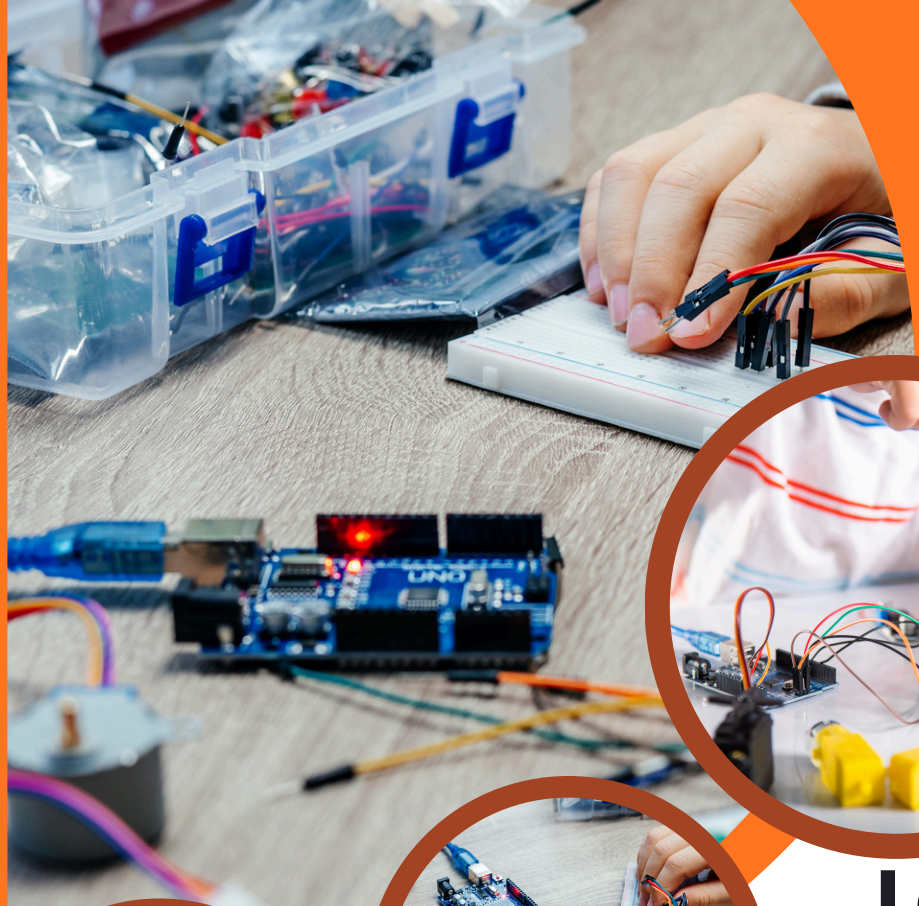
INDUS FORWARD



Learn, Build, & Innovate with Next-Gen Tech

Workshop Series

Robotics and Electronics Essentials – Arduino Basics & Sensors

Smart Devices & Cloud – NodeMCU, Cloud, Mobile Apps

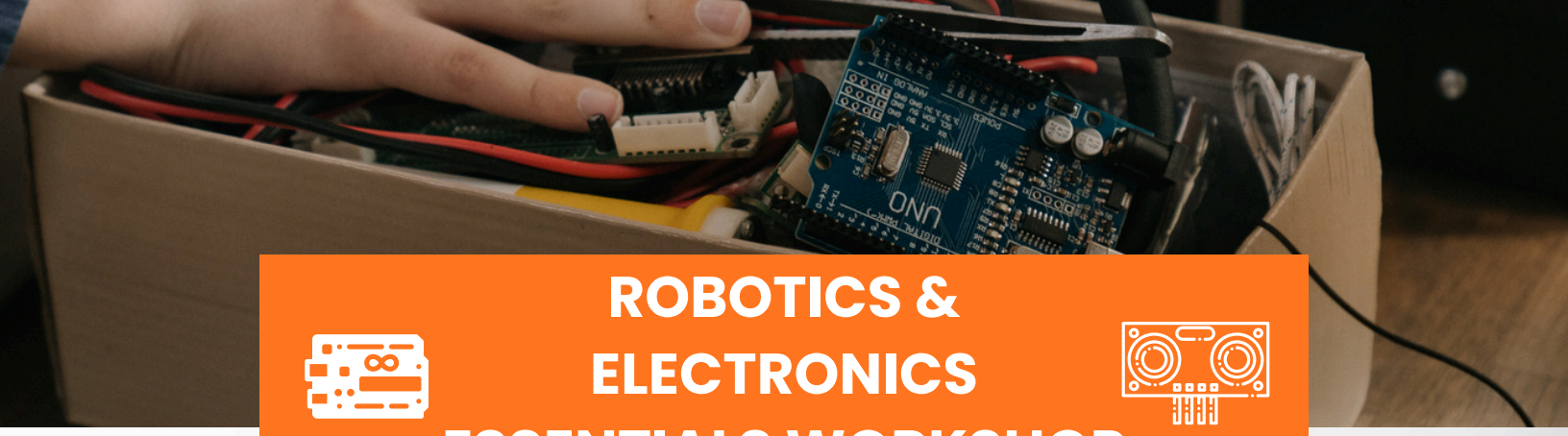
Future Innovators – Raspberry Pi, Python, MQTT

Step into the Future with Robotics & Electronics!

- **Hands-on experiments from LEDs to Smart Homes**
- **Learn Arduino & Bluetooth to build projects with lights, motors, and sensors.**
- **No prior knowledge required – beginner friendly!**

Visit Us

www.indusforward.in



ROBOTICS & ELECTRONICS ESSENTIALS WORKSHOP

Begin your Robotics & Smart Devices journey with this beginner-friendly workshop! Discover how sensors, microcontrollers, and wireless technology bring everyday devices to life. No prior knowledge needed — just curiosity and creativity!

4 Days of Workshop

4-5 Hours of Fun Learning

100% hands-on projects

Day 1: Introduction to Robotics & Electronics Basics

Topics:

- What is Robotics? Examples: robotic arms, smart gadgets, automation.
- Basics of Sensors & Actuators (input vs output).
- Arduino platform overview (board, IDE, coding).
- Introduction to Tinkercad (simulation for practice).
- Arduino Programming Fundamentals.

Projects/Experiments:

1. Simple LED Blink.
2. RGB LED color mixing.
3. Reading sensor values and displaying on Serial Monitor.

Day 2: Wireless Communication with Bluetooth

Topics:

- Introduction to wireless communication.
- Bluetooth basics – how phones communicate with microcontrollers.
- Connecting Arduino with HC-05 Bluetooth module.
- Using Android Bluetooth terminal app for control.

Projects/Experiments:

1. Controlling LED from Android phone.
2. Controlling motor/fan speed from Android Bluetooth app.
3. Controlling buzzer or multiple outputs.

Day 3: WiFi & Local Web Servers

Topics:

- WiFi vs Internet (local vs global connectivity).
- Introduction to ESP8266 WiFi module.
- Interfacing ESP8266 with Arduino.
- Hosting a local webpage with Arduino + ESP8266.

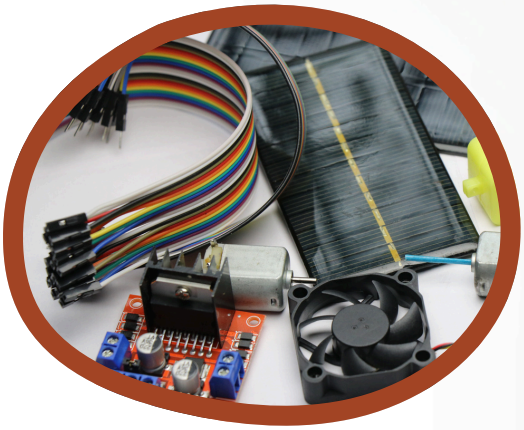
Projects/Experiments:

1. Arduino + ESP8266 → create a local hotspot.
2. Control various devices via webpage on phone.
3. Display sensor values on webpage.

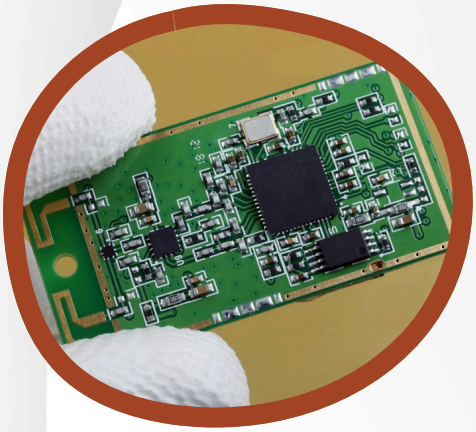
Day 4: Final Project- Voice-Controlled Smart Home

- Students will create Voice-Controlled Smart Home to control home appliances.
- Linking voice input with Arduino through Bluetooth or WiFi.

Build Exciting Projects



RGB Lights & Fan/Motor Control



Bluetooth-Controlled Devices

Sensor-Based Gadgets

Hands-on Learning with Robotics & Electronics

RGB Lights & Fan/Motor Control

- Learn to program and control colorful LEDs and motors using Arduino. Build projects like light shows, spinning fans, or moving gadgets while understanding circuits and output control.

Sensor-Based Gadgets

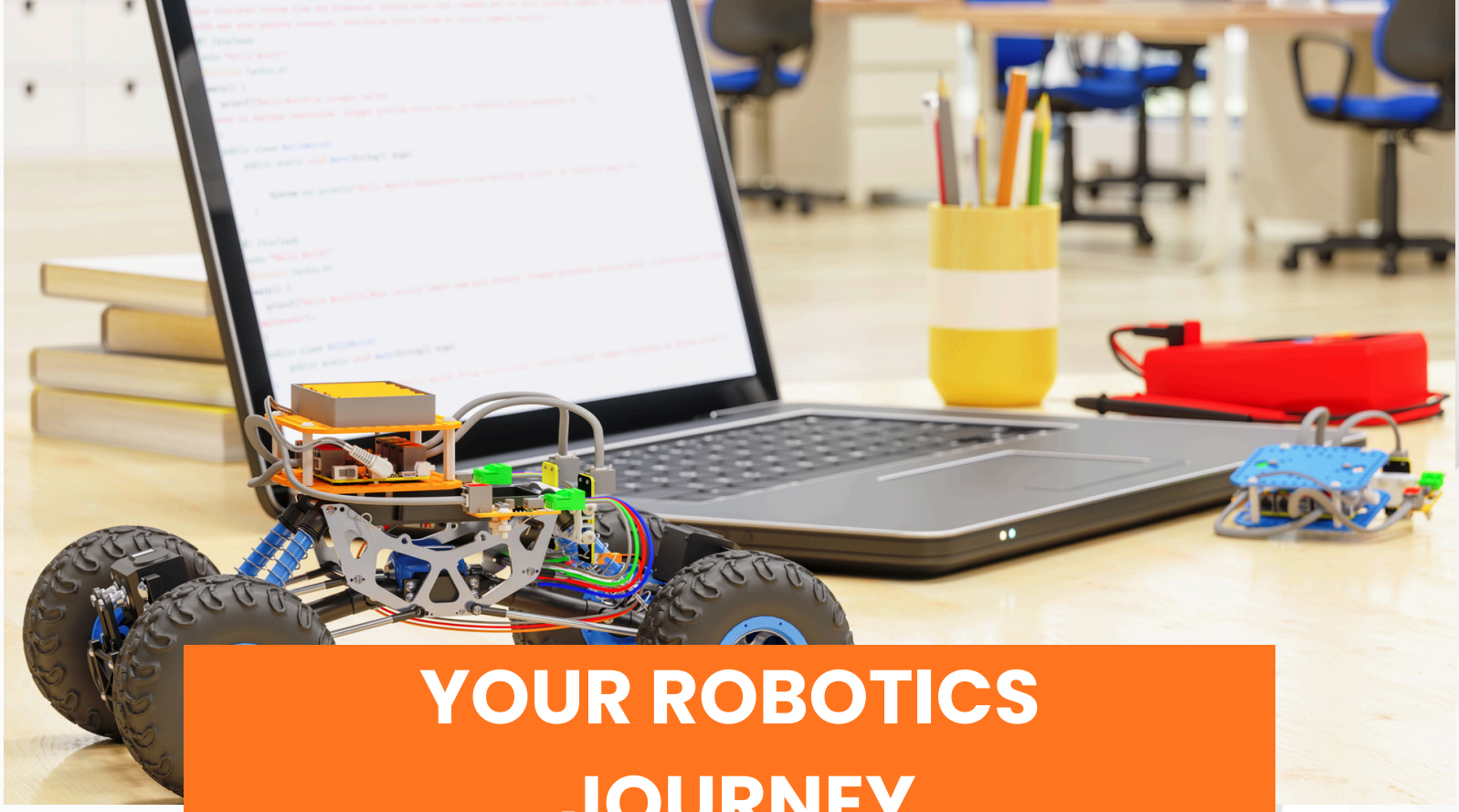
- Create devices that respond to the environment! Use temperature, motion, and light sensors to trigger actions like turning on lights, activating fans, or sending alerts. Learn how sensors collect data and how to use it in real projects.

Bluetooth-Controlled Devices

- Control your gadgets wirelessly from your phone or tablet. Build projects like Bluetooth-controlled LEDs, motors, or small robots, gaining skills in wireless communication and device integration.

Programming, Electronics & Robotics Skills

- Gain essential skills in Arduino programming, circuit design, and robotics. Combine hardware and software knowledge to create practical, real-world projects.



YOUR ROBOTICS JOURNEY STARTS HERE

Hands-on learning with Arduino boards, sensors, and motors to build practical robotics and electronics skills.

Why Choose This Workshop?

- **Hands-on Arduino & Electronics:** Work with boards, sensors, and motors to gain real skills.
- **Practical Programming & Robotics:** Write code, control devices, and apply learning through projects.
- **Build Real-World Projects:** Create RGB lights, motors, sensor gadgets, and Bluetooth-controlled devices.
- **Guided Learning with Simulations:** Practice safely with Tinkercad and expert step-by-step guidance.

Enroll Now and Start Your Robotics Journey!

INDUS FORWARD

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