The capabilities of the CLASS framework will be demonstrated on a real smart-city use case.

1. Featuring a heavy sensor infrastructure to collect and process in real-time a vast amount of data across a wide urban area.

2. Connected cars equipped with heterogeneous sensors/actuators and V2X connectivity to enhance the driving experience and preparing the technological background for the advent of autonomous vehicles.

3. Deploying advance urban mobility applications based on a combination of data-in-motion and data-at-rest analytics to efficiently coordinate car and city computing resources.

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Coordinating Edge and Cloud for Big Data Analytics

The CLASS project has received funding from the European Union’s Horizon 2020 research and innovation programme under the grant agreement No. 780622.
Computational challenges of smart cities can be effectively addressed by coordinating computing resources across the compute continuum.

Integration of technologies from multiple computing domains (Big-data, HPC and real-time embedded) into a single development framework.

- Advanced data-analytics solutions
- HPC techniques for an efficient workload distribution
- Timing analysis techniques
- Parallel heterogeneous embedded processor architectures
- Sensor fusion from data-sources coming from city and vehicle sensors

**Main characteristics of the CLASS Software Architecture**

1. **Coordinate** edge and cloud computing resources
2. **Distribute** big-data workloads with real-time requirements along the compute continuum
3. **Combine** data-in-motion and data-at-rest analytics
4. **Increase productivity** in terms of programmability, portability/scalability and (guaranteed) performance

**Applications Use Cases**

**Intelligent traffic management**, acting on traffic lights and smart road signals
- “Green routes” for emergency vehicles
- Traffic enhancement based on intelligent cross road management

**Advanced driving assistance systems (ADAS)**
- Intelligent cross road management based on obstacle detection
- Automated valet parking systems

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