Master thesis proposal

Negotiation of traffic junctions over 5G network

Background

Recent advances in sensing and vehicle technologies have enabled significant progresses in the area of active safety of passenger cars. Safety systems, assisting the driver in complex accident avoidance maneuvers, are already available in passenger cars and even more complex vehicle systems, with autonomous driving capabilities, are expected to soon be available. It is then natural to question how to take advantage of such technologies as most of the vehicles will be autonomous. V2X technologies can then be used to coordinate autonomous vehicles in order to increase safety and efficiency of urban driving.

Problem description

Autonomous driving is a safety-critical application of, among others, sensing and control technologies. Hence, although communication technologies can extend the environment awareness beyond the range of the current sensing system (e.g., cameras, radars, laser scanners), information losses and delay must be taken into account in order to design vehicle control algorithms with are guaranteed to be safe.

Purpose and aims

The goal of this master thesis project is to develop and demonstrate in testing vehicles at AstaZero coordination algorithms for autonomous vehicles based on a 5G Proof-of-Concept Network installed at AZ.

We are searching for

a team of 2-3 highly motivated student with a solid background in automatic control, signal processing. Good programming skills are welcome.

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