From Data to Need of Actions, and to Work Tasks

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In co-operation:

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FLUENT

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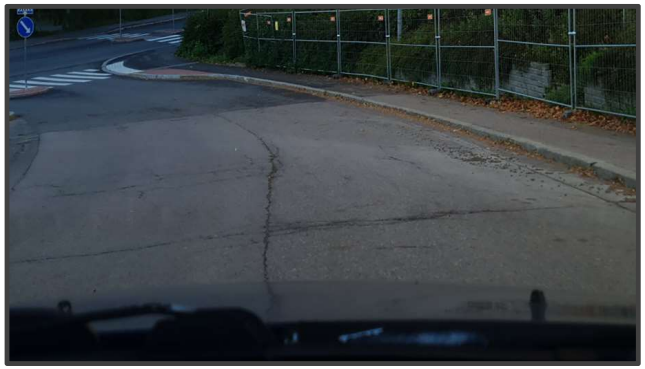
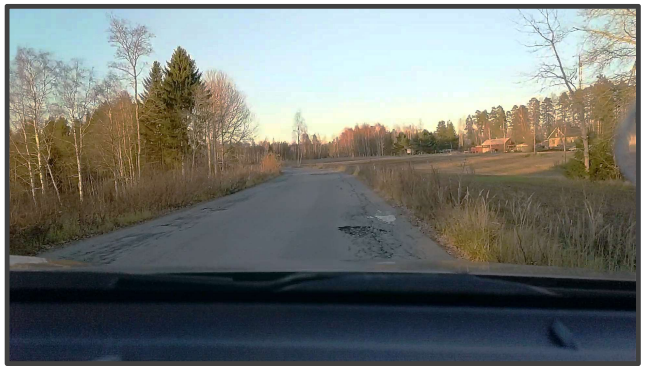
Topic

- Automatic recognition of targets that need actions
- Flexible workflow to schedule and to conduct the necessary actions





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Challenges

- Collecting crowd-sourced data is not sufficient
  - This would shift the problem from monitoring roads to monitoring data

- Automation is required
- A smooth interface from automation to Work Task Control Systems is also needed

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Challenges

- Automation is not trivial:
  - Too many alerts frustrate the users
  - The maintenance still needs quickly alerts of targets that require immediate reaction
- This sums up to reliability and speed simultaneously
  - These are, of course, somewhat contradictory goals.

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Challenges

- An additional challenge:
  - Employing digitalization in road maintenance should decrease costs instead of increasing them.
  - Running IT-systems is not free. Telecommunication, data storage and artificial intelligence creates real costs.

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Technical readiness of technology

- Cameras and data collection ✓
- Telecommunication networks ✓
- Cloud storage systems ✓
- Analysis power ✓
- Tools for user-interfaces ✓

Shot in complete darkness, speed 90km/h

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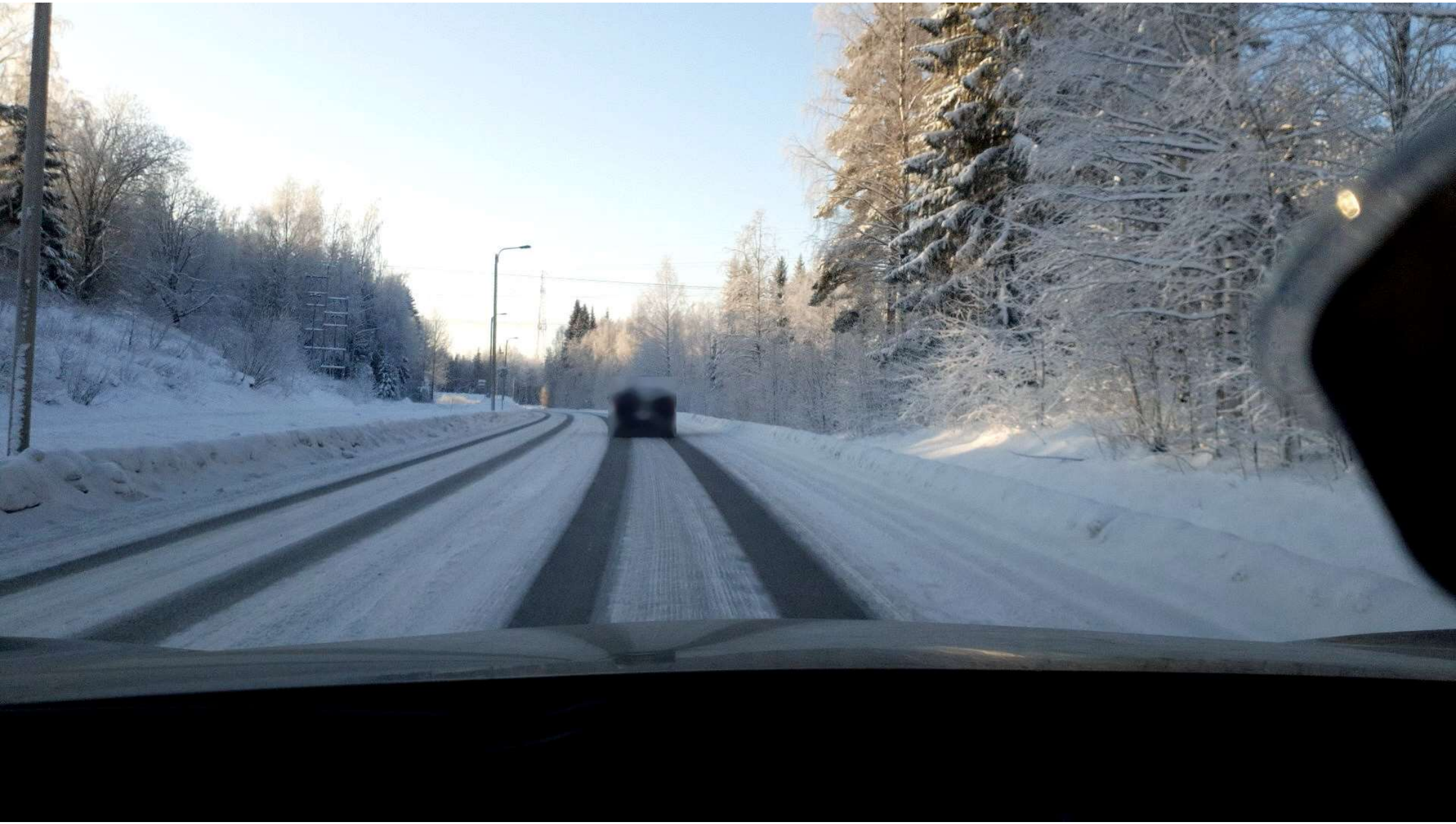
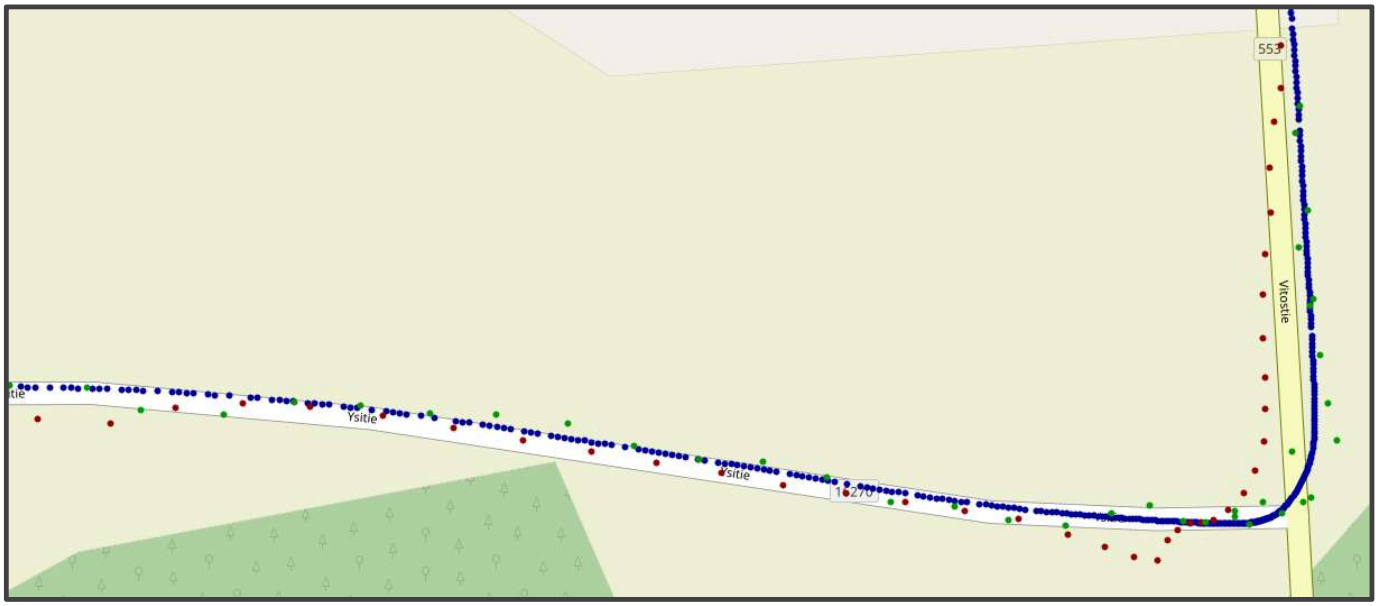


Technical readiness of technology

- Satellite positioning ✓, ✓
  - Precision of moving objects is satisfying
  - The phones convert GPS-data to appear better than what it actually is.



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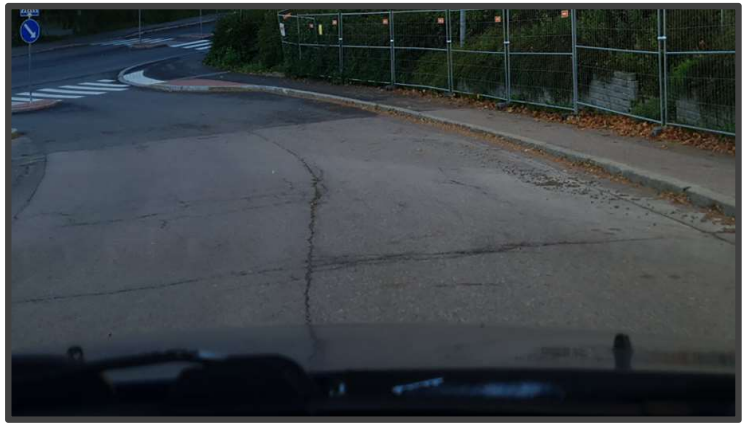
Technical readiness of technology

- Artificial intelligence, machine vision ✓, ✓
  - A useful tool,
  - but not as miraculous as the public discussion may suggests.
  - To obtain reliable results, need to be complemented with statistical analysis.
  - Not free to run, creates real costs



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Special properties of Jalonne system

- Inertial analysis to measure
  - road surface roughness,
  - IRI, and
  - hard ridges of snow on road.

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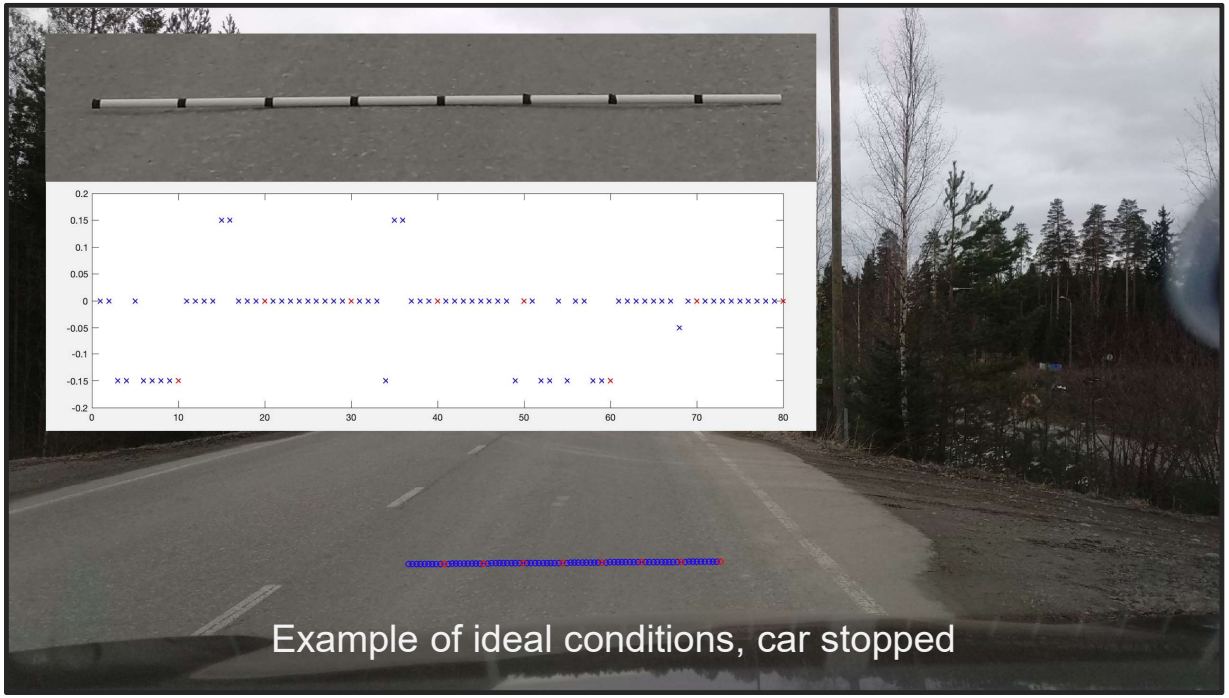
Special properties of Jalonne system

- Measurement pf the length, area, or size of objects



Example of ideal conditions, car stopped

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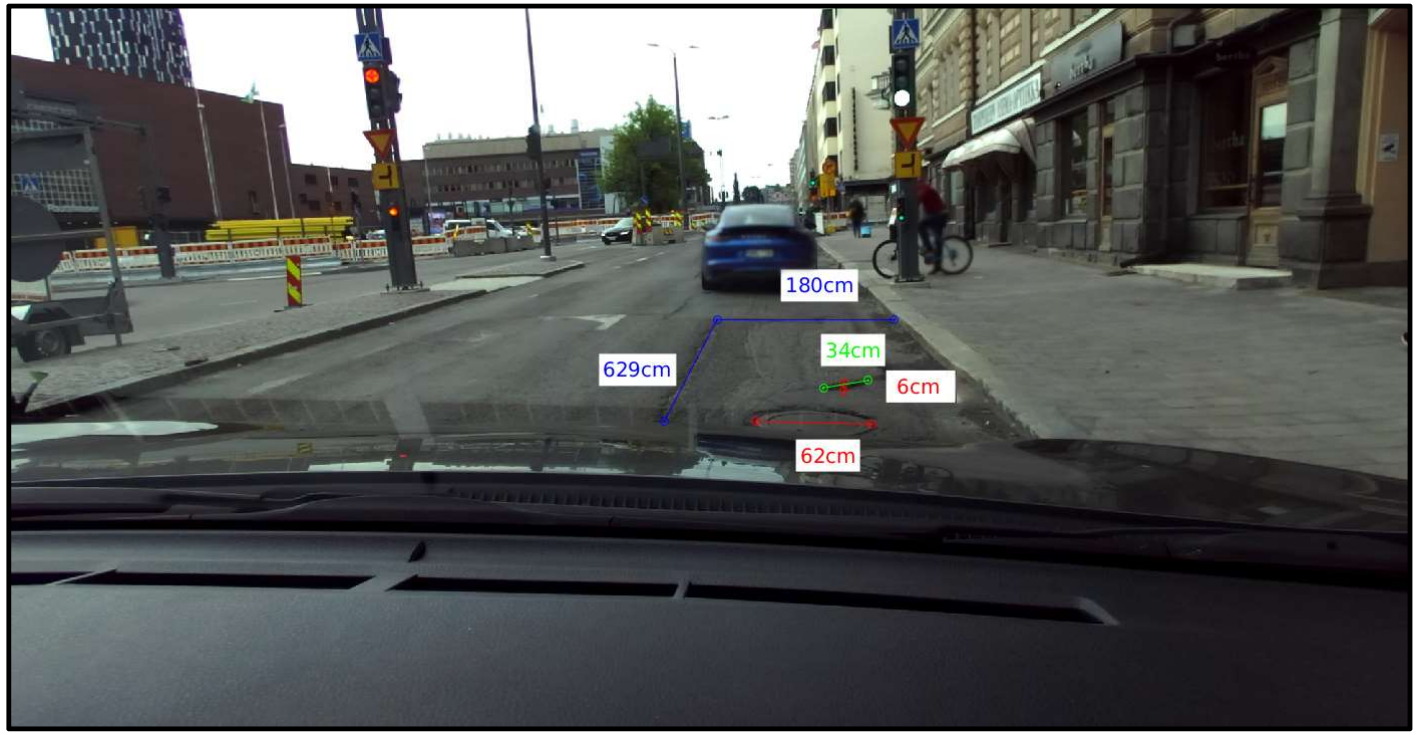
Special properties of Jalonne system

- Measures the length, area, or size of objects



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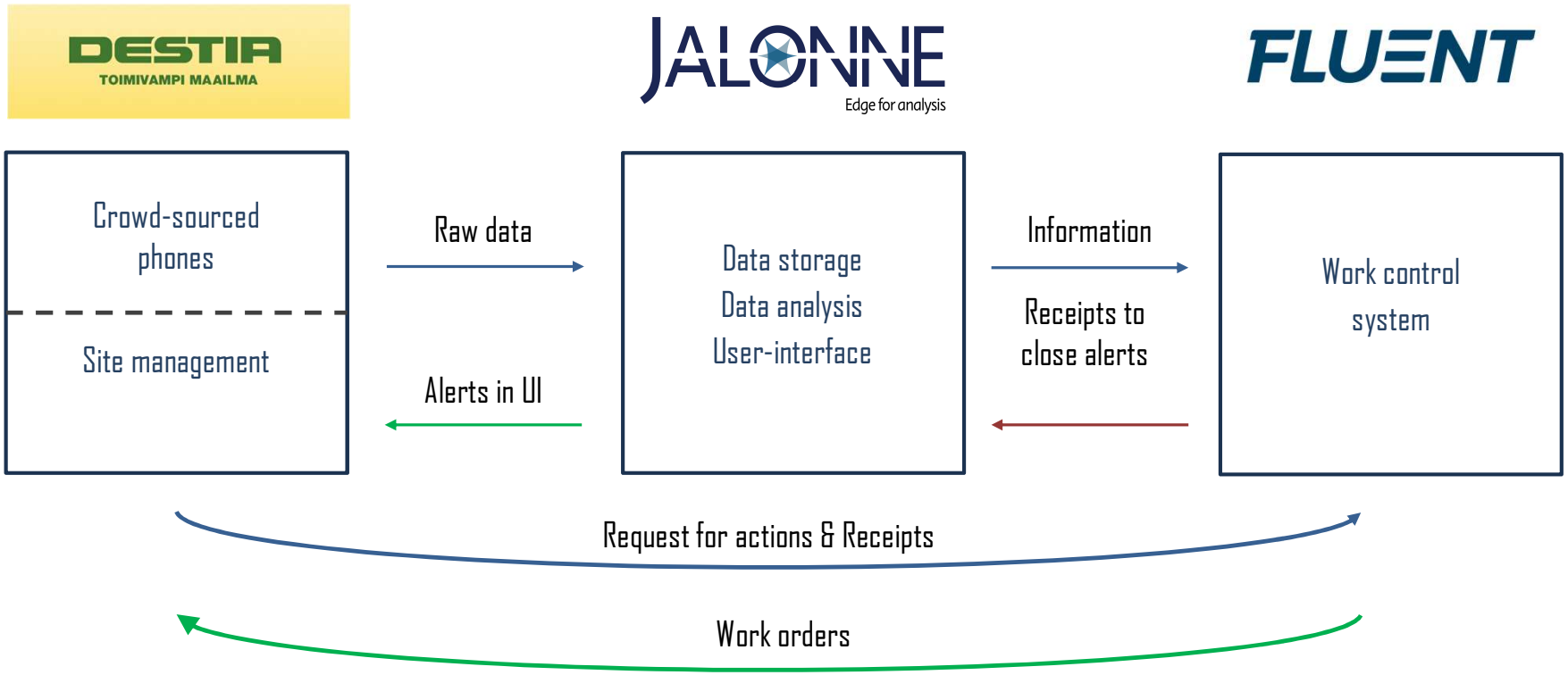
System

- Co-operation between Destia, Fluent, and Jalonne:



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Examples of automation targets

- Faults in road pavement
- Width of road cleaned from snow
- Height of the roadside snow banks
- Hard packed snow on road
- Traffic signs covered by snow
- Roughness of unpaved dirt roads
- Tilted traffic signs
- Street lights
- and so on.

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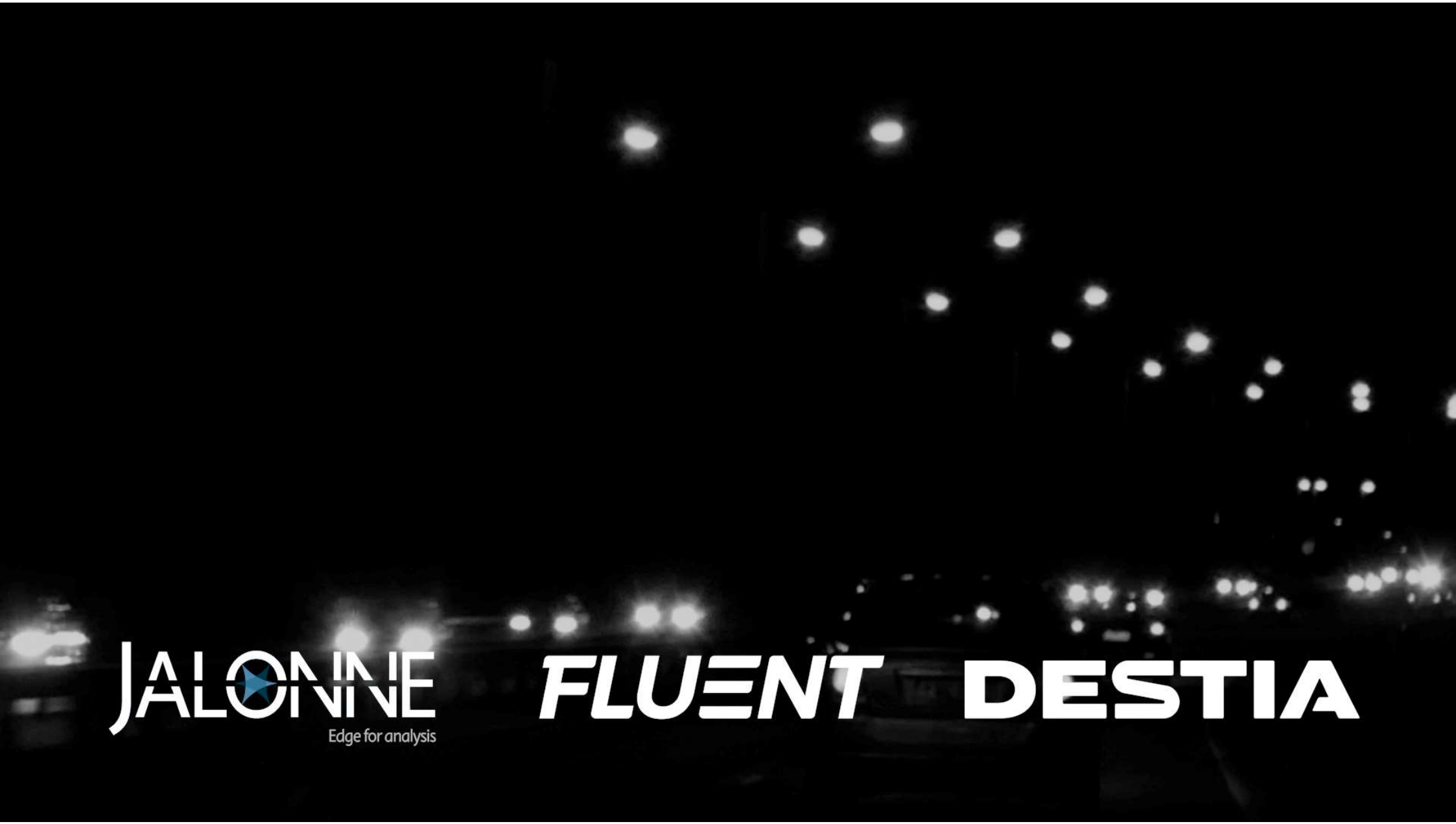
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Thank you

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