Initiatives for acausal model connection using FMI in JSAE (Society of Automotive Engineers of Japan)

Yutaka Hirano[1] Satoshi Shimada[2] Yoichi Teraoka[3] Osamu Seya[4]
Yuji Ohsumi[5] Shintaroh Murakami[6] Tomohide Hirono[7] Takayuki Sekisue[8]

[1]Toyota Motor Corporation, Japan, yutaka_hirano@mail.toyota.co.jp
[2]Honda R&D Co., Ltd., Japan, satoshi_shimada@n.t.rd.honda.co.jp
[3]Mazda Motor Corporation, Japan, teraoka.yo@mazda.co.jp
[4]DENSO CORPORATION, Japan, OSAMU_SEYA@denso.co.jp
[5]AZAPA Co., Ltd., Japan, yuji-oosumi@azapa.co.jp
[6]Dassault Systèmes K.K., Japan, Shintaroh.MURAKAMI@3ds.com
[7]NewtonWorks Corporation, Japan, hirono.tomohide@newtonworks.co.jp
[8]ANSYS Japan K.K., Japan, takayuki.sekisue@ansys.com

Autors initiated trial and evaluation of a new method to interconnect acausal physical ports and causal signal ports using FMI in a technical committee of JSAE (Society of Automotive Engineers of Japan). We introduced special 'adapter' models to interface between acausal physical port and causal signal ports as shown in Figure 1. For a benchmark model of the acausal system model shown in Figure 2, we applied the proposed method to generate and connect three FMUs and got good results about consistency. Also a guide-line about using FMI for acausal physical ports connection was made in JSAE and is distributed to general users of Japanese automotive industries. Finally expectation about future enhancement of FMI for model circulation between companies is presented.

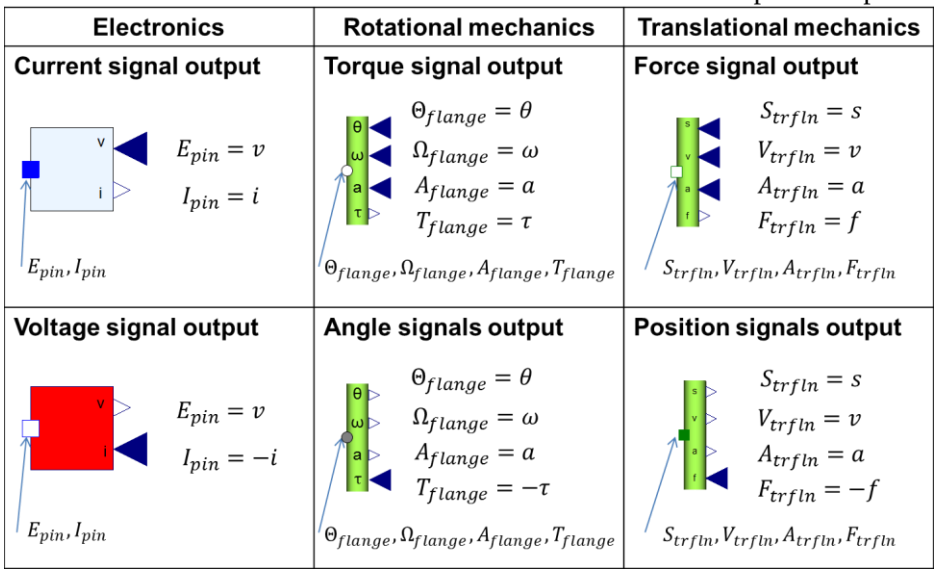

Figure 1: Adapter models between acausal physical port and causal signal ports

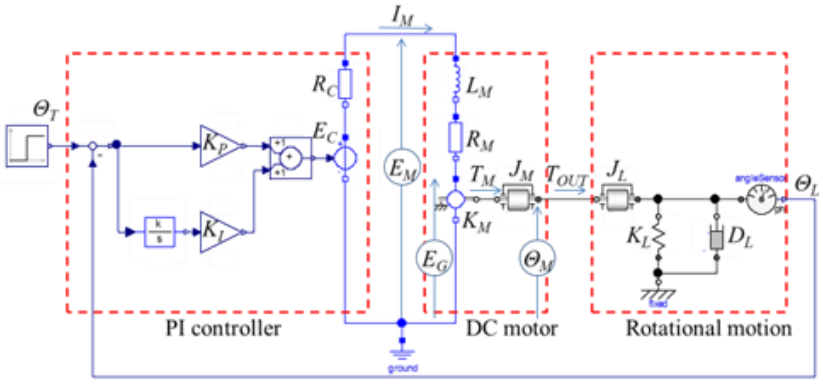

Figure 2: Benchmark model (Simple control system)