

## Senior Design Project Description

<b>Company Name</b>	Systems Engineering & Engineering Management	<b>Date Submitted</b>	04/29/2020
<b>Project Title</b>	Transportation Infrastructure Perception and Data Fusion (UNCC_TRAN)	<b>Planned Starting Semester</b>	Fall 2020

### **Personnel**

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills:

<b>Discipline</b>	<b>Number</b>	<b>Discipline</b>	<b>Number</b>
Mechanical		Electrical	1
Computer	2	Systems	3
Other (Civil)			

### **Project Overview and Requirements:**

Transportation infrastructure perception and data fusion project focuses on advanced spatial sensing technologies, such as LiDAR, Stereo cameras, to collect raw perception data, such as images and 3D cloud point data for real-world traffic. This project will process and analyze the collected raw data and apply AI and machine learning technologies for intelligent transportation system (ITS) applications, such as generating trajectory and identifying traffic objects.

The primary tasks include devices (LiDAR sensors, camera, and DSRC) installation and setup, system test running, data collection, and data analysis. 4-6 students with the experience of ITS will be desired.

### **Expected Deliverables/Results:**

Deliverables include:

- A comprehensive infrastructure perception system (LiDAR and stereo camera) will be established and set up.
- Different types of raw datasets from the perception system will be collected and stored in the computer.
- A cleansed dataset for research will be produced by data pre-processing, data fusion, and data analysis.

### **List here any specific skills, requirements, specific courses, knowledge needed or suggested (If none please state none):**

- Familiarity or interest in intelligent transportation system (ITS), and electrical and computer



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- Familiar with data processing, data analysis, and statistics
- Self-motivative and good communication skills