Professional Engineering Seminar # 5: For Transportation Engineering Project

Speaker: Mr. Ken Yang, Senior Transportation and Software Engineer Iteris Incorporated, University of Cincinnati
Date: June 29, 2010
Time: 9:00-11:00 AM
Venue: 757 Baldwin Hall

Prepared by:
Mr. Todd Bonds, Pre-service Teacher Student, Northern Kentucky University, KY
Ms. Kelli Lee, Grant County Middle, Middle School, Dry Ridge, KY

Mr. Ken Yang works as a Senior Transportation and Software Engineer at Iteris Inc. (http://www.iteris.com). He has experience in designing and building the integrated Intelligent Transportation System (ITS) solutions for transportation systems. He has been involved in numerous emerging ITS principles, technology and programs. He participated in design and implementation of the ITS for City of Detroit, Road Commissions of Oakland County, Michigan, City of Franklin, Tennessee, and Michigan Department of Transportation. His current work focuses include effective integration and optimization of transportation system; ITS/Transportation data processing, fusing, archiving and visualization; IntelliDrive; and transportation system simulation.

Mr. Yang received his B.S. and M.S. degrees in Electrical Engineering in 1989 and 1992 from Dalian Maritime University, P. R. China, and a M.S. degree in Civil Engineering (Intelligent Transportation System) in 1999 from Michigan State University, East Lansing, Michigan. He has been working as a grant researcher of the "Eisenhower Grant Research Fellowship" program at the U.S. Department of Transportation's Turner-Fairbank Highway Research Center in 1998. Mr. Yang has more then 20 published conference and journal papers. The pictures on previous page were taken during the seminar.

The presentation featured how field collected data is manipulated to generate meaningful traffic information. Mr. Yang emphasized about the technologies to collect this data, which includes traffic management and traveler services, 511 systems, parking management services, I-phones and the Internet. These collectively create an intelligent transportation system. The intelligent designs implemented today include technologies like inductive loop detectors, infrared sensors, microwave radar, passive acoustic array sensors, ultrasonic sensors and video imaging sensors. Mr. Yang highlighted that in order for us to get smarter we have to continue to learn, so for our transportation

systems to get smarter we have to automate data collection and analysis in real time. The collection and analysis of data must also include its validation, which includes identifying errors and their adjustment. Once an error is recognized the analyst must be able to input dependable estimates to replace the bad samples of data.

The group was intrigued by the technologies such as the Internet and I-phone that are available to the public that can predict traffic conditions. The predictions show the current conditions of the traffic and display possibilities such as wrecks and congestion in the defined area. These types of technologies will eventually become more common as transportation systems become more intelligent or even demanded by the public. The group was also interested in the collection of “real time” data through Garmin GPS systems attached to the inside of vehicles. Some teachers did not like this due to the intrusiveness of this form of data collection. A few countries have the capability of collecting “real time” data by attaching these devices in taxi cabs to track motion, speed, distance, turning motions, etc.

In conclusion, Mr. Yang re-emphasized that automated traffic data collection is the foundation for our transportation systems in becoming more intelligent. The more “real time” data that is collected, in addition to the data processing and analysis, is the beginning of the “smarter” more intelligent transportation systems.