



Gujarat Technological University's

Community Innovation & Co-Creation Centre

2 Days Workshop

ON

EMBEDDED SYSTEM & INTERNET OF THINGS (IOT)

BY

Dr. Subramaniam Ganesan

Oakland University, Rochester
USA

DAY 1 : Validation and Verification of Embedded Systems.

Date: 26/05/2015, Tuesday, 10:00 AM - 05:00 PM

Abstract :

- The description of automotive embedded system, life cycle, soft and hard real time system characteristics.
- Definition of Validation and Verification.
- Modelling embedded system hardware and software.
- Model in the loop, software in the loop, hardware in the loop tests.
- Validation of requirement & Requirement analysis.
- Performance measure, task assigning, scheduling, meeting deadlines.
- Use of simulation tools like **ETAS INTECRIO/ASCET** to analyse the task timing behaviour.
- Real time Operating systems **RTOS**.
- Real time communication, design analysis, non-ideal behaviour of components.
- Worst case design of critical components.
- Thermal/EMC/Failure analysis, fault tolerance, reliability issues, verification of integrated modules, diagnosis of embedded system.
- Case study of Engine controller development with various Modelling and simulation.
- Communication issues with LIN, CAN, CAN-FD, Flex ray, Ethernet buses inside the car, software development with AUTOSAR standards.
- Conclusion.

DAY 2 : Embedded System Security - A challenge for Internet of Things(IOT)

Date: 27/05/2015, Wednesday, 10:00 AM - 05:00 PM

Abstract :

- Internet of things (IOT) & billion dollar market in the coming years
- Wireless sensors
- RFID technologies
- Low cost-high performance-small size computer boards play a great role in IOT implementation
- Challenges in IOT implementation especially with respect to Embedded system Security.
- Advanced wireless sensors, handheld mobile devices, data routers with cloud based computing, and cheap PC boards like Arduino are security threat.
- Challenges and available solutions for reliable communication needed of IOT, system and data security .

Resource Person :

Dr. Subramaniam Ganesan, is a Professor in the department of Electrical and Computer Engineering, Oakland University, Rochester, MI 48309, USA. He is a senior member of IEEE, was IEEE Computer Society Distinguished Visiting Speaker, IEEE Region 4 technical activities member and Fellow of ISPE. He received HIND RATTAN award from India, Life time Achievement award from ISAM, Lloyd L. Withrow Distinguished Speaker Award from SAE, Best Paper award from ISAM, Best Teacher award from ASEE, and Oakland University. He is the editor in chief of an International Journal of Embedded system and Computer Engineering and International journal of Sensors and applications. He is the session organizer on "Systems engineering" at SAE world congress for the past 15 years. His research interests are in Real time system, parallel architectures and computer systems, Mobile computing, Automotive embedded systems and signal processing. He holds patents in embedded system.

Interested Faculty members and Students can participate in Workshop, Fees: NIL

Date: 26/05/2015 & 27/05/2015, Tuesday & Wednesday, 10:00 AM - 05:00 PM

Venue: A - 1 (Conference Hall), Gujarat Technological University,

Nr. Visat Three Roads, Chandkheda, Ahmedabad

To register: <http://goo.gl/forms/M5DkZBSi2S>

Limited seats are available. Last Time & Date for registration: 12:00 PM 23-05-2015

Participants will get confirmation Email for Workshop by 5:00 PM 24-05-2015

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