ACS College of Engineering

(Approved by AICTE, New Delhi, Govt. of Karnataka & Affiliated toVisvesvaraya Technological University, Belgaum)

Sponsored by : MOOGAMBIGAI CHARITABLE AND EDUCATIONAL TRUST

NAAC 'A' Accredited

Department of Biomedical Engineering

2 Day Workshop

on

" Embedded System Design using Aurdino"

Topic: 2 Day Workshop Embedded System Design using Aurdino

Date: 17.10.2025 to 18.10.2025

Time: 9.00 A.M. to 4.00 P.M.

Programme Objective

The objective of the two-day workshop on Embedded System Design using Arduino is to introduce participants to the fundamentals of embedded systems and their real-time applications. The programme aims to provide a clear understanding of Arduino hardware architecture and programming using the Arduino IDE. It focuses on hands-on training to help participants interface sensors, actuators, and peripheral devices effectively. The workshop enhances practical skills in designing, implementing, and testing embedded system applications. Participants gain experience in real-time data acquisition, control techniques, and system integration. The programme also emphasizes debugging and troubleshooting of embedded hardware and software. Through practical demonstrations and exercises, the workshop encourages project-based learning and innovation. It exposes participants to industry-relevant applications in automation and IoT. Overall, the workshop aims to build technical competence and confidence in developing simple embedded system projects independently.

Dr. Arul Jose, Associate Professor, Department of Electrical and Electronics Engineering, Rajarajeswari College of Engineering, served as the resource person for the programme. He shared his expertise in embedded systems and provided valuable insights through interactive sessions. His

practical approach and clear explanations greatly enhanced the learning experience of the participants.

Program Outcome

1. To understand the basic concepts and architecture of embedded systems.
2. Will gain hands-on experience in programming Arduino using the Arduino IDE.
3. Able to interface sensors, actuators, and peripheral devices with Arduino boards.
4. Develop skills in designing and implementing basic embedded system applications.
5. Improve their ability to debug and troubleshoot embedded hardware and software.
6. Gain awareness of industry-relevant applications of embedded systems and IoT

The two-day workshop on Embedded System Design using Arduino effectively fulfilled Sustainable Development Goals (SDGs) 4 and 7 by promoting quality technical education and creating awareness of energy-efficient and sustainable technological solutions

Participants: 5th semester students of BME Department

Event Co-ordinator:

Mrs. Manju Davy , Assistant Professor – BME

Workshop Poster



Workshop Photos









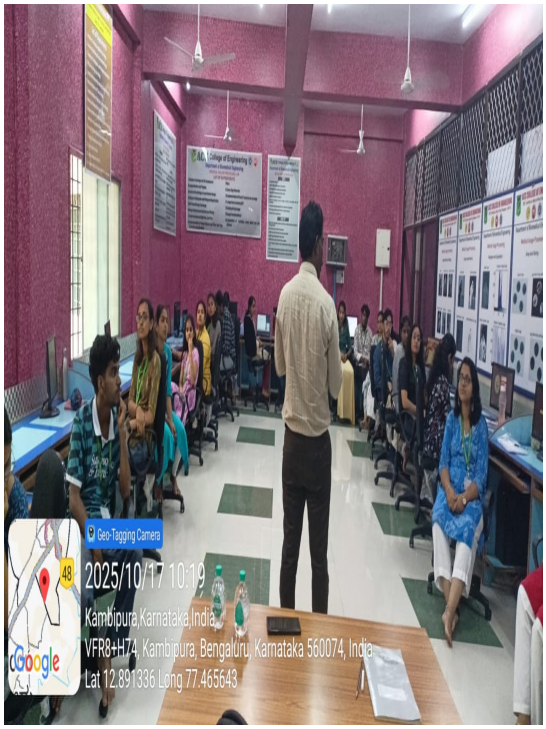
Inauguration of 2 days workshop

Day 1

The training programme commenced with an introduction to the fundamentals of the Arduino platform using TinkerCAD, a simulation software that enables virtual visualization and testing of electronic circuits. The participants initially designed and simulated a basic LED interfacing circuit, where the LED was programmed to switch ON and OFF, thereby gaining an understanding of digital output control through Arduino. This exercise was further extended to interfacing two LEDs, which provided hands-on exposure to handling multiple output devices and implementing simple control logic through programming.

Subsequently, various sensors were explored to understand the interaction between input devices and the Arduino microcontroller. This included interfacing a Passive Infrared (PIR) sensor for motion detection and an ultrasonic distance sensor for measuring distance using sound wave propagation. In addition, a pulse rate sensor was used to measure human heart rate by placing a finger on the sensor, demonstrating the acquisition of real-time physiological data using embedded systems. All experiments were carried out both virtually using TinkerCAD and practically on the Arduino hardware platform, which significantly enhanced experiential learning and reinforced the understanding of embedded systems and sensor integration.









Day 2

On the second day, the acquired foundational knowledge was applied to the development of a mobile-controlled robotic car using the ESP32 microcontroller board. In contrast to the Arduino platform, the ESP32 offers built-in Wi-Fi and Bluetooth connectivity, making it highly suitable for wireless and remote-control applications. The participants assembled the robotic vehicle by integrating DC motors, wheels, batteries, and the required wiring. Through the interfacing and programming of the ESP32, the movement of the robot car was successfully controlled using a mobile device, thereby demonstrating the practical implementation of wireless communication and Internet of Things (IoT) concepts in automation systems.

Overall, the two-day programme was highly informative and application-oriented, providing participants with a strong foundational understanding of embedded systems, electronic components, sensor interfacing, and IoT-based control mechanisms. The combination of simulation-based learning and hands-on practical implementation significantly enhanced conceptual clarity and technical competence, preparing the participants for further exploration in the domains of electronics, robotics, and smart system development.









Hands On Activities





Certificate Distribution



Group Photo

Attendance

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CET Code : E186 COMED-K : E003 PGCET : T916

DEPARTMENT OF BIOMEDICAL ENGINEERING

5th SEMESTER STUDENT LIST 2025-26 **Date: 17.10.2025**

2 DAYS WORKSHOP ON EMBEDDED DESIGN USING AURDINO UNO

Sl.No	USN	Name	FN Session Signature	AN Session Signature
1	1AH23BM001	ALWIN RAJU		
2	1AH23BM002	ANILET ENITA M		
3	1AH23BM003	ANUSHA N		
4	1AH23BM004	BHOOMIKA		
5	1AH23BM005	CHAITRA GUBBI		
6	1AH23BM006	CHANDANA P		
7	1AH23BM007	CHANDANA R		
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9	1AH23BM010	KEVIN RUFUS KUMAR		
10	1AH23BM011	KUSUMA C V		
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12	1AH23BM013	M L TARUN RAJ		
13	1AH23BM014	MEGHNA		
14	1AH23BM015	MIDHUN KRISHNAN U		
15	1AH23BM016	MOHAMMED ABDUL HASEEB		
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18	1AH23BM019	PRANATHI K M		
19	1AH23BM020	SANJANA H S		
20	1AH23BM023	TANUSHA S		
21	1AH23BM024	VADDI MEGHANA		
22	1AH23BM025	VAISNAVI B		
23	1AH23BM027	VIDYA HEGDE		

HoD 18/10/25

Head of Department
Bio Medical Engineering
ACS College of Engineering
Bangalore - 560 074.

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19/10/25

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Resume

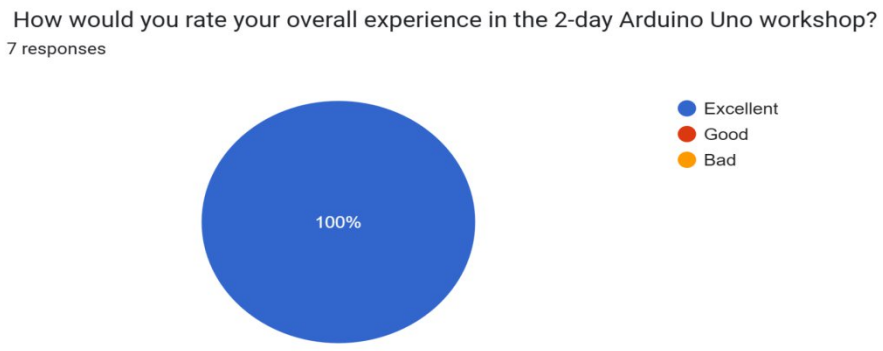
Dr. R. Arul Jose is an Associate Professor in the Department of Electrical and Electronics Engineering at RajaRajeswari College of Engineering, Bengaluru, with over 15 years of academic and research experience. He holds a Ph.D. in Electrical Engineering (2019) from Anna University, Chennai, an M.E. in Power Electronics and Drives (2009) from Government College of Technology, Coimbatore/Anna University, an M.B.A. in Education Management (2011) from

Alagappa University, and a B.E. in Electrical and Electronics Engineering (2007) from CSI Institute of Technology, Thovalai/Anna University.

He authored text book, and has published several Scopus and SCI-indexed research papers. Dr. Jose also holds multiple patents in renewable energy systems, IoT, and smart technologies.

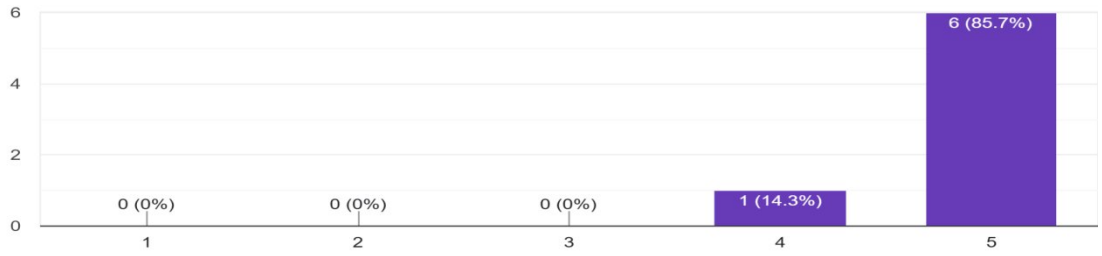
In addition to his academic and research contributions, he has organized and conducted numerous skill training programs, workshops, hackathons, and ideathons, fostering innovation and hands-on learning among students.

Feedback



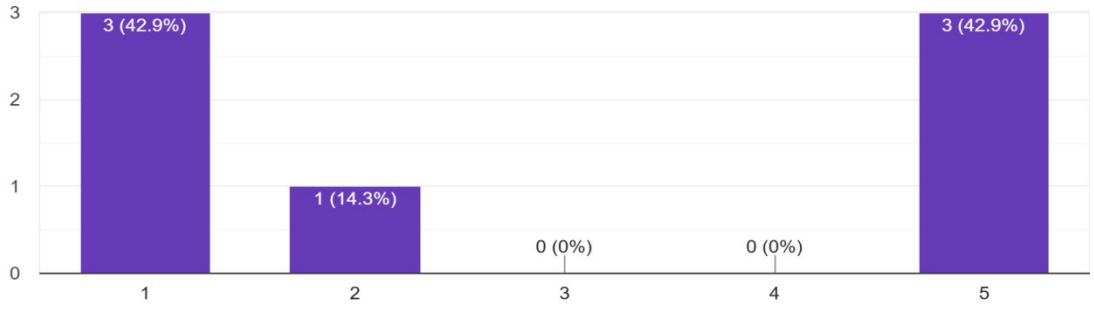
How well were the workshop objectives explained at the beginning

7 responses



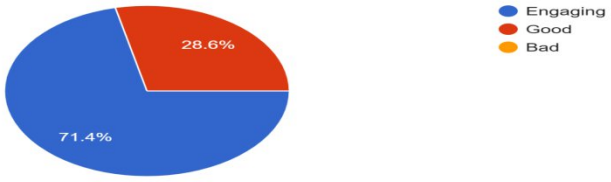
How useful was the content on Embedded System Design for your learning?

7 responses



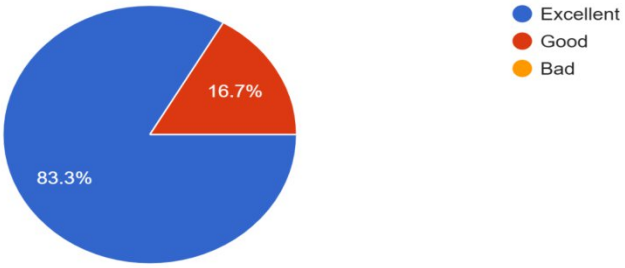
The hands-on sessions with Arduino Uno were:

7 responses



How well did the workshop balance theory and practical sessions

6 responses



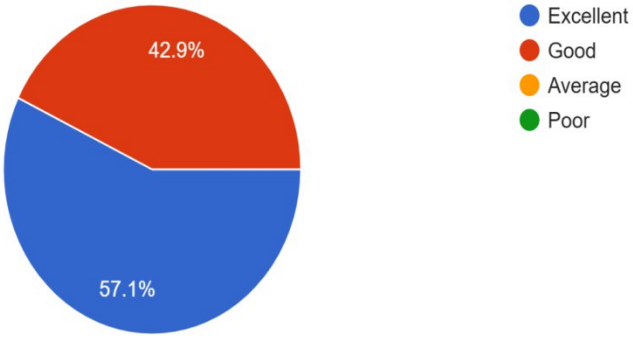
Were the workshop materials and presentations clear and easy to follow?

7 responses



How would you rate the quality of the hardware and lab setup provided?

7 responses



Event Co-ordinator

HoD

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Bio Medical Engineering
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Principal

PRINCIPAL
ACS COLLEGE OF ENGINEERING
Kambipura, Mysore Road, Kengeri Hob
Bangalore-560074