KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506015, TELANGANA, INDIA
काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान, वरंगल - ५०६०१५, तेलंगाना, भारत
కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ – ౫౦౬ ౦౦౧౫ తెలంగాణ, భారతదేశము
(An Autonomous Institute under Kakatiya University, Warangal)
(Approved by AICTE, New Delhi; Recognised by UGC under 2(f) & 12(B); Sponsored by EKASILA EDUCATION SOCIETY)
website: www.kitsw.ac.in   E-mail: principal@kitsw.ac.in   📞 : +91 9392055211, +91 7382564888

Name of the Department: Electronics & Instrumentation Engineering

Name of the Centre of Excellence (CoE):

<u>Centre of Excellence</u> <u>NI LabVIEW Academy</u>	<u>Room No.</u> <u>B-I-217</u>

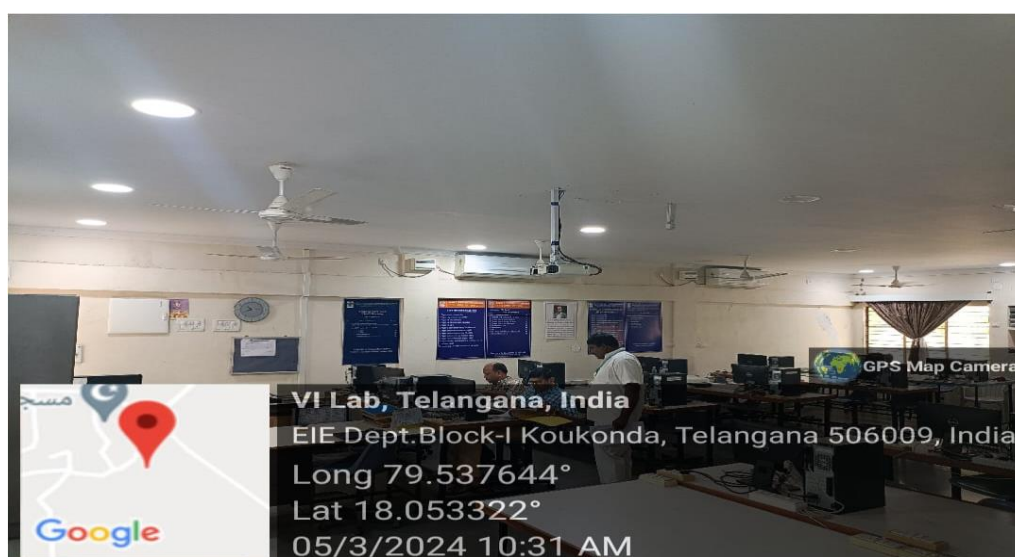| **About the CoE:**	LabVIEW is a graphical programming environment that provides unique productivity accelerators for test system development, such as an intuitive approach to programming, connectivity to any instrument, and fully integrated user interfaces.

Primary functions of the CoE:	The Research & Education Centre of NI LabVIEW serves several primary functions, which are typically aimed at supporting academic and research endeavors, fostering innovation, and advancing the adoption and understanding of Lab VIEW and related technologies. Some of the primary functions of such a center include - Training and Education - Research Collaboration - Technology Transfer - Community Engagement - Resource Sharing - Innovation and R&D

Major equipment available in CoE:

Sl. No.	Name of the Major Equipment	Description of equipment	Cost (in Rs.)
1	NI myRIO	▪ NI myRIO includes onboard Wi-Fi, a three-axis accelerometer, and several programmable LEDs in a durable, enclosed form factor. ▪ It is customizable with the NI Lab VIEW FPGA Module	17,70,000.00 (*including software license for 25 users*)
2	NI myDAQ	▪ NI myDAQ is a low-cost portable data acquisition (DAQ) device that uses NI Lab VIEW-based software instruments ▪ It allows the students to measure and analyze real-world signals	
3	Sensor and Motor kits	▪ Robotics Sensor and Motor Training Kit This innovative kit includes a Sensor Training Board, a Motor Training Board, a power adapter, connection cables, and courseware ▪ Each board includes the essential hardware needed to learn how to control various sensors and motors	

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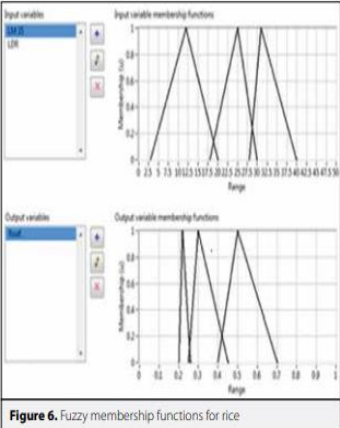Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506015, TELANGANA, INDIA
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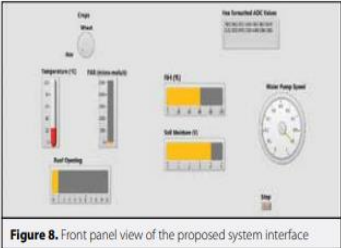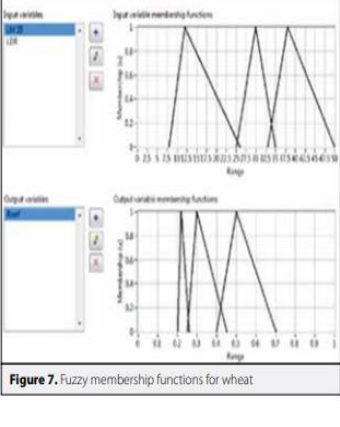| Picture of CoE-NI LabVIEW Academy	
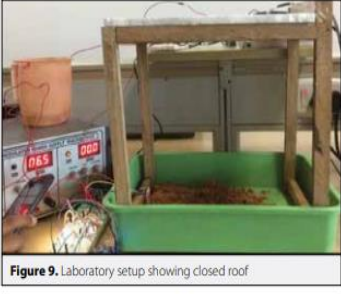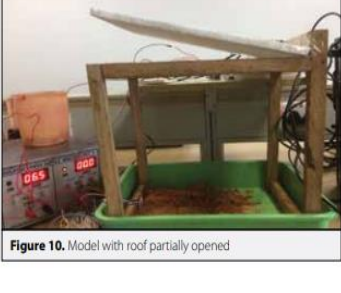
Software available in CoE:

Sl. No.	Name of the Software	Purpose of Software	Cost (in Rs.)

1	NI LabVIEW-2018	▪ LabVIEW, stands for Laboratory Virtual Instrument Engineering Workbench, is a powerful graphical programming environment developed by National Instruments (NI)
		▪ It is primarily utilized for UG/PG simulation based projects in the area of engineering applications.
		▪ Some key purposes and uses of NI LabVIEW
		  ✓ Graphical Programming for Education and Research
		  ✓ Instrument Control and Automation
		  ✓ Data Acquisition and Analysis
		  ✓ Embedded System Development
			License S/w of 25 users is issued with procured hardware kits

2	MATLAB®-2023b	▪ MATLAB® programming platform, designed specifically for engineers and scientists to analyze & design systems and for products that transform our world ▪ MATLAB® code is utilized for projects/ research in the area of Biomedical signal processing & SIMULINK based academic projects	48,653.00

ISO 9001:2015   AICTE-CII: GOLD Category Institute   NAAC-'A' Grade Institute (CGPA: 3.21)

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Projects / research carried out with description:

Sl. No.	Name of the Project / Research carried out in the CoE	Outcome of Project / Research carried out
1.	Density based traffic control system using NI LabVIEW	✓ This project module is developed to realize smooth movement/transport of vehicles in the heavy traffic junctions ✓ Using this model, dynamic time allocation of traffic lights is possible depending on the amount of traffic
2.	LabVIEW based wireless transmission of Alarm signals from baby incubators to Neonatal Nursing Station	✓ A project module is developed for wireless transmission of baby health parameters for the baby placed in the incubator ✓ Based on the parameters monitored, indicator alarms are initiated to help the neonatal nursing station ✓ This module helps for the early intervention of the health caregiver and also reduces the workload of health centres
3.	Soldier Tracking and health monitoring system using Lab VIEW	✓ A project module is developed for tracking the location of soldiers and also to monitor the health condition of soldiers in the battlefield ✓ This module helps the commanders at base stations to sketch the war strategies ✓ This module helps to locate the exact geographic position (*longitude & latitude*) of soldiers using GPS receiver. Preferably, for the army base camp, it is mandatory to advise the soldier on the right path in the battlefield if he was lost
4.	Smart controllers in agriculture for Improved Productivity using LabVIEW	✓ A smart system is developed to monitor & control the environmental parameters in the desired range via multi-sensor setup ✓ Environmental parameters such as humidity, temperature, and sunlight are recorded ✓ A smart controller was designed & developed to control the monitored parameters in the desired range

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Photographs of working models / application software developed with description:

Name of the Working model (sample) developed in the CoE	Details of working model developed
Smart controller in Agriculture for Improved Productivity using LabVIEW	▪ A Smart controller is designed & developed to monitor & control the environmental parameters (in the desired range) using multi-sensors for agriculture applications ▪ Sensors were placed to monitor the field parameters continuously *such as temperature, humidity, sunlight, and soil moisture.* Parameters were remotely acquired using ZigBee and data sent to PC through NI-MyRIO board ▪ The developed system is tested in real-time and Experimental results demonstrated that the proposed controlling technique is working to the satisfactory level to maintain the parameters at the desired level ▪ Developed module is useful with reduced human intervention & optimal production efficiency for smart agriculture applications

Figure 6. Fuzzy membership functions for rice

Figure 7. Fuzzy membership functions for wheat

Figure 8. Front panel view of the proposed system interface

Figure 9. Laboratory setup showing closed roof

Figure 10. Model with roof partially opened

Details of Faculty in-charge for Research and Education Centre: (Photo, Contact details)

Name of the Faculty In charge, CoE	Contact details
	Phone No: 9490286618 Mail ID: bsk.eie@kitsw.ac.in

HoD-EIE & Programme Head-ECI
(Dr. M. Raghu Ram)