

Reference Architecture

Fraunhofer IEM

Definition

The reference architecture is the abstracted representation of the architectures of the **three specific ConnRAD use cases**, namely: **Left Turn**, **Traffic Jam Tail Warning**, and **Teleoperation**. It contains the core architectural elements across these architectures such as **trust unit**, **communication unit**, **environment model unit**.

A special feature of ConnRAD is the **trust unit**, which was researched and developed in the [respective use cases](#).

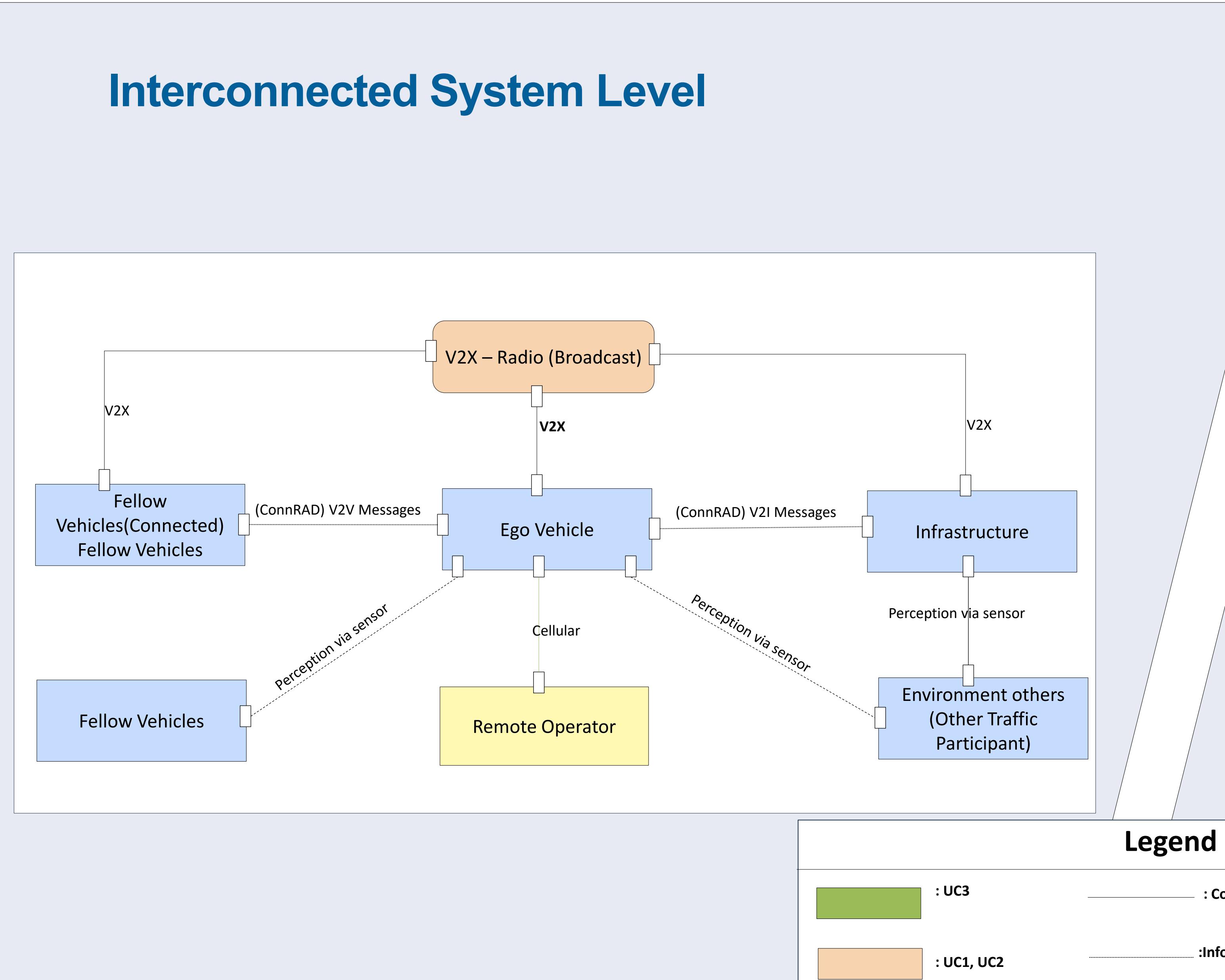
Approach

The reference architecture was developed with a combined top-down and bottom-up approach by abstracting the architectural elements, from which every the specific ConnRAD uses cases can be derived.

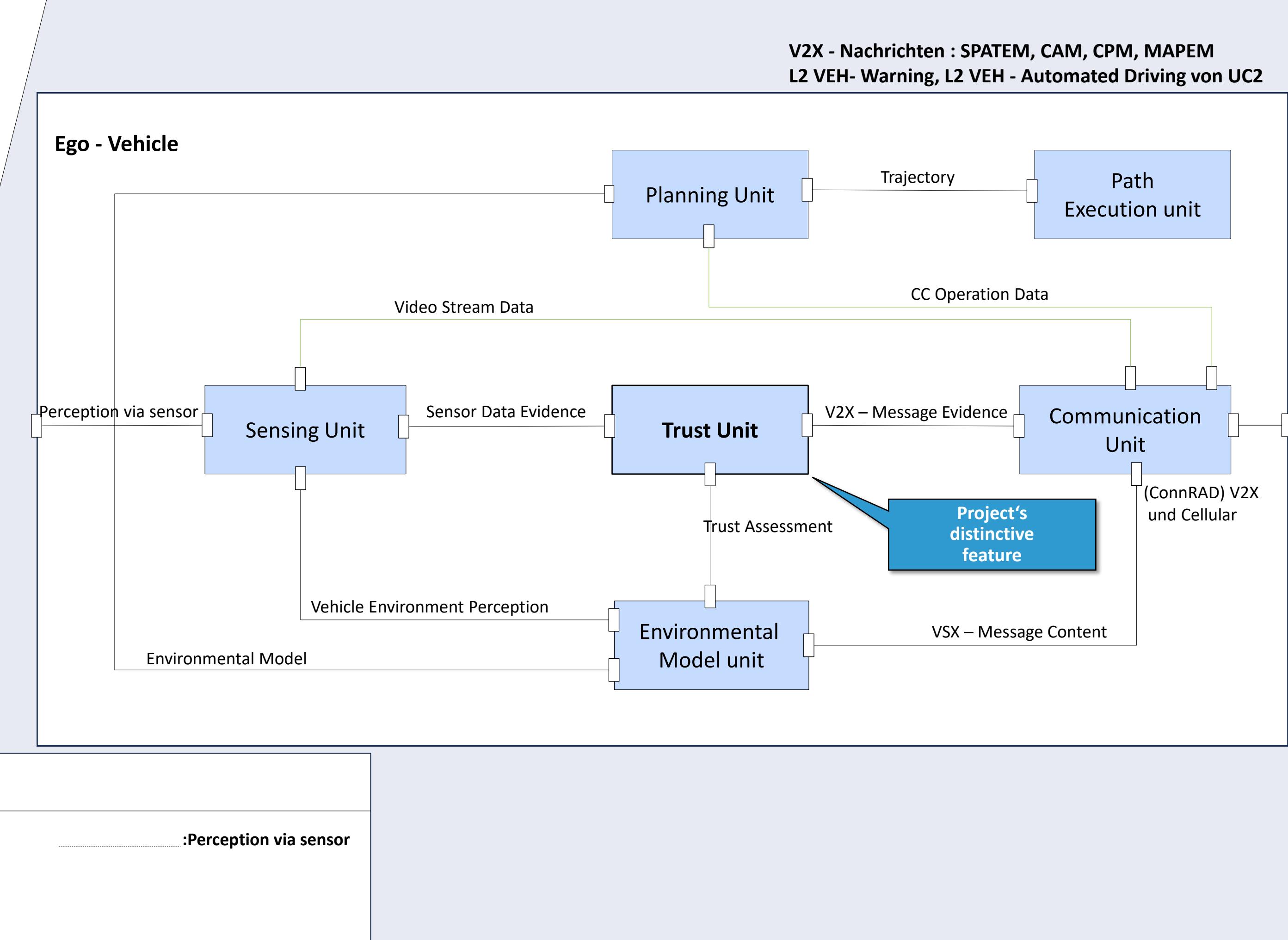
Use

The reference architecture serves as an initial general **blueprint** to derive concrete instances of resilient architectures for other specific uses cases in the context of automated driving beyond the project scope of ConnRAD.

Interconnected System Level



Ego Vehicle Level



Conclusions

- The reference architecture serves as a model to derive specialized architectures for use cases in autonomous driving
- As a research result, the reference architecture will be available for the scientific community and industry be used as an architectural backbone for similar projects.
- Research on further standardization of the reference architecture and general integration of software is pending