

Collaborative Discussion 2: Peer Response 1

Dear Oi,

Your explanation of Fortino et al.'s (2015) metamodel approach for supporting the development of Smart Objects (SO) in the Internet of Things (IoT) context is very detailed and well articulated. You have accurately highlighted the abstraction levels provided by the metamodels and their role in the various phases of system development, from analysis to implementation.

I agree on the advantages of abstraction and standardization in promoting reusability and flexibility within the evolving IoT landscape. This indeed helps in creating a standardized template that can be adapted and extended as new requirements emerge.

The breakdown of the smart model for a driverless car into various objects and modules (e.g., sensors, actuators, perception module, decision-making module) reflects a thorough understanding of the components necessary for the operation of an autonomous vehicle. This was very detailed and interesting for me and I will make sure to take it into account when updating my previous model for the Summary Post. This comprehensive framework is important for developing the complex functionalities of a driverless car systems.

You pointed out the potential complexity and learning curve associated with developing and implementing metamodels. It would also be beneficial to suggest

some measures to mitigate these challenges. For instance, providing extensive documentation, training sessions, and step-by-step tutorials can help designers and developers become more comfortable with metamodels.

While your model for the driverless car is comprehensive, incorporating error handling and debugging mechanisms into the design phase could further enhance the robustness of the system. Given the critical nature of autonomous vehicles, ensuring that the model can handle unexpected errors and debug issues efficiently is very important.

References

Fortino, G., Guerrieri, A., Russo, W., & Savaglio, C. (2015). Towards a Development Methodology for Smart Object-Oriented IoT Systems: A Metamodel Approach. 2015 IEEE International Conference on Systems, Man, and Cybernetics, 1297-1302. DOI: 10.1109/SMC.2015.231.