North Dakota Economic Development
Center of Excellence for
Integrated Electronic Systems
Software—Firmware—Electronics

North Dakota State University (NDSU), Fargo, provides expertise in software and firmware development in a variety of vertical markets including enterprise resource planning, location-based services, machine-to-machine communications, RFID systems and machine control. Our engineering team has expertise in JAVA, PHP, .NET, Linux, and various embedded systems environments and assembly coding. Through its Center for Integrated Electronic Systems, NDSU researchers partner and collaborate with private industry.

Center of Excellence for Integrated Electronic Systems (CIES)

• fully vertically integrated software, firmware and electronics capabilities
• software projects
• real-time systems development and debug
• economically significant and market-driven research and development for private sector partners and collaborators

Statement of Purpose
NDSU’s Economic Development Center of Excellence for Integrated Electronic Systems:

• assists industry partners and collaborators in creating and manufacturing new marketable technologies and products
• promotes development of new products and technologies in embedded systems and other electronic systems
• enables and fosters commercialization opportunities of new technologies and products
• focuses on market-driven research and development to promote creation of high-value jobs and economic development opportunities
• enables NDSU to engage in market-driven private sector partnerships

Current CIES Partners

• Bobcat/Doosan (firmware systems for ruggedized electronic systems), Gwinner, ND
• Intelligent InSites (healthcare asset management service software), Fargo, ND
• Datacom International, Inc. (engineering resource planning software), Bloomington, MN
• Pedigree Technologies (wireless sensor networks), Fargo, ND

Components of CIES at NDSU

• create, design and develop innovative, embedded systems and integrated electronic systems by adding programmability (via software/firmware) to existing electronic hardware
• develop software, including software for integrated systems, using a variety of programming languages, tools and operating environments
• utilize software and firmware algorithm expertise to address certain vertical market segments, including integrated electronic systems
• develop intellectual property available for licensing to private sector
Potential Industrial Market Applications
- power plants and refineries
- enterprise resource planning systems
- agricultural electronics and communications
- wireless sensors
- border security
- gas and oil monitoring
- industrial vehicle intelligence systems
- healthcare patient and asset tracking systems
- portable devices (MP3 players, cell phones)
- factory or robotic controllers
- data storage
- wireless telecommunications

Technical Experience & Commitment to Excellence
- CNSE electronics facilities available and in use on current projects
- cleanroom infrastructure and operation
- expertise and experience establishing research partnerships
- industrial and business experience in integrated systems, electronics testing and optimization, sensor design, systems engineering, and business development

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