

A Prototype Systems Architecture for Coalition Situational Understanding

TA2, Project 6 – Task 1 & 2

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Scope: The implementation presented showcases a prototype architecture that brings together services across a coalition to facilitate coalition situational understanding (CSU) within a traffic congestion monitoring scenario. Specifically, in this demo, we look to provide decision support concerning whether a journey between two points will experience delays.

Description: Through this implementation, we demonstrate how services from across the coalition can be brought together to facilitate low-to-high level reasoning and how this compares to an end to end Deep Learning approach. Here, we also showcase the affordances of each method with regard to the core factors of CSU. In this demo, the focus will be showing examples of (and the links between) decision interpretability and information flow constraints.

For this work, we have been investigating the scenario of identifying traffic congestion on the roads within a city (London, UK). Although the problem of identifying congestion could be considered to be solved, it is commonly approached using purpose built and purposely placed sensors and systems at significant expense, time and effort. Our approach looks to bring together multi-purpose services and data sources to gain an understanding of the relevant parts of the situation in a highly agile and cost-effective manner.

Finally, this demonstration also offers a summary of techniques and approaches to bring together services quickly and flexibly using the open source technology, Node-Red. Going forward, the lessons learnt here will help us to conduct experiments and tests within the CSU space.

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