Modeling, Simulation and Testing panel

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Whole-system optimizations are newly possible

To Fight Gridlock, Los Angeles Synchronizes Every Red Light

By IAN LOVETT    APRIL 1, 2013

Los Angeles has synchronized all of its 4,500 traffic lights in an attempt to keep vehicles moving.

Monica Almeida/The New York Times
A little-recognized triumph for sophisticated in-car systems

“The exhaust emissions scandal (‘Dieselgate’)” by Felix Domke at CCC32
How VW's cheat worked

Model Selection Tweaks

• Can this be true? This sounds fishy.

• Luckily, the ECU counts how often it is in each state, and saves that to EEPROM:

  ![Statistics chart showing the percentage of time spent in different states]

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Dosing</td>
<td>0%</td>
</tr>
<tr>
<td>Regular Model Active</td>
<td>25%</td>
</tr>
<tr>
<td>Alternative Model active</td>
<td>75%</td>
</tr>
<tr>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

• Average AdBlue consumption is well below expectations as well. Alternative model tends to under-dose to avoid NH₃ slip (and, as a side effect, reduce AdBlue consumption).

• Averaged consumption on my car, as calculated by ECU, is ~0.6l/1000km. Expected for full efficiency would be around 2.5l/1000km.

• Ok, this is fishy. Let's investigate. (And how can the Regular Model still be selected sometimes?)

Courtesy Felix Domke, http://debugmo.de/2015/12/dieselgate/
“Human in the loop” will take on new significance

HARMAN Demonstrates Industry’s First Pupil-Based Driver Monitoring System at CES 2016
Themes of the panel discussion

- Improved, connected GIS
- Improved understanding of driver behavior
- Better whole-systems approaches to simulation