

UWMRF Rockwell Catalyst Grants Round II Awards (Fall 2008, Announced December 2008)



Rockwell Catalyst Phase 2 Awards (\$170,000 awarded in fall 2008)

In December of 2008, the UWM Research Foundation selected three new projects to receive funding through the Rockwell Catalyst Grant program – awarding \$170,000 in funds. These grants support research in three areas important to advanced automation: software & informatics, sensors & devices and materials.

Enhancing Reliability of Wireless Networks

Mukul Goyal, Ph.D., Assistant Professor, Department of Electrical Engineering and Computer Science



Project Overview. Wireless networks, particularly those used in industrial settings are becoming more complex. In order for these networks to function effectively for control applications, they must function reliably, ensuring that data arrives on time and uncorrupted. The project, “Enhancing Reliability in IEEE 802.15.4 Wireless Sensor Networks,” will help improve the reliability of these networks by studying the impacts of competing networks and the relaying of packets of data between multiple intermediate devices.

Advanced Sensors Based on Fiber Optics

Arash Mafi, Ph.D., Assistant Professor, Department of Electrical Engineering and Computer Science



Project Overview. Surface Plasmon Resonance (SPM) sensors are a compact, low-cost sensing technology that can be used in a variety of environmental and biological applications. This project, “Design of High-Sensitivity Fiber Optic Surface Plasmon Resonance Sensor,” explores a new approach to creating these sensors using fiber optics that can offer greater sensitivity along with the remote sensing advantages of using fiber optics.

Self-Healing Solders for Advanced Automation and Electronics

Pradeep Rohatgi, Ph.D., State of Wisconsin Distinguished Professor and UWM Distinguished Professor, Materials



Project Overview. Solder connections are a critical element in the reliability and life of integrated circuits and electronic packaging. This project, “Self-Healing Solders for Automation Industry,” investigates a new approach to designing the microstructure of these alloys so that a crack or imperfection can “self-heal” before it leads to failure.