iGP: Autonomous Car

iGP Module: DSP Based V2X Transceiver

Lead Supervisor: Dr. Maged Ghoneima

Vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) wireless technology, collectively known as V2X, allowing communication between vehicles and their surroundings, improves road safety, reduces traffic congestion and enhances the overall passenger experience.

V2X enables 360° awareness by sending messages which include various information of the vehicle such as position, speed and direction. The main focus is to build a DSP based V2X Transceiver, implementing the PHY, and MAC layers, and utilizing the PHY layer to build a walk test device as an implementation test equipment for the V2X network.

Requirements:

1. Good knowledge of communication theories like OFDM, and different modulation / demodulation techniques.
2. Aware of DSP, & Embedded System design methodologies
3. Good programming skills using C++
4. Prior experience in GNURadio - Linux and Matlab is a plus.