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Development of an in-series hybrid urban bus model and its correlation with on-board testing results

UNIVERSITY INSTITUTE OF AUTOMOBILE RESEARCH / TECHNICAL UNIVERSITY OF MADRID



Daniel Resino Zamora
José María López Martínez
Carlos Julio Loboguerrero Carrasco
Juan José Delgado Vaca

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- Objective
- Why a model?
- Configuration of the hybrid bus
- Model
- Simulation conditions
- Measurements
- Results and comparison

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“Get as good a hybrid urban bus model which enables to predict its behavior under real city service”

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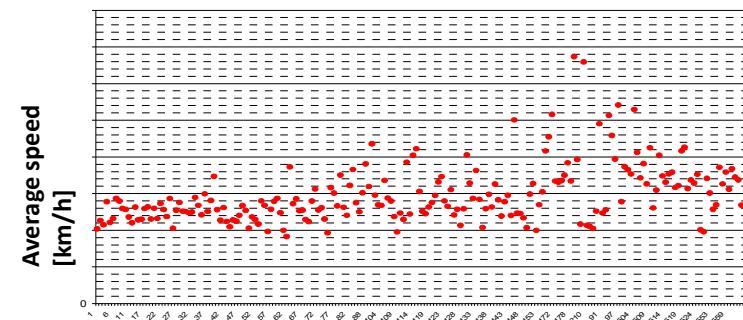
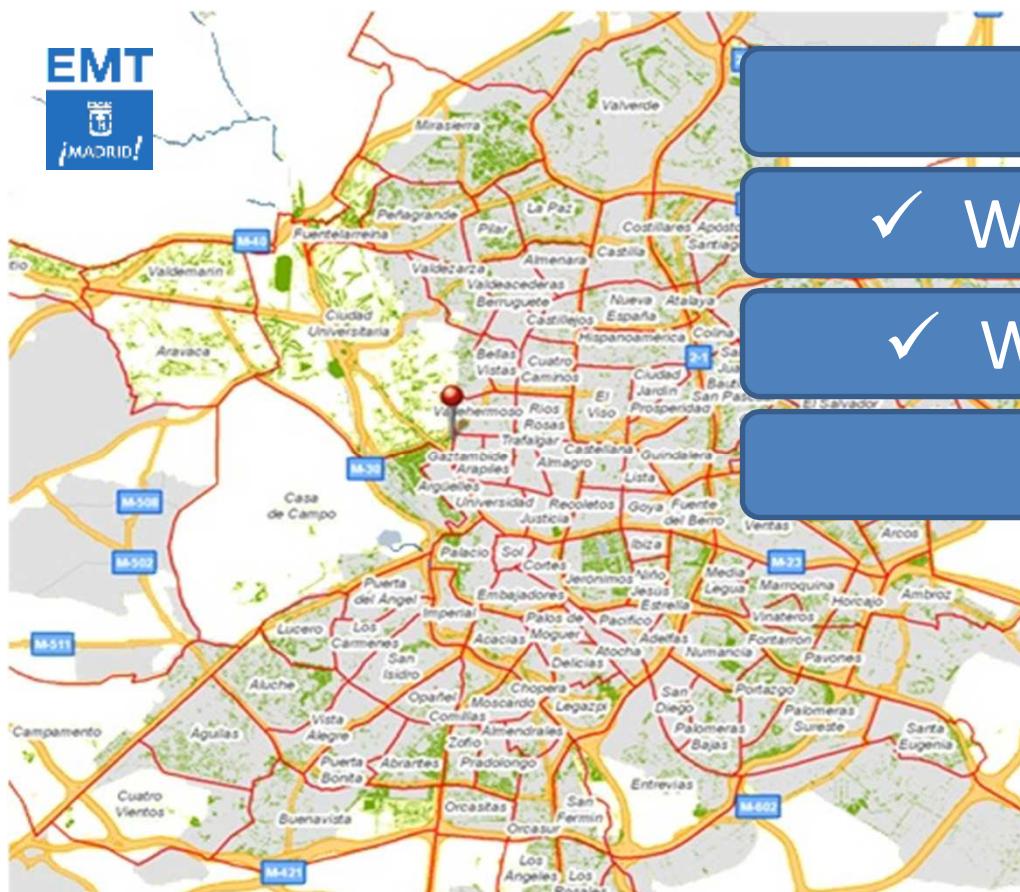


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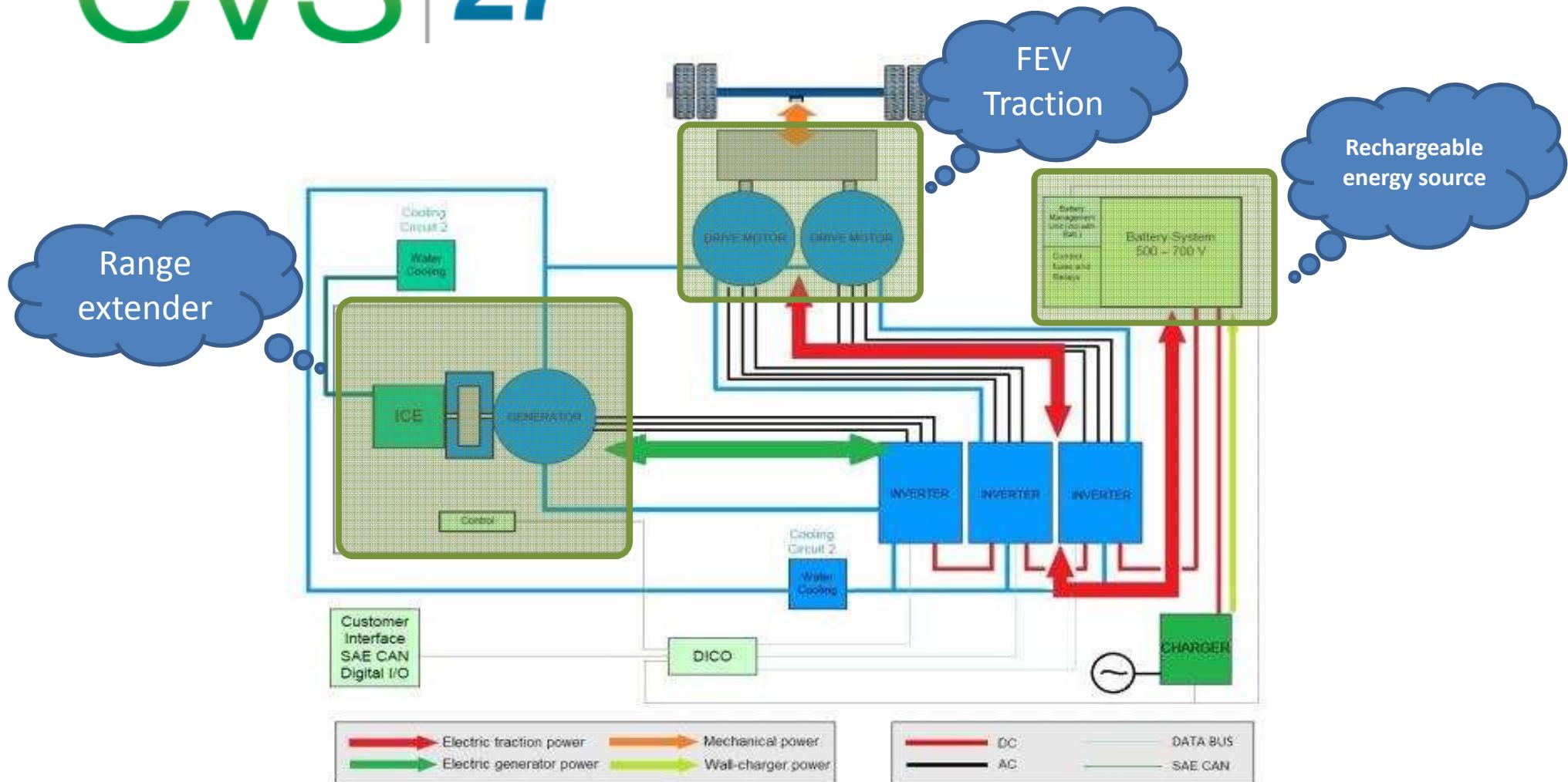
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Configuration of the hybrid bus



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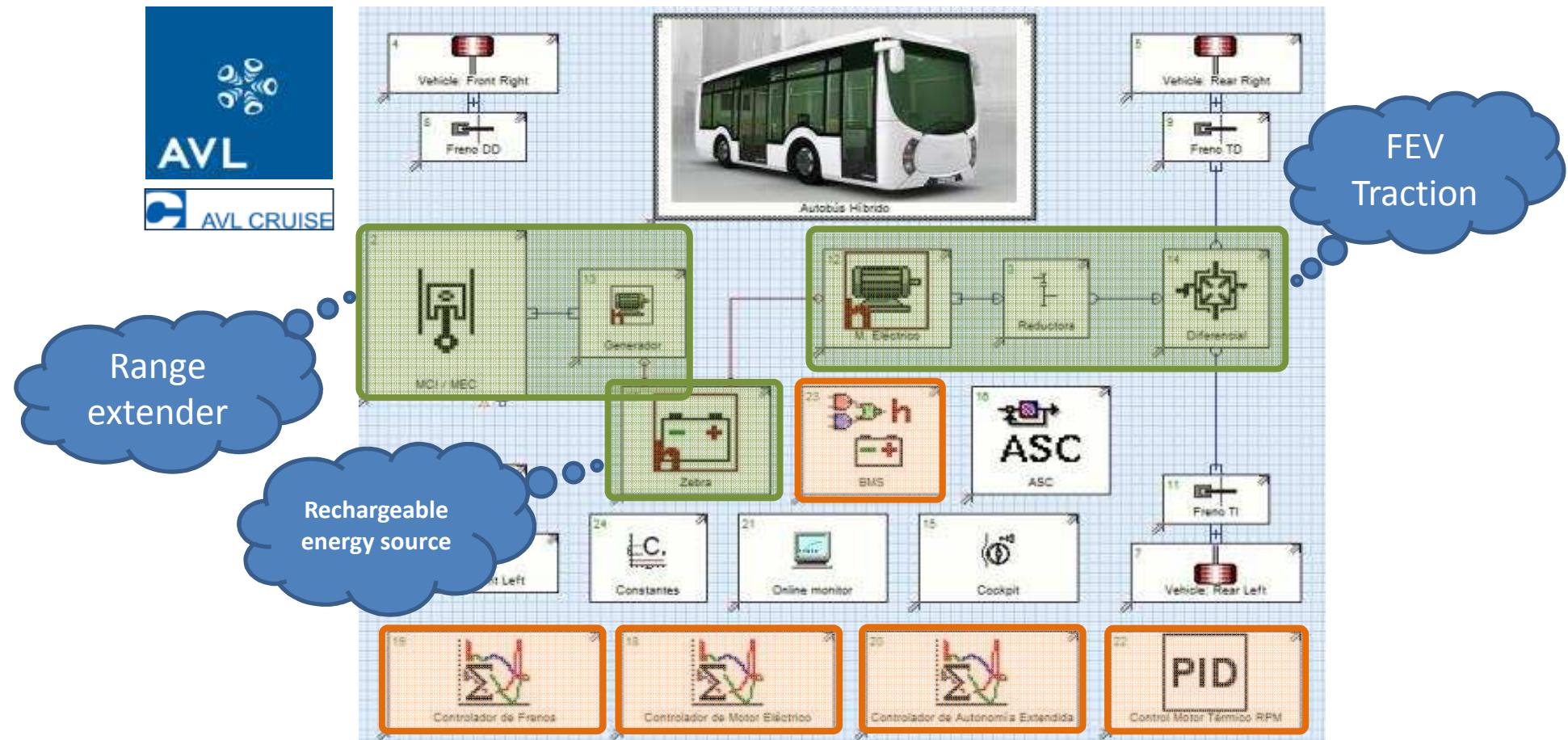
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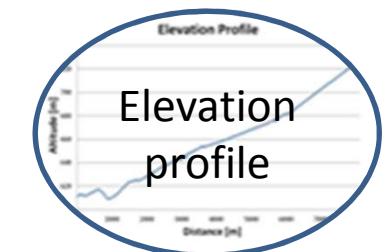
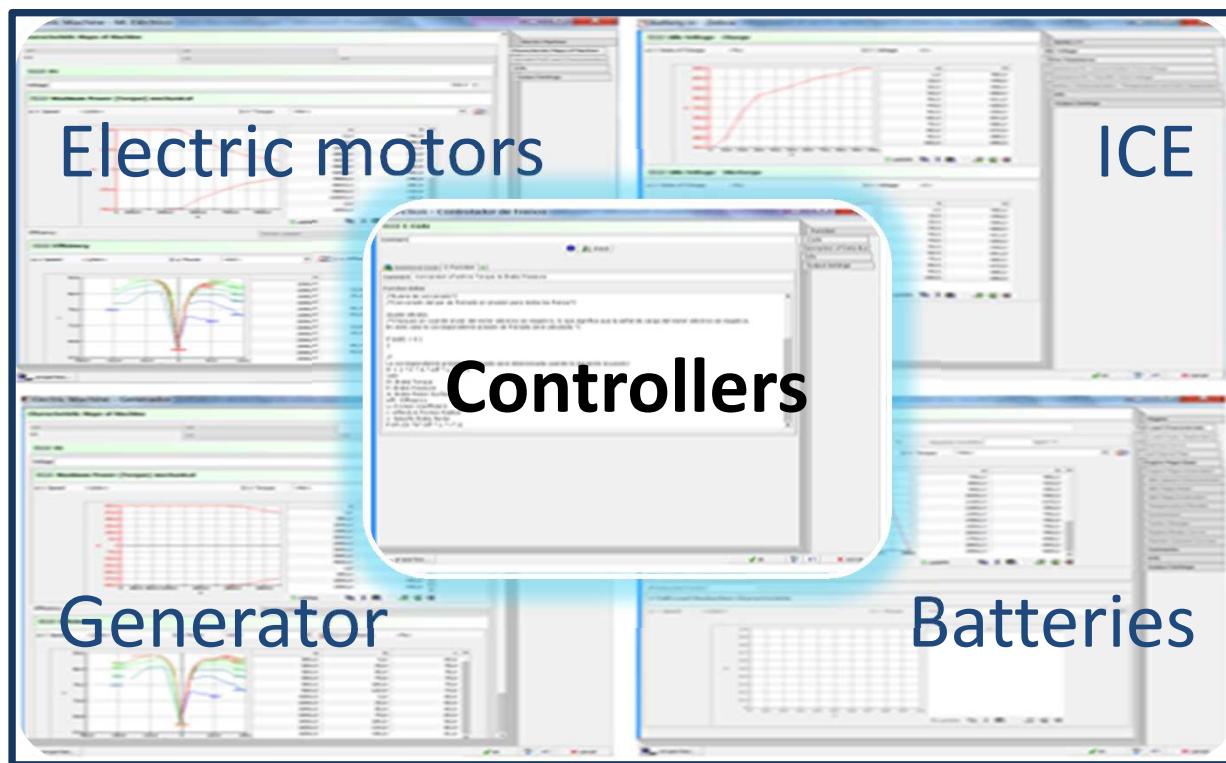
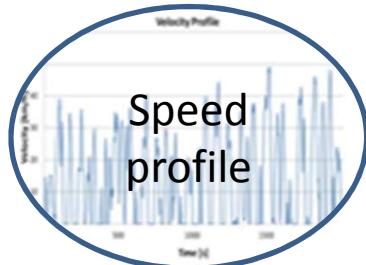
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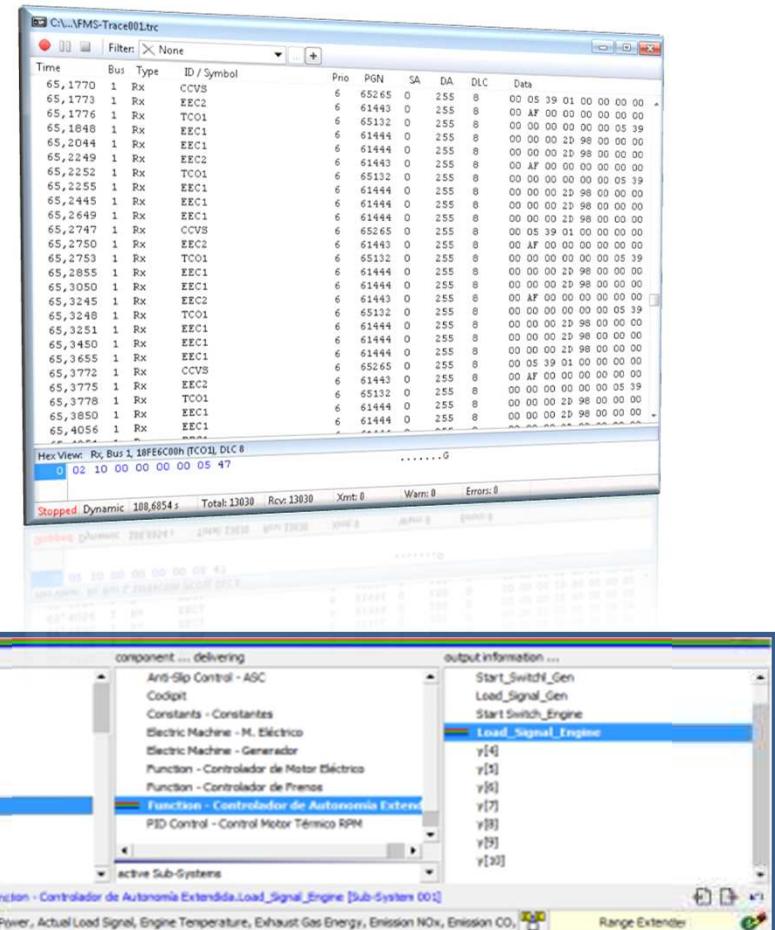
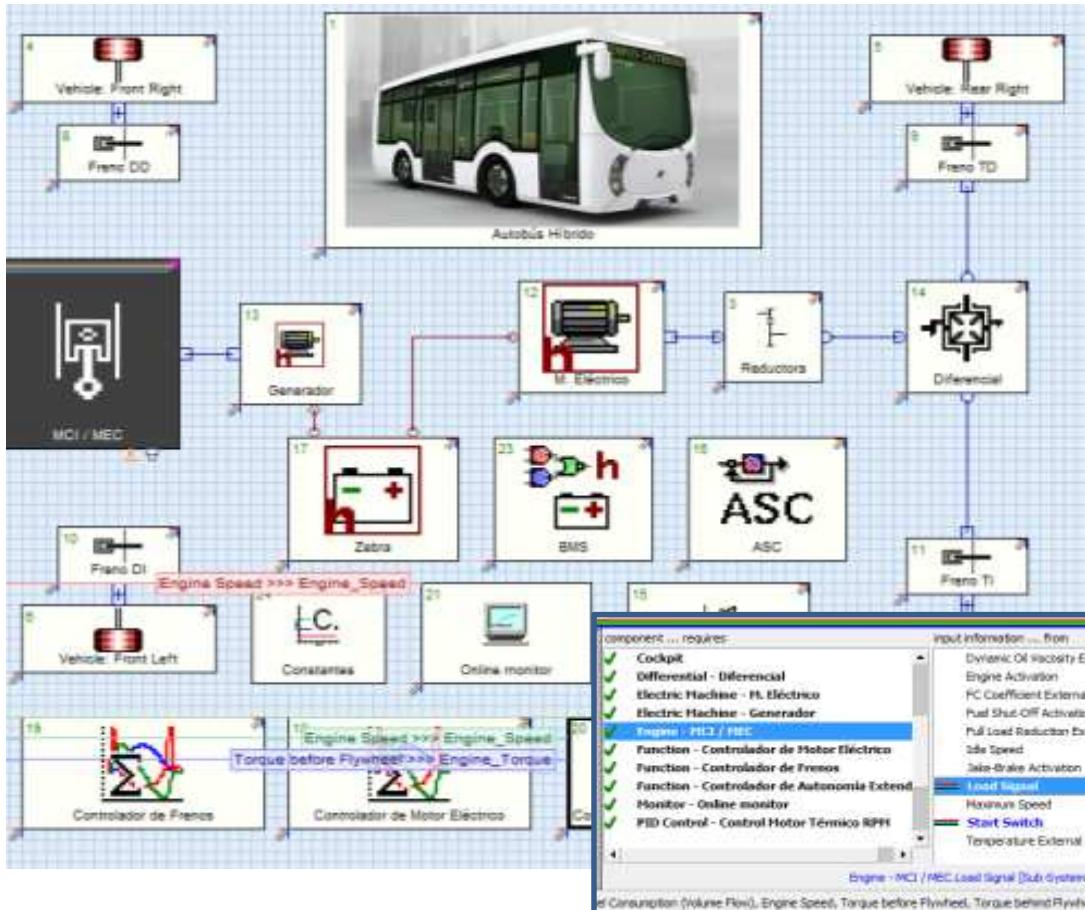


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Measurements



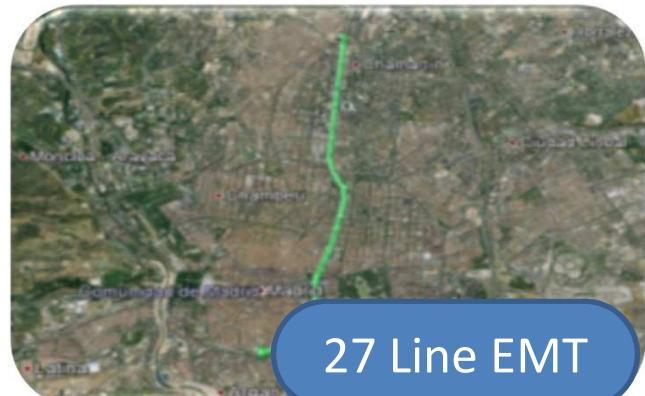
Hybrid bus



Real cycle



Load



27 Line EMT



Data acquisition equipment



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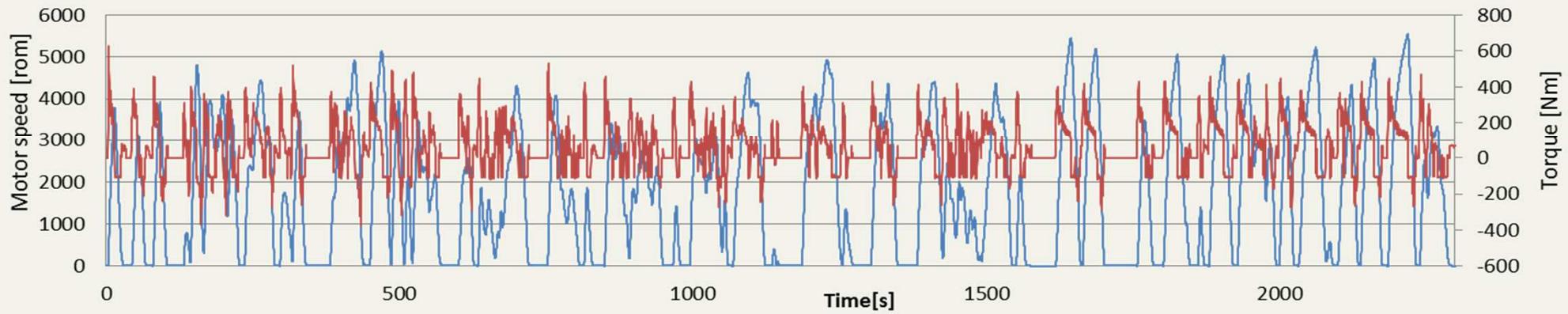


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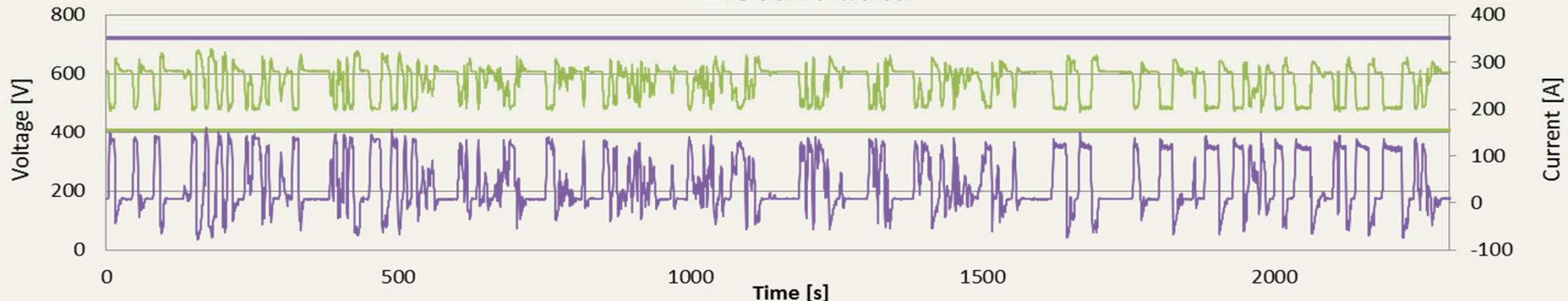
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Drive Motor



Electric data



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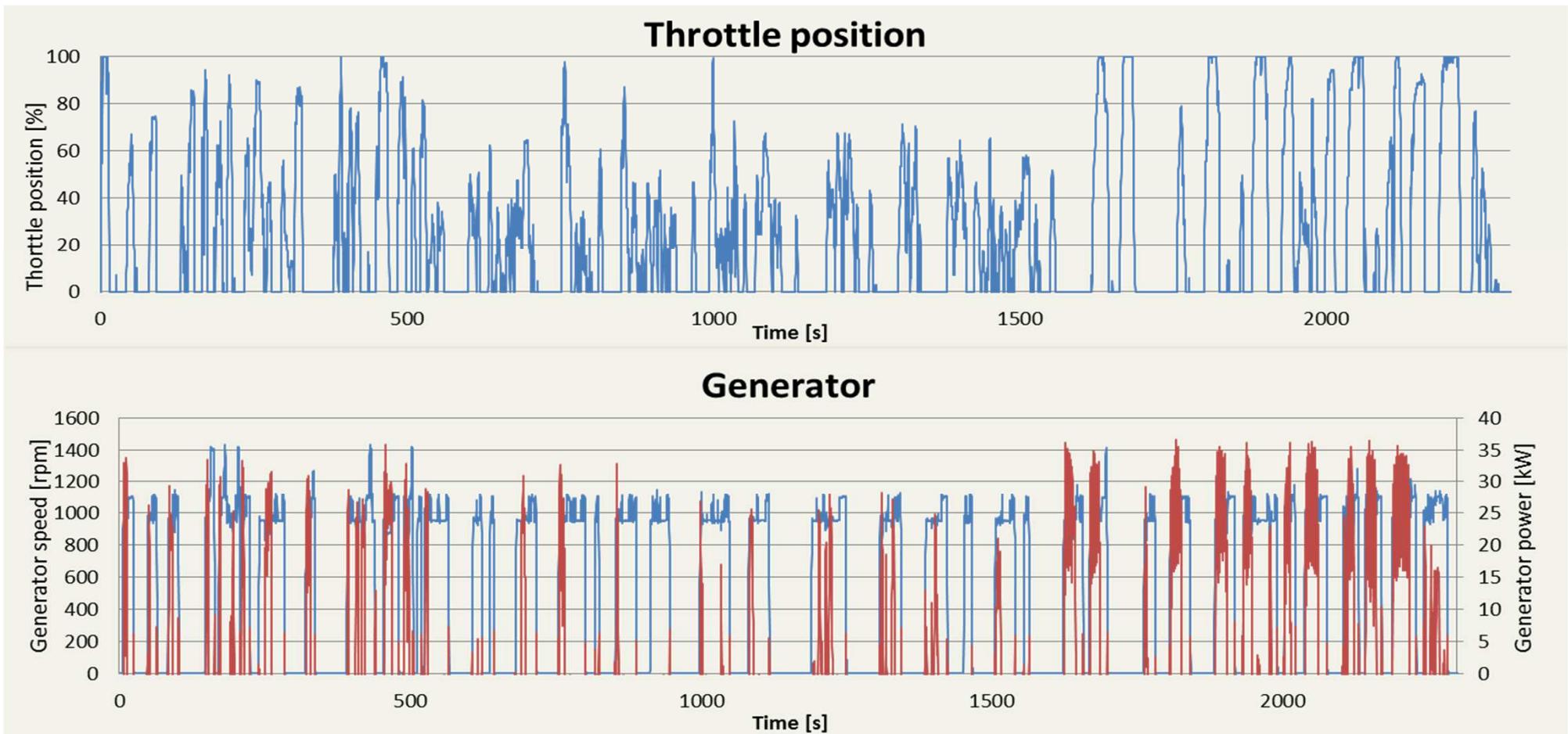
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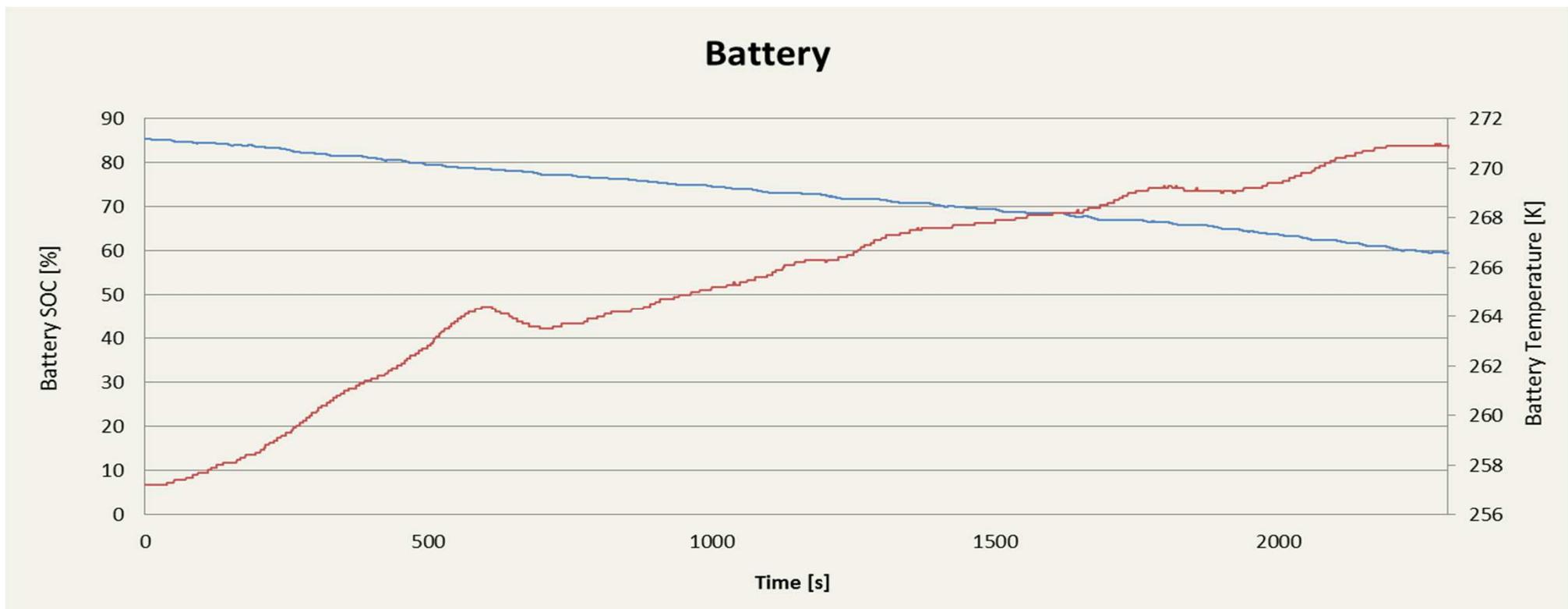


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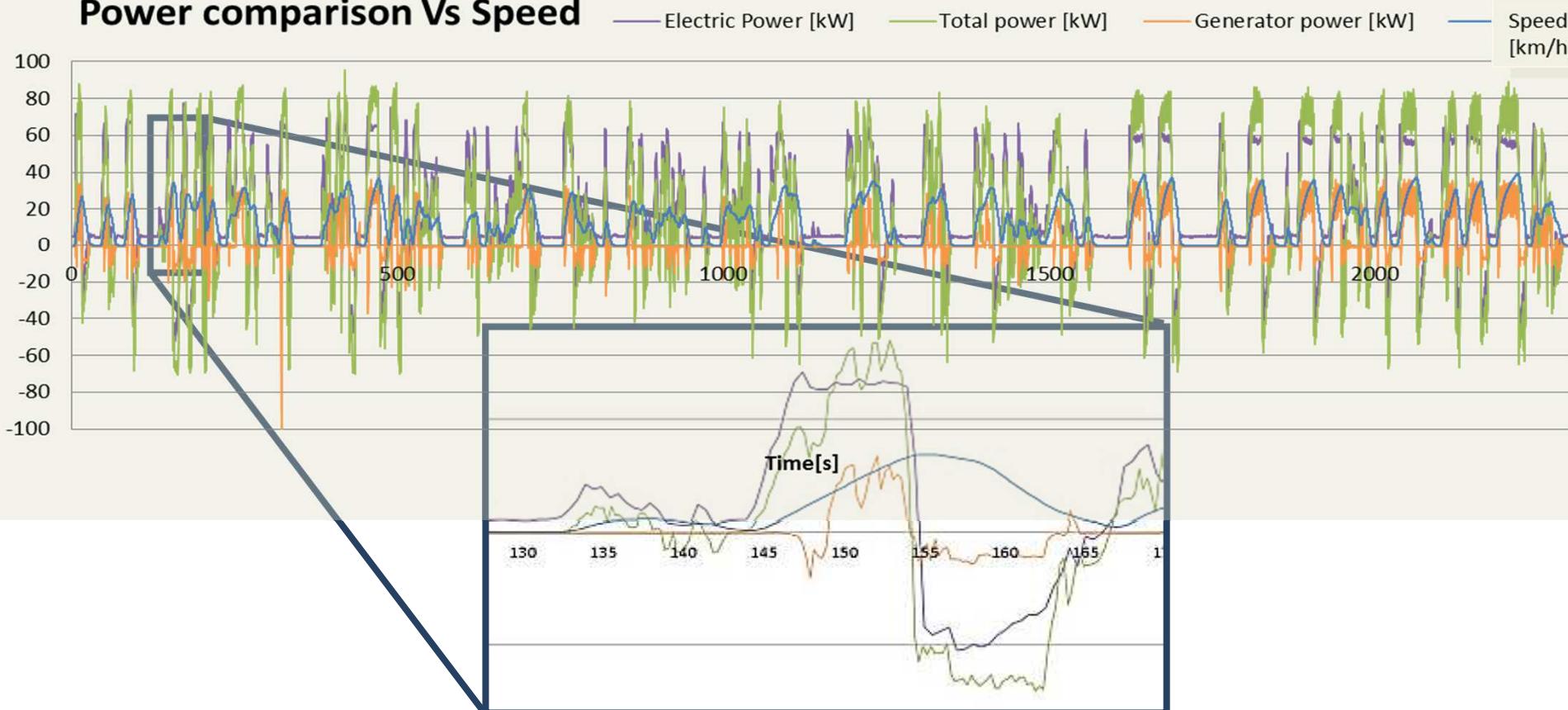
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Power comparison Vs Speed



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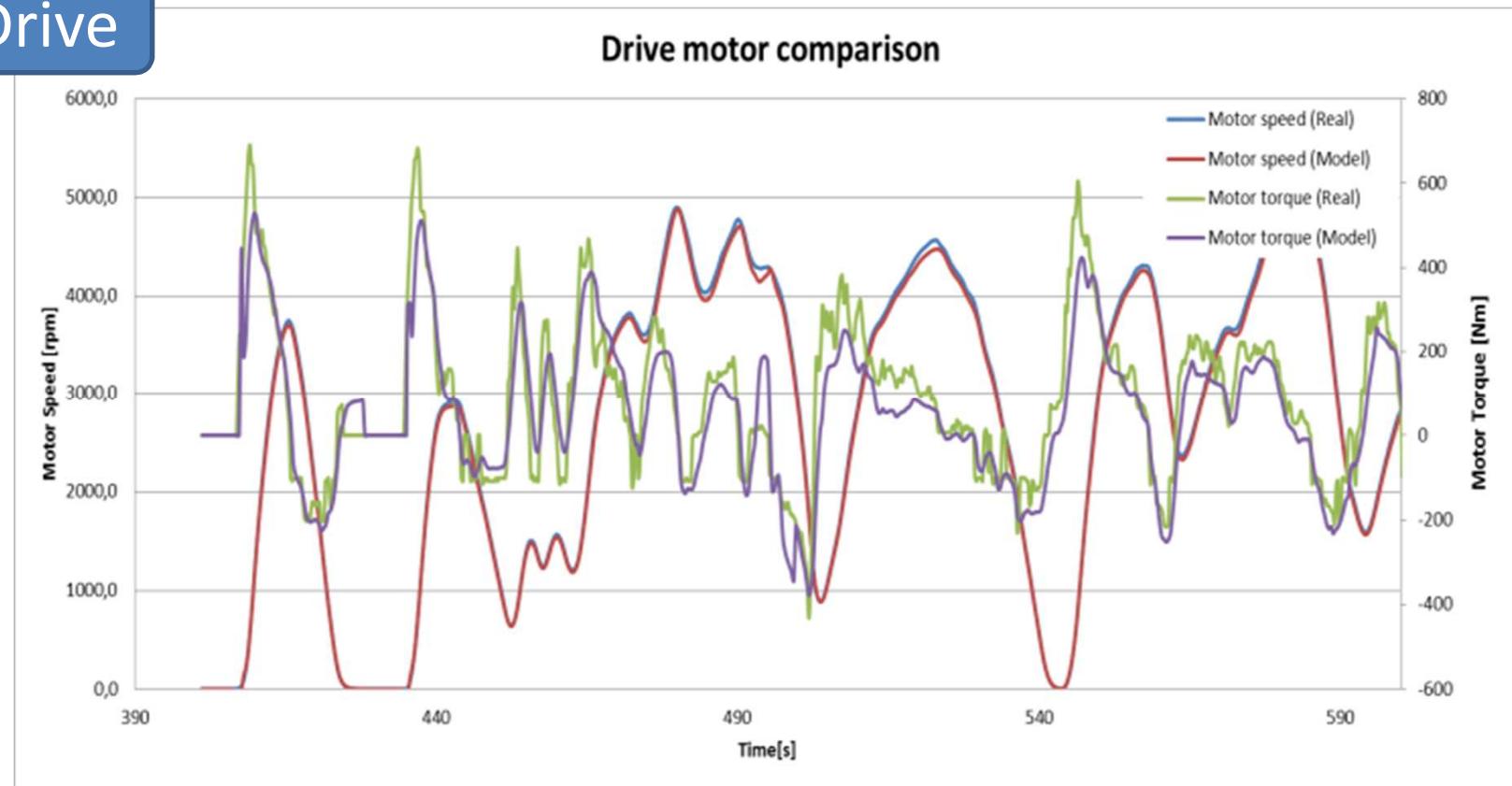
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Drive



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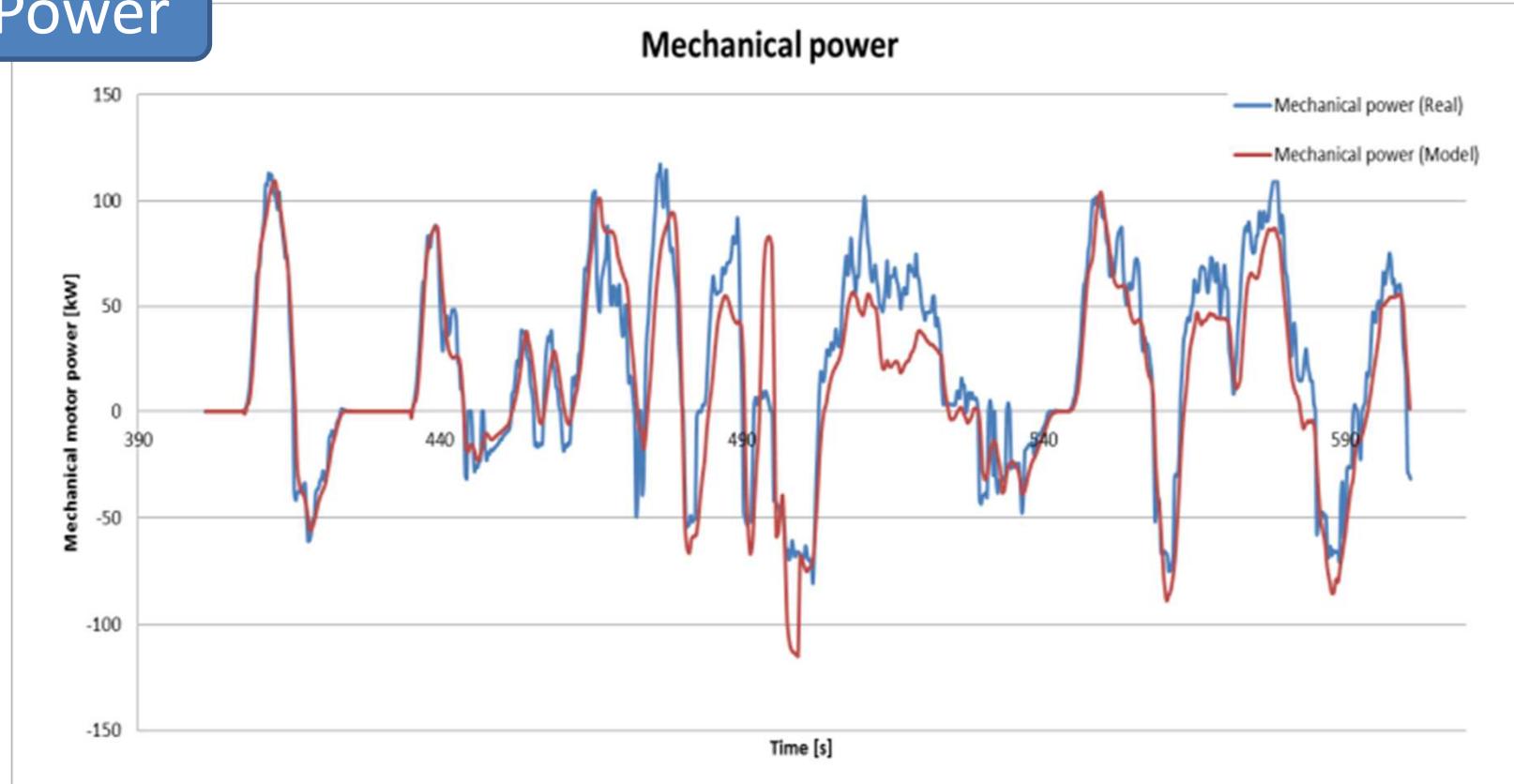


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Power



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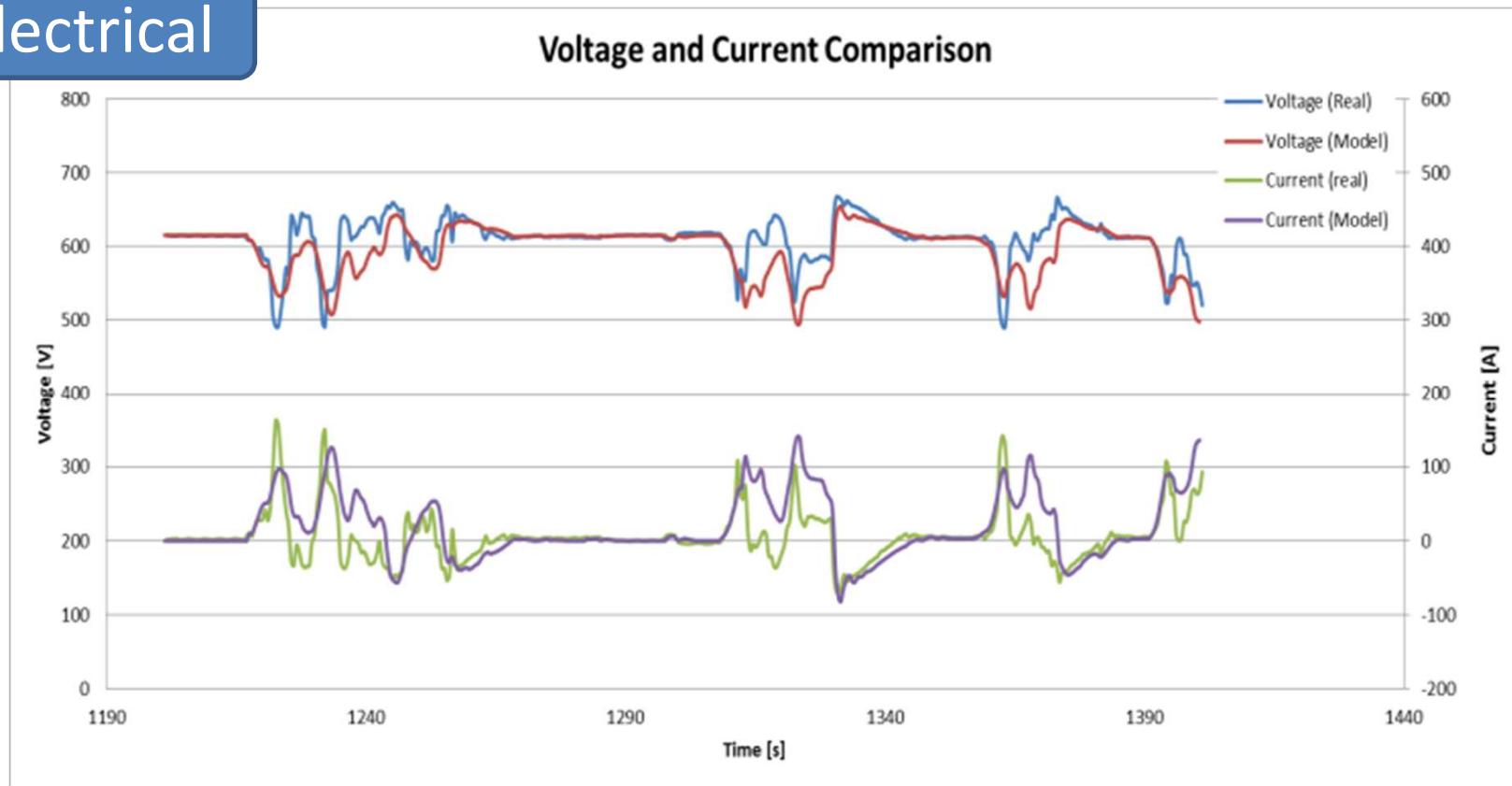
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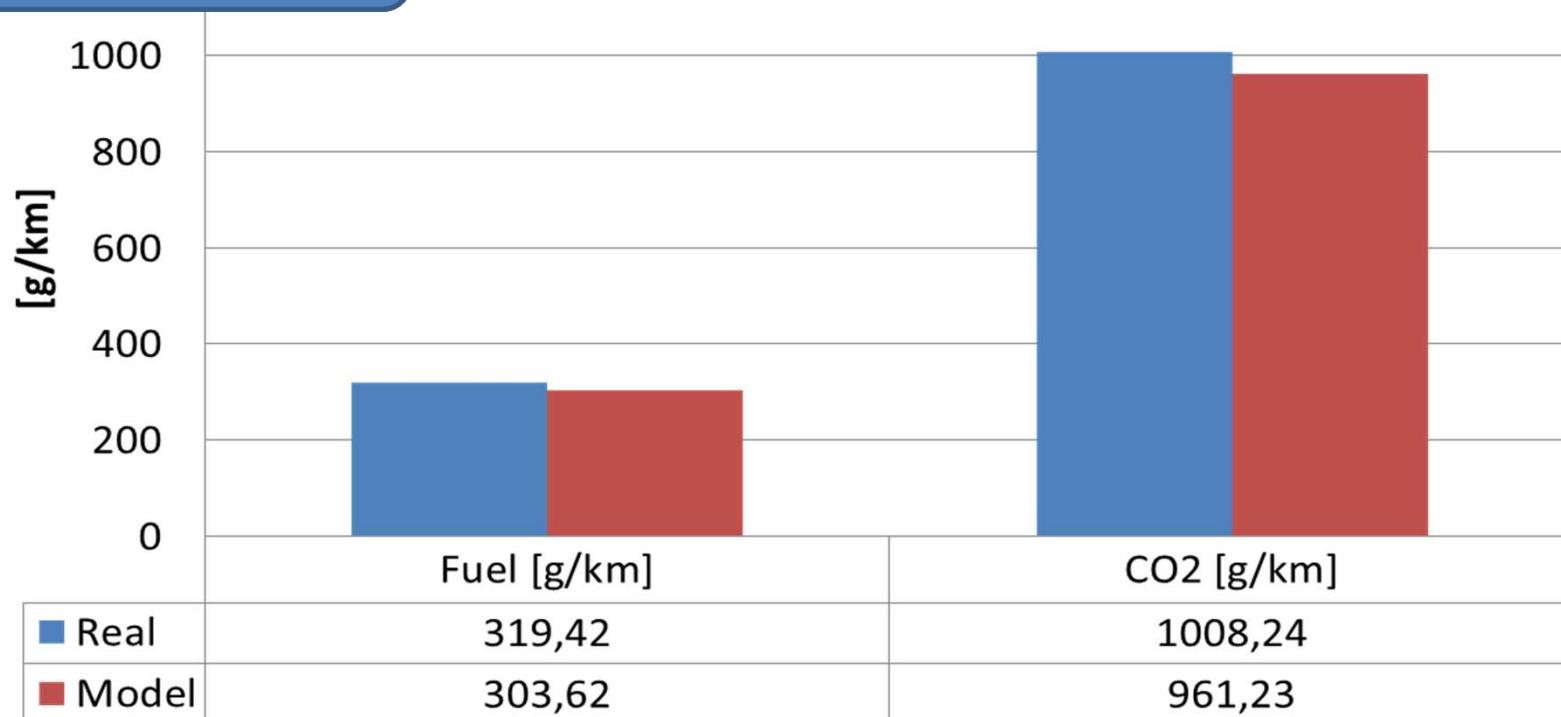


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Conclusions

- The software model shows high accuracy.
- Good synchrony between performance and efficiency.
- The model is reliable enough for further simulations with diverse routes.
- It can be useful for public companies to decide where and how use a vehicle.
- It also could be useful to improve control strategies.

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Use the hybrid and electric powertrain test bench at
INSIA to improve model accuracy



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Many thanks for your attention!



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20
Years
1993-2013



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Contact:
Daniel Resino Zamora
INSIA
www.insia-upm.es
[mailto: daniel.resino@upm.es](mailto:daniel.resino@upm.es)

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