



# Newsletter

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Department of Electronics & Instrumentation Engineering

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**KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE**

Warangal-506 015, Telangana, INDIA (An Autonomous Institute under Kakatiya University, Warangal)

काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान वरंगल - ५०६०१५

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**Smt. R. Nirmala Devi** Associate Professor organized a Two day student's workshop on "3D Printing Technology" on 8<sup>th</sup> and 9<sup>th</sup> of August 2015.

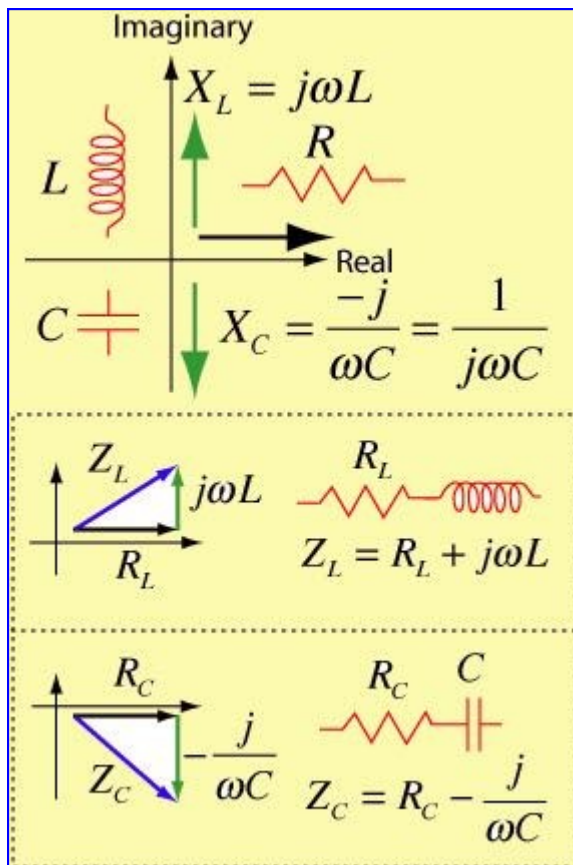


**List of Major Projects for the academic year 2015-16**

A Microcontroller Based Digital Thermometer with Timer (DIGITHERMO)
Speech Enhancement using Pitch Detection Approach for Noisy Environment
Automation of Highway Lighting & Speed Detection
Intruder Detection System using PIR Sensor
VLSI Architecture of FM0/Manchester Encoding Using SOLS Technique for DSRC Applications
Intelligent Safety System for coal miners
Comparison of Various Temporal and Spectral Processing Methods for speech enhancement
RFID Based Exam Hall Maintenance System
Auto metro Train to shuttle between stations
Human Visual System Based Image enhancement technique for noisy images
Tele-Health Monitoring system
War Field Spying Robot with night vision wireless camera
Vehicle security system
Next Generation Braille implementation: Mobile Communication Device for the Blind
Secondary Air Damper control System
Satellite Image Resolution Enhancement Techniques
Genetic Algorithm Based Parameter Tuning of PID Controller
Design and Implementation of two variable multiplier using ROM approach and Vedic mathematics

**E&I Association Calendar for II Semester**

Date	Activities
19.11.2015	Express to Impress
26.11.2015	Concepts (A Technical quiz)
03.12.2015	Carrier guidance (Guest lecture)
10.12.2015	Debate
17.12.2015	Alumni talk hour (Guest Lecture)
24.12.2015	Brief details on project works
31.12.2015	PPT on trends in instrumentation
07.01.2016	Puzzle test
14.01.2016	Information on various learning channels
21.01.2016	Group Discussion
28.01.2016	Discussion on Parikaran 2015 Events.
04.02.2016	Carrier guidance (Guest lecture)
11.02.2016	Debate





October 13, 2015 -- Emerson Process Management introduces Rosemount Wireless Pressure Gauge that enables remote collection of field data, keeping operators updated on changing field conditions and improving personnel safety by reducing manual operator rounds and field exposure. Mechanical gauges are plagued with quality and reliability issues. These issues are commonly associated with overpressure, vibration, corrosion, extreme temperatures, and accidental damage. Additionally, mechanical gauges are unable to communicate a device status. Rosemount Wireless Pressure Gauge utilizes field-proven piezoresistive sensor technology to deliver reliable pressure readings. With the flexibility to accommodate changing process conditions, the Wireless Pressure Gauge also gives up to 150X overpressure protection compared to traditional gauges,

which provides for a safer field environment by using two layers of process isolation. Bourdon tube gauges have traditionally been a mainstay for taking pressure readings in the field, but are limited to visual indication of process conditions when an operator is present. Bourdon tubes also use moving parts, which can break or wear over time due to use and vibration, causing inaccurate readings or process to spill. The Wireless Pressure Gauge eliminates mechanical gauge common weak points by removing the components that inhibit the device from reporting/displaying pressure and providing up to a 10-year life, which reduces maintenance cost and time. The large 4.5 inch gauge face provides easy field visibility. "As part of our Pervasive Sensing portfolio, this new gauge design fundamentally changes how customers use pressure gauges by helping them make better business decisions," said Bob Karschnia, vice president and general manager of wireless products at Emerson Process Management. "Real-time insights provide actionable information that improves personnel safety while reducing facilities' costs and time."

#### Cornerstone Industries uses doppler flow meter to monitor slurry



October 2015 - Thousands of dredges are operated to maintain navigation channels in our rivers, lakes and harbours and to mine sand and gravel for the construction industry. Managing and optimizing production from a dredge requires continuous monitoring of pipeline pressure, vacuum and slurry velocity. The operating conditions are extremely harsh and any sensing components in contact with the abrasive slurry can be damaged. But dredge operators need accurate real-time

flow information to properly manage production so equipment manufacturers have been seeking innovative monitoring solutions.

Cornerstone Industries of Otley, Iowa provide automation controls for the dredging industry. To improve dredge operation efficiency they searched for suitable flow measurement technologies and identified the Greyline DFM 5.1 Doppler Flow Meter as an ideal instrument to monitor slurry velocity. The Greyline flow meters work with non-contacting, clamp-on ultrasonic sensors that do not require cutting the pipe and are not affected by the abrasive slurry.

In 2009 Cornerstone began supplying Greyline Doppler Flow Meters to dredging equipment OEM's and evaluated their performance and reliability. Working with the manufacturer CDW Custom Dredge Works of Topeka Kansas, Greyline Doppler Flow Meters were installed on CDW's line of popular Cutterhead dredges and sold throughout the United States and worldwide. Before Greyline Doppler flow meters were deployed, CDW used pressure gages in the discharge line and vacuum gages on the suction side of the pump. By comparing pressure and vacuum readings they were able to get a crude indication of flow rate and slurry density but were never satisfied with accuracy and overall efficiency of the dredge production.

With a Greyline DFM 5.1 Doppler Flow Meter installed the dredge operator can monitor the actual flow rate in the discharge pipe. If flow velocity slows down the operator allows more water into the suction side to decrease the slurry density and increase the flow rate. If the flow velocity is too fast the operator increases the slurry density by reducing water intake. Production conditions vary from site to site but the dredge operator will typically maintain flow velocity between 11 and 17 ft/sec in steel pipes 8 to 24 inch diameter. Costs are directly related to the time the dredge is in operation, so obtaining the highest density slurry at the highest possible velocity dramatically improves efficiency and profitability.

CDW Custom Dredge Works mount a Greyline clamp-on Doppler sensor on the dredge discharge pipe at least 6 to 8 feet from the pump or elbows. The ultrasonic sensor is connected to an electronics display enclosure that is mounted inside the dredge operator's cab. With the flow rate continuously visible the operator can troubleshoot pipe plugging and adjust the intake pipe winches so that optimum water/sand mixture is maintained for best production.

*About the author*

Ernest Higginson is Vice President of Greyline Instruments Inc. He has over 30 years experience in environmental and industrial instrumentation. His articles regularly appear in industrial publications worldwide.

#### Bosch uses LabVIEW to control drive systems

August 7, 2015 - Bosch Rexroth now offers preconfigured drive systems with NI's CompactRIO and the programming environment LabVIEW.

Rexroth has preconfigured drive systems with the compact drive control devices IndraDrive Cs and the servo motors IndraDyn S. Using the interface CAN over EtherCat—jointly aligned by National Instruments and Rexroth—the CompactRIO control directly accesses the servo drives as master. Manufacturers can program process and motion control via the graphical programming environment LabVIEW exclusively, thereby making any additional PLC programming redundant. The plugin SoftMotion Drive Interface (SDI) required for IndraDrive Cs can be downloaded and installed directly from the LabVIEW development environment.

The start-up assistant EasyWizard shortens the initial start-up of the drive systems to just three minutes. The intelligent drive control device automatically recognizes the respective values via the electronic nameplate of the Rexroth motors. For the initial start-up of IndraDrive Cs drives the user only needs to enter a small number of application-specific values. Graphical programming of movements can then start right away in LabVIEW.

Depending on the precision required, the motors are equipped with encoder systems for standard or precision requirements.

CompactRIO is particularly suitable for point-to-point movements in applications with a small number of axes. Bosch Rexroth simplifies the implementation of complex multi-axis applications in measuring and testing machines in LabVIEW using the Motion-Logic-System IndraMotion MLC. Programming of movements can also take place exclusively via LabVIEW—without a single line of PLC code. It's easy and fast, too: for IndraMotion MLC, more than 550 virtual tools and modules are already available for movement control in LabVIEW.



**Congratulations to Our faculty member Sri B. Krishna Sundeeep receiving best mimicry artist award from Dr. Neralla Venumadhav garu**

**KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE**  
 (An Autonomous Institute under Kakatiya University) Opp. Yerragattu Hillock, Hazanparthy, Warangal - 506015

SAC & SOC PRESENTS

# కాకితి

MARCH 18<sup>th</sup> & 19<sup>th</sup>, 2016

MANASA ACHARYA RAHUL NAMBIAR KAUMUDI

**LIVE IN CONCERT ON 19<sup>th</sup> MARCH**  
 DOORS OPEN AT 6 PM / Rs.100/- ENTRY  
 GET READY TO EXHAUST...

M. KOUTIL REDDY - 8686963949 | P. ROHITH REDDY - 8886457272 | SAI THARUN - 9951070189  
 K. NITEESH - 8801438778 | C. SAI KAVYA - 9502165456 | RAM BHARATH - 9949660755

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## DATA SIZE MATTERS

In a world of digital storage, size does matter, but it can be hard to wrap our minds around what each file size really means. Here are some real-life examples:

01 FROM BITS TO YOTTABYTES

- BIT** » Single Binary Digit (1 or 0)
- BYTE** » 8 bits
  - 1 BYTE = One character
  - 10 BYTES = One word
- KILOBYTE (KB)** » 1,000 bytes
  - 1 KILOBYTE = Short paragraph
  - 2 KILOBYTES = Typewritten page
  - 100 KILOBYTES = Low-resolution photograph
- MEGABYTE (MB)** » 1,000 Kilobytes
  - 1 MEGABYTE = Short novel
  - 2 MEGABYTES = High-resolution photograph
  - 5 MEGABYTES = Complete works of Shakespeare
  - 10 MEGABYTES = Digital chest X-ray
  - 100 MEGABYTES = Two encyclopedia volumes
  - 500 MEGABYTES = CD-ROM
- GIGABYTE (GB)** » 1,000 Megabytes
  - 1 GIGABYTE = 7 minutes of HD-TV Video
  - 4.7 GIGABYTES = Size of a standard DVD-R
  - 20 GIGABYTES = Audio set of the works of Beethoven
  - 100 GIGABYTES = Library floor of academic journals
- TERABYTE (TB)** » 1,000 Gigabytes
  - 1 TERABYTE = 50,000 trees made into paper and printed
  - 10 TERABYTES = Printed collection of the U. S. Library of Congress
- PETABYTE (PB)** » 1,000 Terabytes
  - 1 PETABYTE = 20 million four-drawer filing cabinets filled with text
  - 1.5 PETABYTES = All 10 billion photos on Facebook
  - 20 PETABYTES = Daily amount of data processed by Google
  - 50 PETABYTES = Entire written works of mankind, from the beginning of recorded history, in all languages
- EXABYTE (EB)** » 1,000 Petabytes
  - 1 EXABYTE = Entire Netflix catalog streamed more than 3,000 times
  - 5 EXABYTE = All the words ever spoken by mankind
- ZETTABYTE (ZB)** » 1,000 Exabytes
  - 1 ZETTABYTE = 250 billion DVDs
- YOTTABYTE (YB)** » 1,000 Zettabytes
  - 1 YOTTABYTE = Size of the entire World Wide Web; it would take approximately 11 trillion years to download a Yottabyte file from the Internet using high-power broadband.