



**iGP:** Autonomous Car

**iGP Module:** Driver Assistance Applications

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### **Introduction:**

Driver assistance (DA) is a main milestone in autonomous vehicles. Available recent car models have many DA modules e.g. lane keeping, advanced cruise control, collision avoidance, Parking Assistance ... etc. They could be considered as higher application layers over the Anti Blockage System, Electronic Stability Protection, ... etc. They need sensors like Cameras, Lidar, Ultrasonic, ... etc. Large varieties and multidisciplinary knowledge result in various applications and experimentation opportunities.

### **Objectives:**

Students are required to overview different automotive DA applications and algorithms. Understanding all kinds of sensors, along with advanced filtering techniques and sensors fusion, is essential. Embedded and desktop system design, implementation, and testing will be deeply addressed. Integration of pluggable modules into a simulation/code-generation platform should be an important milestone.

### **Outcomes/Deliverable**

1. Pilot Mechatronics platform with all mechanical mobility and sensors necessary
2. Software modules implementing different driver assistance modules
3. Testing field ground
4. Simulation platform