MISSOURI S&T
University of Science & Technology

Distinguished Seminar Computer Science

Challenges for Machine – to - Machine Communication and the Internet of Things for Smart City Services

Dr. Dirk Pesch

Cork Institute of Technology

September 19, Friday from 10:00 to 10:50am

Room: CS 209

Abstract - Globally, every year more and more people move from rural areas into cities to find a better living. This ever increasing urban population is creating heavy demands on urban infrastructure and resources. For example the cost of Dublin's traffic congestion is estimated at 4.5% of Dublin's GDP annually. While attempts are being made to improve infrastructure, limitations to what can be achieved in existing cities and budgeting constraints of many local authorities limit to what can be achieved through infrastructure upgrades alone. Current urban infrastructure management systems and processes are also operating in silos, e.g. transportation management is independent of building energy management, water treatment, while a huge energy consumer, does not tie in with energy supply. The application of Information and Communication Technologies is seen as a remedy for this situation in that it offers the potential for improved availability of information, better control and resource allocation, and to facilitate citizen engagement. In this talk we will look first at the challenges for creating and the opportunities that smart cities will bring. We will specifically look at M2M communication and the Internet of Things in this context and their potential to integrate the diverse urban management systems and break up current silos. We will also look at the challenges that the vision of M2M and pervasive embedded systems for smart city services will create for communication systems and an Internet of Things.

Brief Bio – Dr. Dirk Pesch is Head of the Nimbus Centre for Embedded Systems Research at Cork Institute of Technology in Ireland. He holds a Dipl.Ing degree from RWTH Aachen University in Germany, and a PhD from the University of Strathclyde in Glasgow, both in Electrical and Electronic Engineering. Dirk has co-authored 7 book chapters and made over 180 publications in international journals and conferences his area of expertise. He is on the editorial board of the IEEE Vehicular Technology Magazine, Elsevier Pervasive and Mobile Computing, Springer Wireless Networks, and the International Journal for Distributed Sensor Networks.