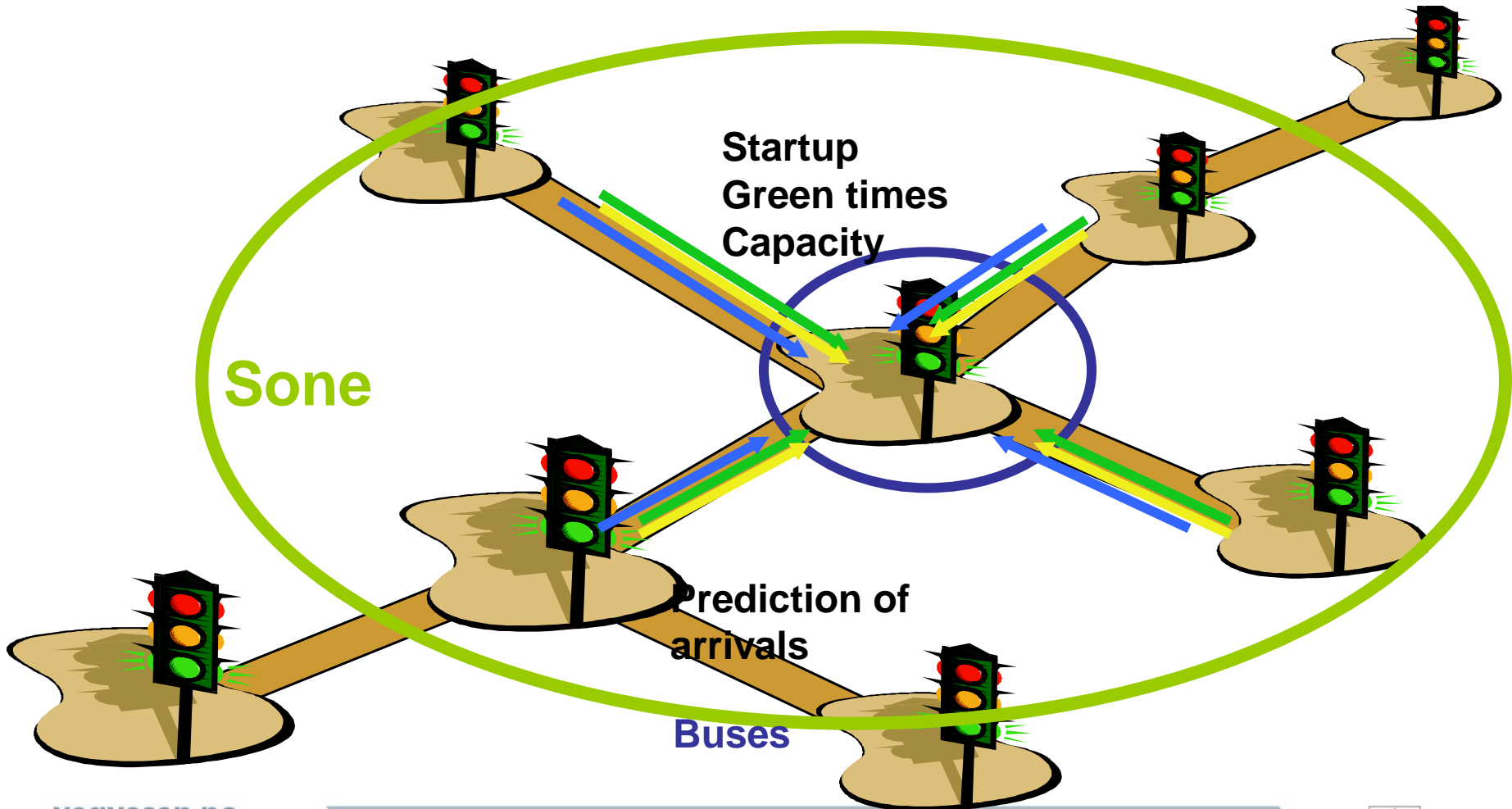
Aim of SPOT/Utopia at a principal level:

- Public transport is given high priority at the intersections
- All other traffic shall have equal or better travel time as before

If such a goal shall succeed there has to be a «spare capacity» in the net, that the other systems are not able to use.

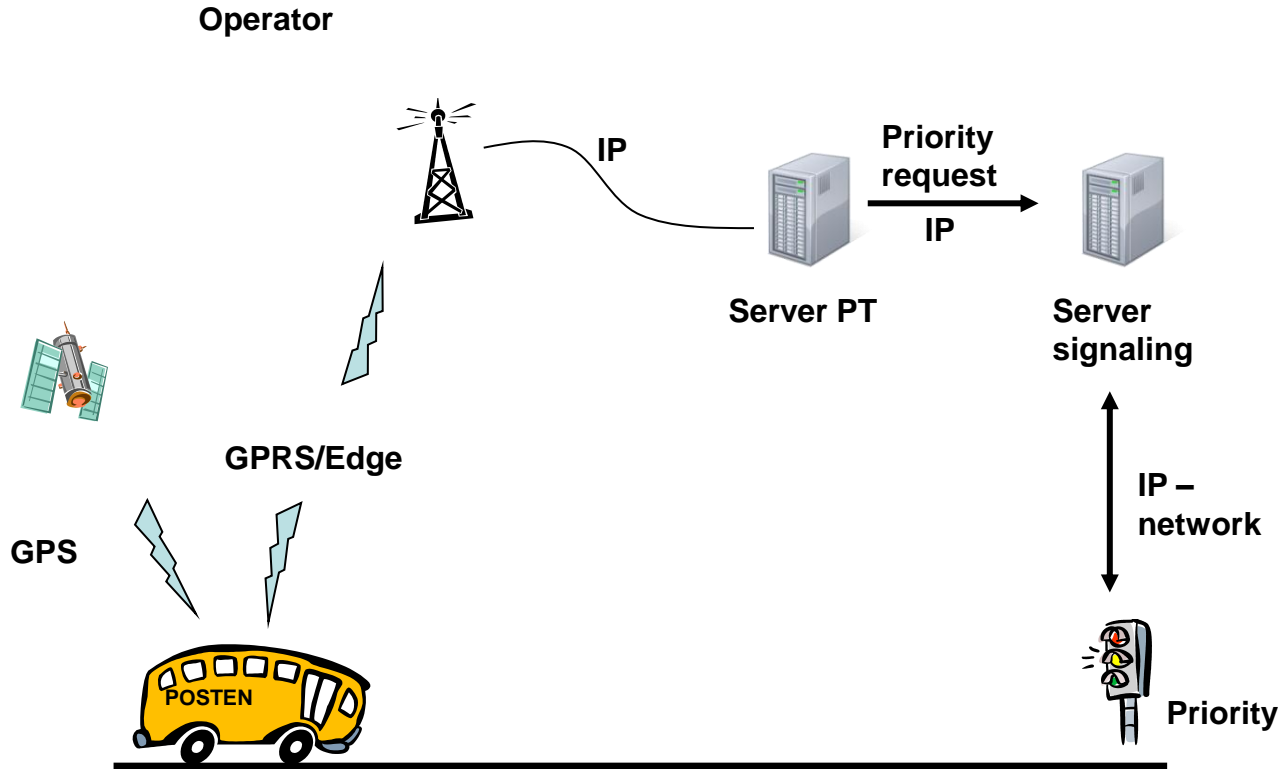


Traffic adaptive signaling



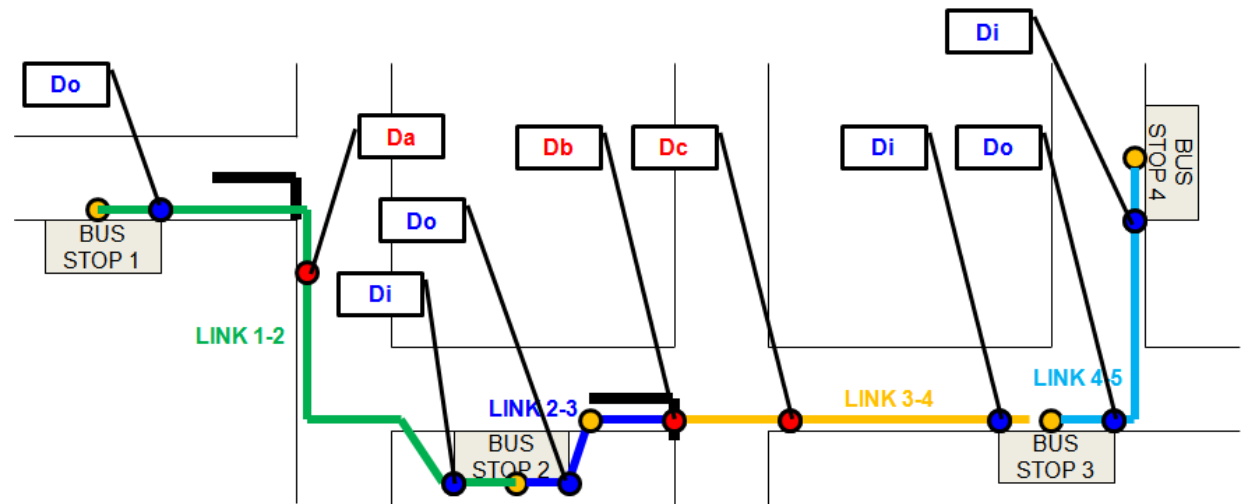
Technical solution

- Detection of buses in Trondheim



In Trondheim we wanted to outsource the communication solution to focus on real time information and priority.

Signaling – trigger points



Possibilities to adjust the bus weight

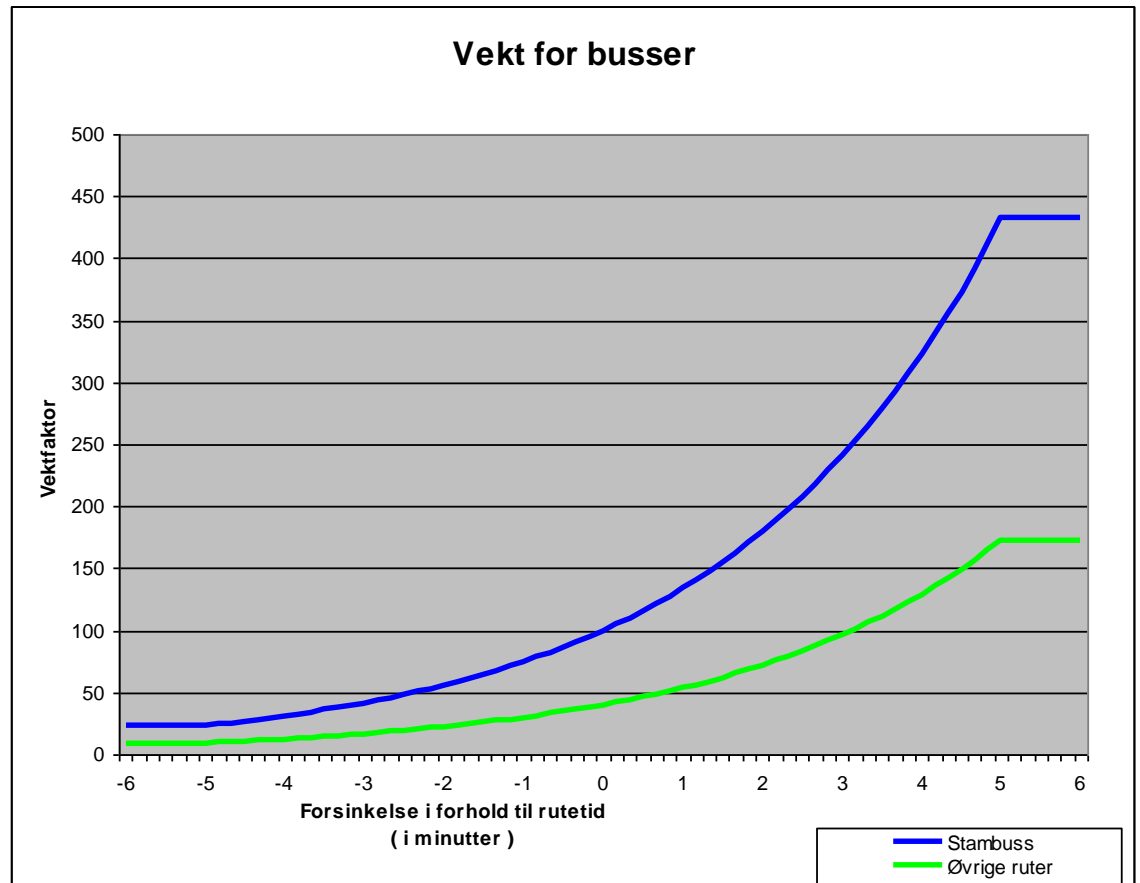
- ✓ Delay
- ✓ Bus route (High priority route?)
- ✓ Direction (with or against the rush direction)
 - automatically adjusted by time of day
- ✓ Intersection level
 - possible to adjust priority level



Chosen priority for signaling

Priority regime:

- Cars weights
 - Stopped = 1
 - Driving = 3
 - Platoons = more
- Pedestrian weights
 - 2 up to 100
- Bus up to 430
 - Adjustments for routes, junction and direction



OMNIA – intersection in Trondheim

Bus info

The screenshot displays the OMNIA software interface for a junction. The main map shows a street intersection with a bus icon labeled '5 (121)' and a blue information box. A 'Signal Group Diagram' on the right shows six signal groups (sg1 to sg6) with their respective phases. The 'Event table' at the bottom provides real-time data for the bus.

System	PT	Priority				
Arrival Time	Crossing Time	Route	Vehicle	Waiting Time	Signal	Movement
09:30:06	09:30:08	5	121	2	sg4	14- 6008- 4- 2

Omnia - bus priority

Omnia

Priority Reports

Selection Tree

Areas

- Trondheim
 - Omnia Region Midt

Objects

PT Priority Requests | **PT Priority Performances**

From: 02/02/2011 09

To: 02/04/2011 09

Apply

Controller ▲	Route	Runs	Waiting Time	Random Waiti...	0s	<10s	Green Split	Correction	Polling
1601-212	Any	2	0	7	100%	100%	53%	0	17
1601-213	Any	3	7	11	33%	67%	50%	0	4
1601-214	Any	3	6	7	67%	67%	62%	0	7
1601-215	Any	4	4	8	50%	100%	33%	0	44
1601-601	Any	37	4	9	63%	79%	47%	0	13
1601-602	Any	264	7	12	63%	74%	48%	1	11
1601-603	Any	263	8	13	59%	70%	44%	1	9
1601-604	Any	470	3	6	79%	86%	67%	3	9
1601-605	Any	504	4	6	72%	82%	66%	2	11
1601-606	Any	485	1	3	86%	97%	73%	3	10
1601-607	Any	438	7	11	67%	75%	53%	3	8
1601-608	Any	90	16	23	43%	52%	27%	2	9
1601-610	Any	393	3	6	74%	86%	62%	4	8
1601-611	Any	2	0	29	100%	100%	4%	4	6
1601-612	Any	546	2	5	79%	90%	68%	5	11

Controller ▲	Route	Runs	Waiting Time	Random Waiti...	0s	<10s	Green Split	Correction	Polling
1601-606	Any	485	1	3	86%	97%	73%	3	10
1601-607	Any	438	7	11	67%	75%	53%	3	8

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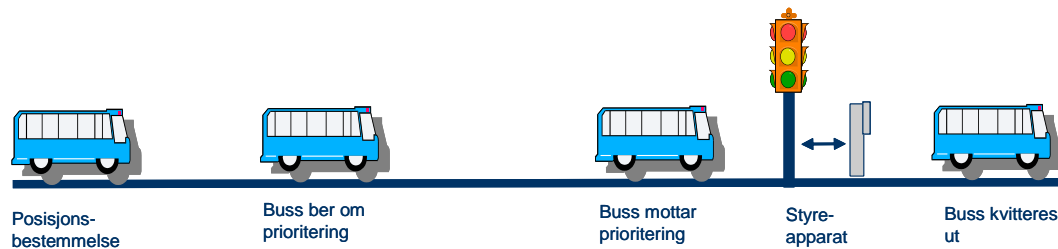
Displaying results 1 - 15 of 15

Omnia | Map View | Junction ... | Priority ... | 124 09:29:36

Bus priority in Trondheim

Summary

- Detection based on virtual loops
- Signaling is adjusted to arriving buses
- Sophisticated priority regime with more adjustments for buses we like to give priority



Thanks for the attention

