



TIME

Integrated Technology for Electric Mobility
Sistemi integrati per la mobilità sostenibile



Traction and Energetic Control System of an Electric Powertrain



COSTRUIAMO INSIEME IL FUTURO

Ing. Marco Bertoldi
Università di Bologna
m.bertoldi@unibo.it

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Low voltage power electronics



Retrofitting goals:

- > Economically viable to make and run
- > Add desirability via advance features
- > Integration inside a single package

Achieved thanks to:

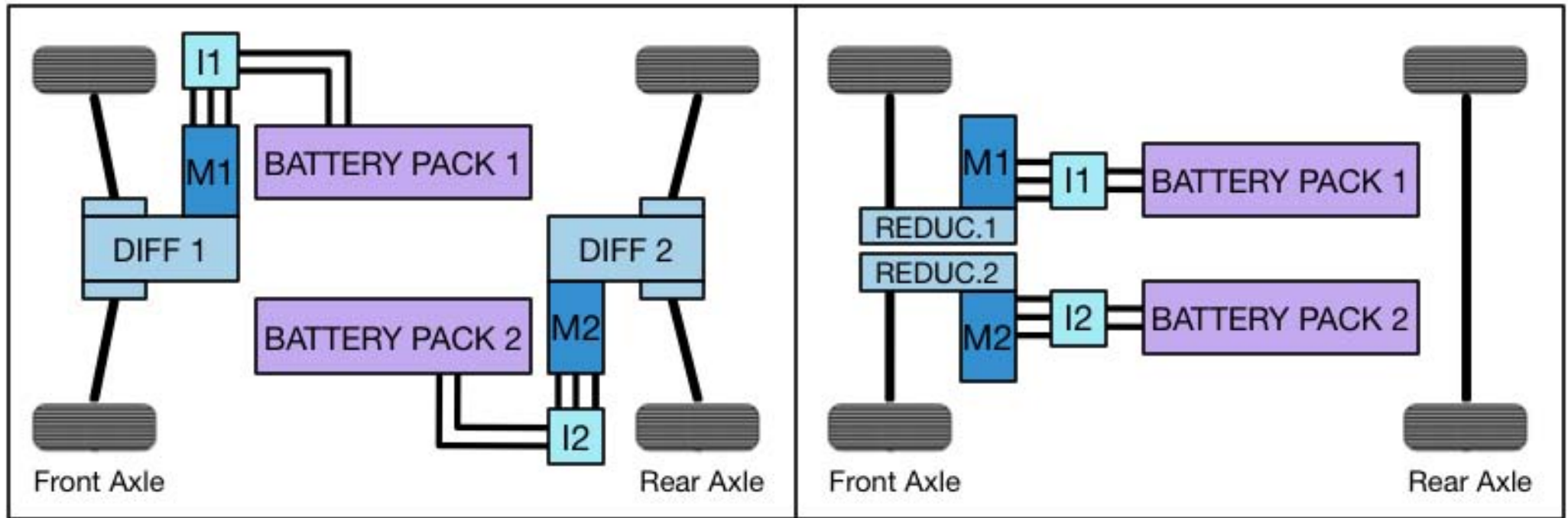
- > Low-voltage powertrain solutions
- > Concurrent engineerization of the mechanical, thermal, electrical and infotainment systems





Powertrain Solutions

Possible architectures thanks to power segmentation





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PROs and CONs of under 60V Solutions



PROs

- > Less shielding and protection costs
- > Less connectors and breakers costs
- > Inherently safer system
- > Less cells connected in series -> use of cheaper cells and BMS
- > Division in multiple drives and possibility of Torque Vectoring

CONs

- > More current, therefore more copper for the cables
- > ???

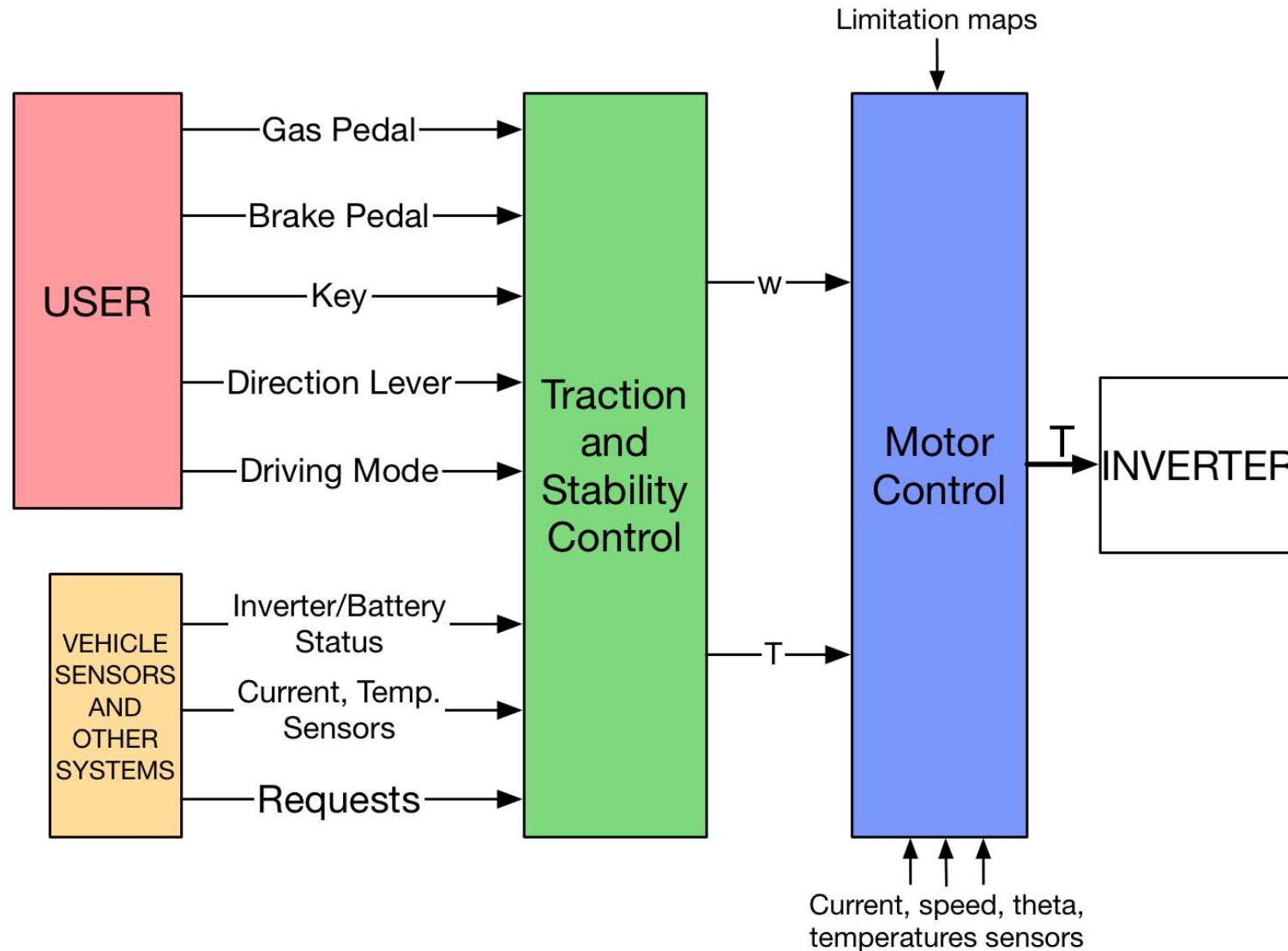




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Traction System Main Sections

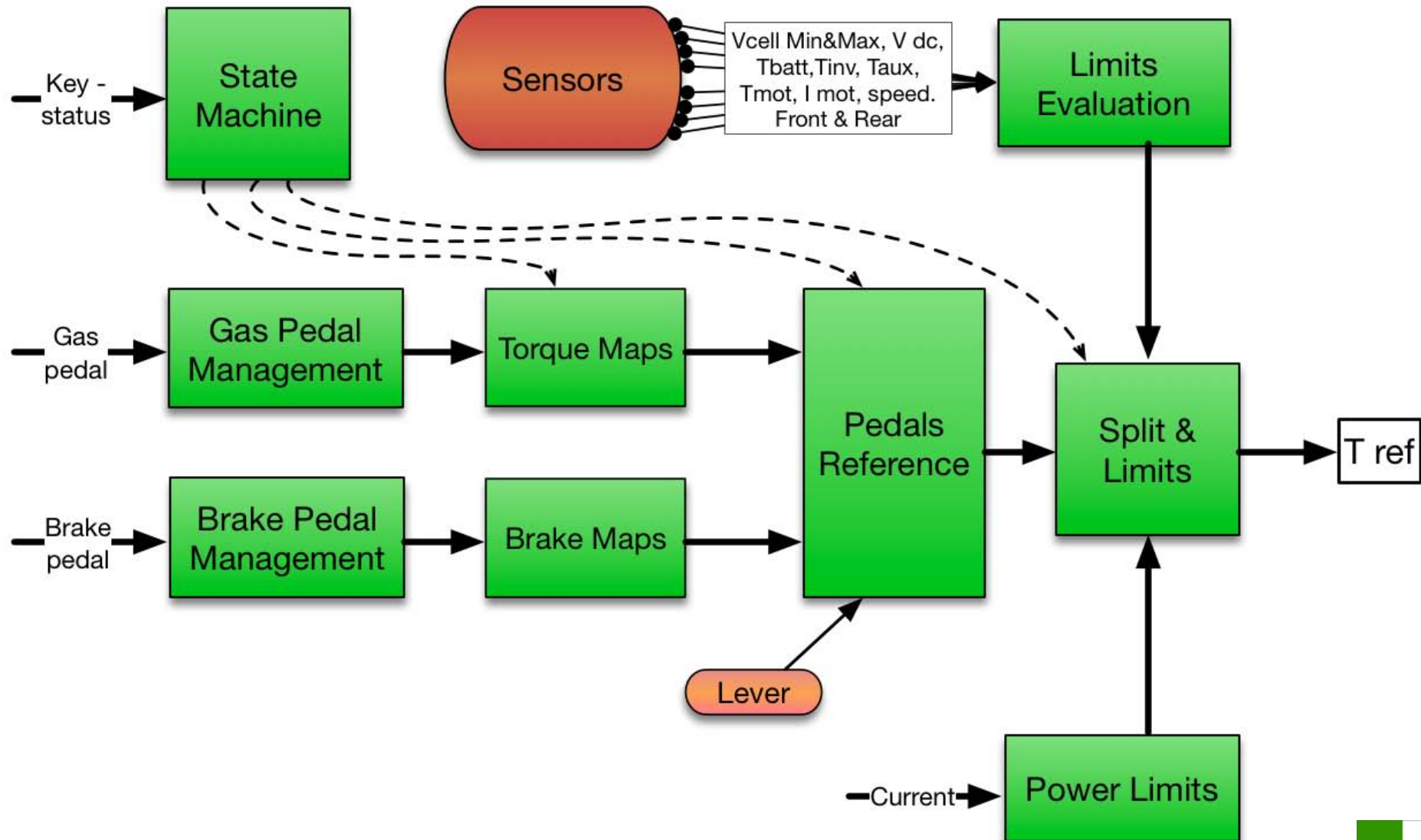




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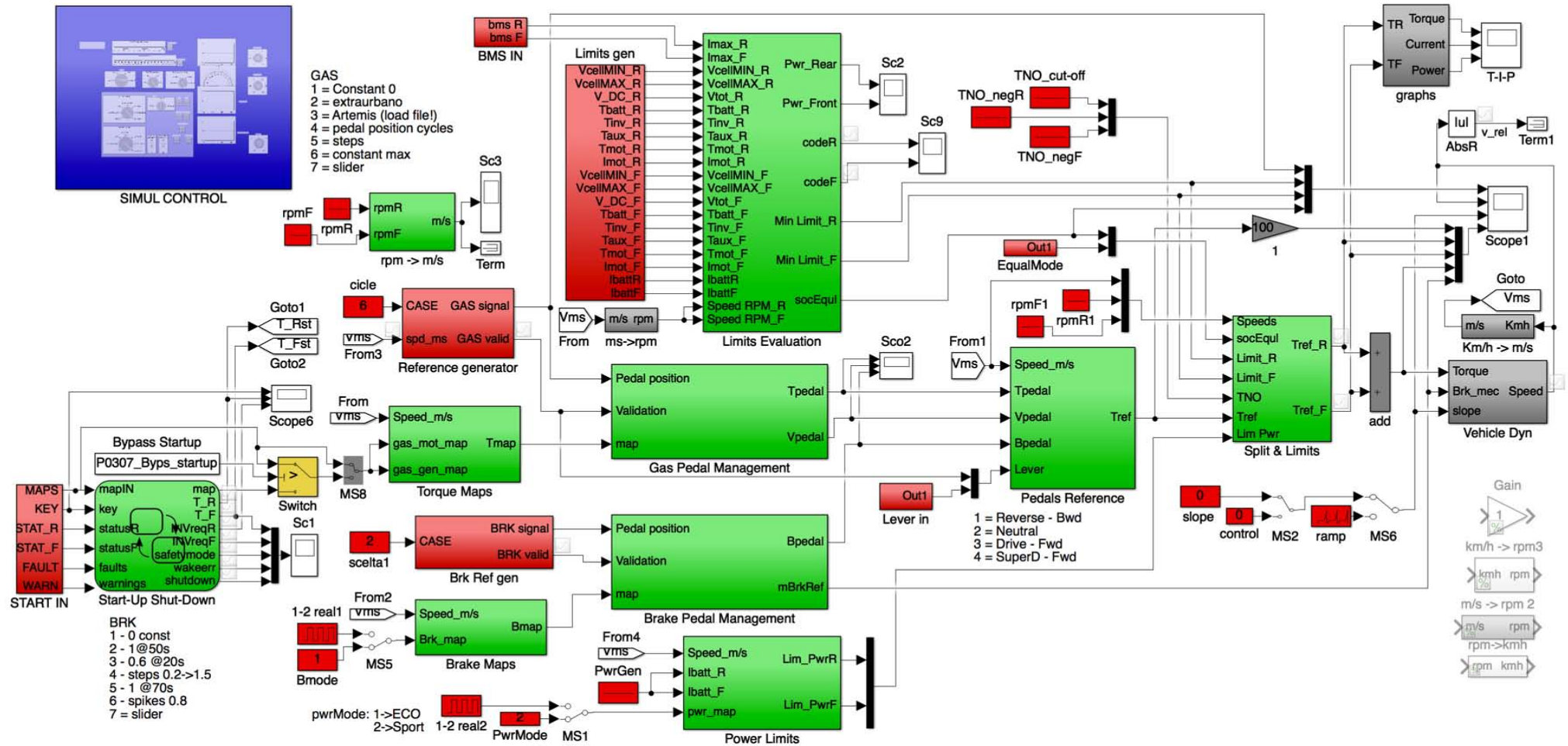
Traction and Energy Control Higher Layer





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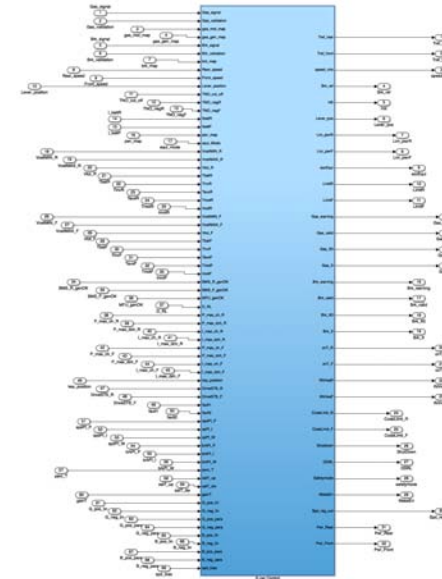
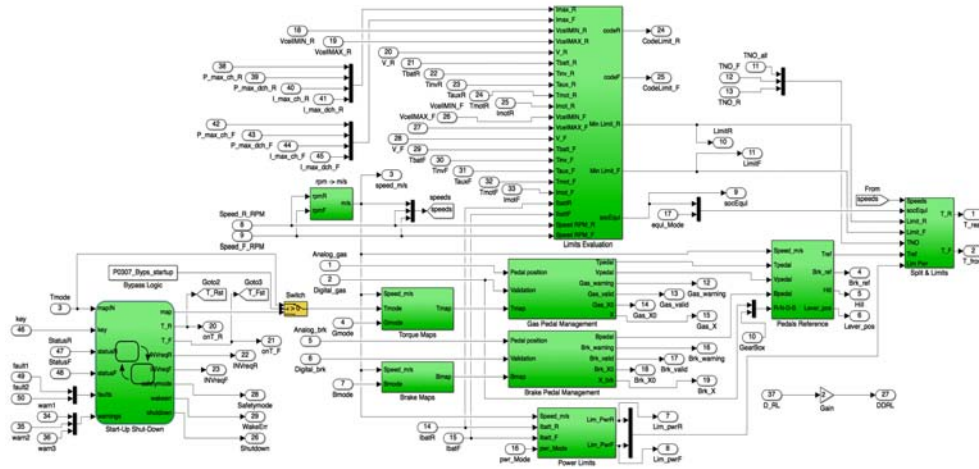
Simulink Development



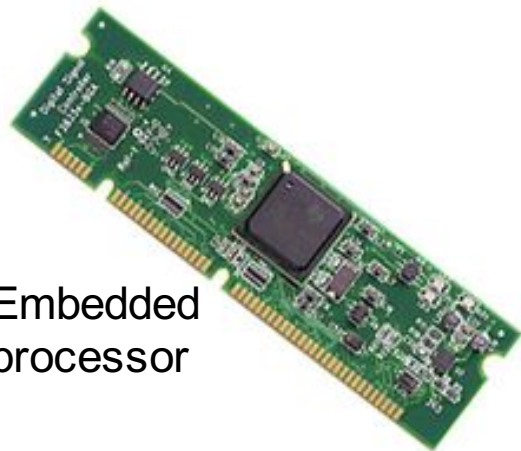


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Automatic C Code Generation



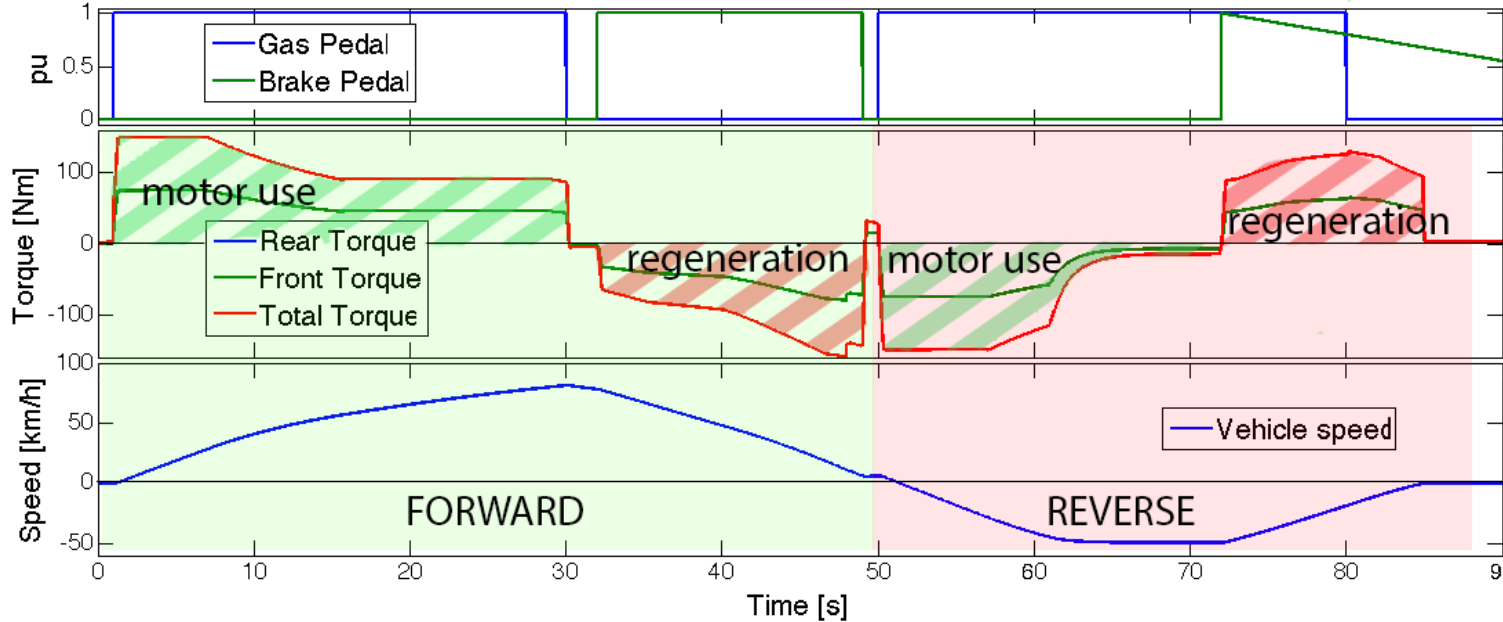
Embedded processor





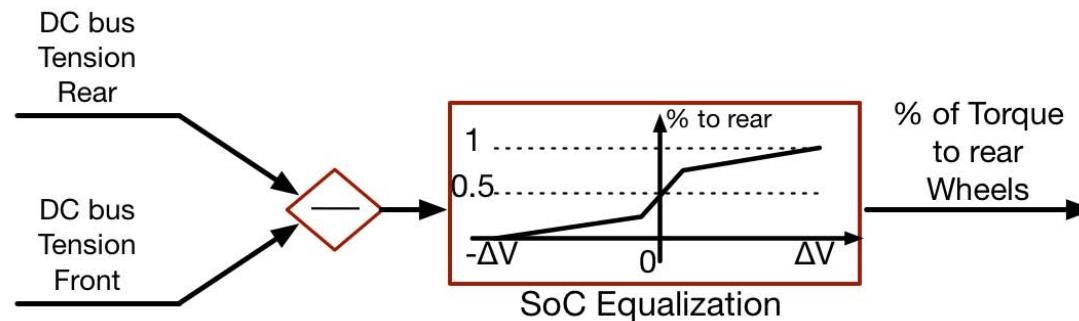
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Energy Management



> Energy Recovery Braking System

> State of Charge Equalization Algorithm



> Integration with A/C and heating for optimal energy management

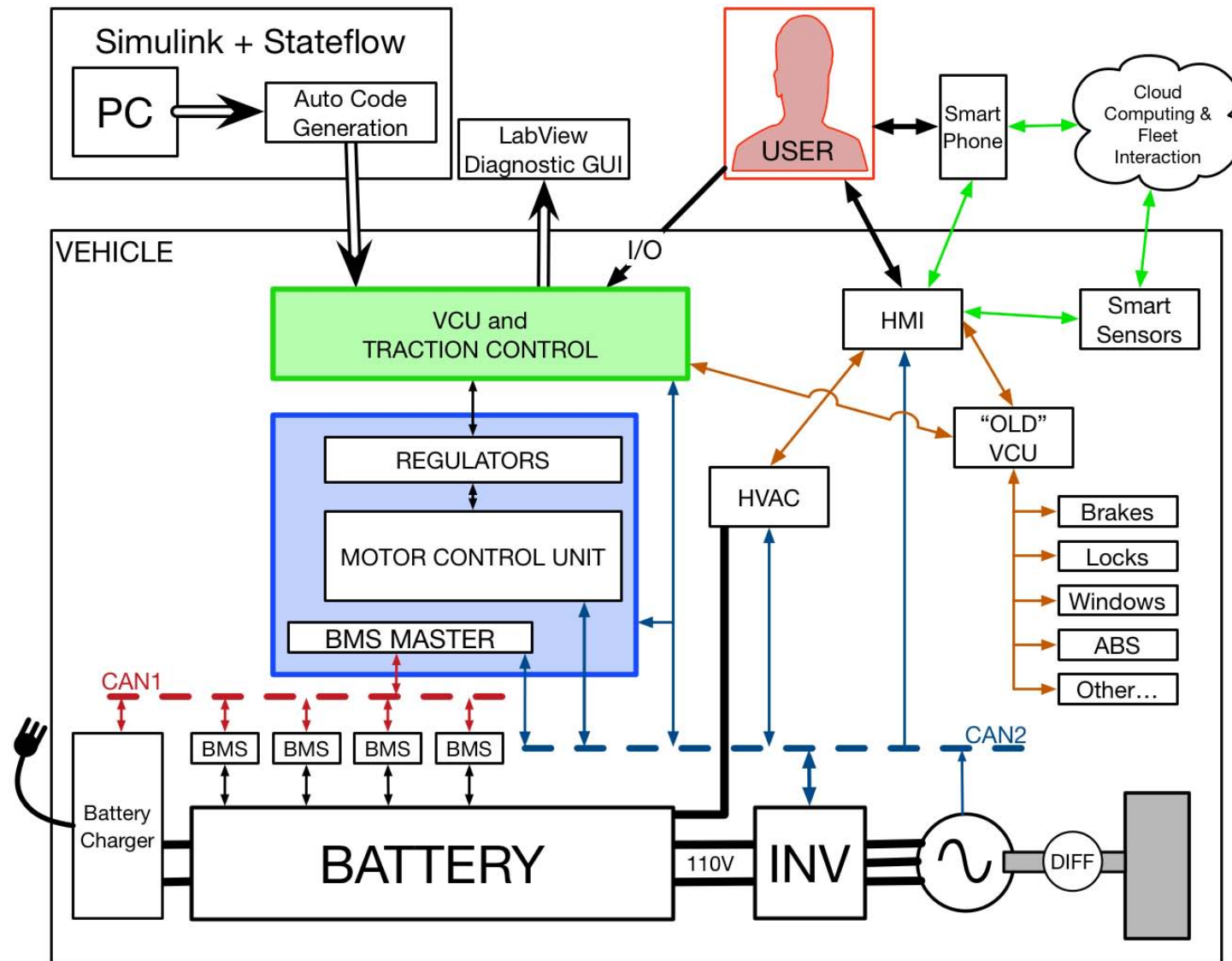




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Integration Inside TIME Project





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CIRI-MAM
CIRI-ICT

Marco Bertoldi

University of Bologna ITALY

m.bertoldi@unibo.it

Mobile: +39-3463970712

TIME lab.: +39-0512093586

www.die.unibo.it

