Introducing NCRS Labs

A New Way of Experimenting in Robotics

The **Nalanda College Robotics Society (NCRS)** proudly introduces **NCRS Labs**, a revolutionary simulation platform designed to transform the way students learn and experiment with Arduino and robotics. This innovative initiative, developed by the **NCRS 25/26 Board of Officials**, marks a historic milestone as the **first-ever simulation-based robotics project in the entire school's history**.

NCRS Labs is more than just a tool—it is a **virtual laboratory** where students can experience real-world Arduino and robotics concepts without the need for physical equipment. Through interactive simulations, members can practice coding, test logic, and understand circuit behavior in a safe, accessible, and modern digital environment.

What is NCRS Labs?

NCRS Labs is a fully **web-based Arduino and robotics simulation platform** that allows students to experiment with core electronics and programming concepts directly from their browser. Whether you are a beginner taking your first steps in Arduino or an advanced student refining your logic, NCRS Labs provides an ideal space to learn, test, and innovate.

By removing the dependency on hardware, the platform ensures that **every student gets equal access to hands-on robotics learning**, regardless of resources.

Simulation Examples Available

NCRS Labs currently features essential Arduino simulations, including:

- **LED Blinking Simulation**
  Learn the fundamentals of Arduino programming by controlling LEDs using real Arduino code. Understand digital outputs, delays, and loop logic in a visual and interactive way.
- **Motor Control Simulation**
  Explore how motors work with Arduino by simulating speed and direction control. This

helps students understand motor drivers, PWM signals, and control logic without physical motors.

These simulations provide a strong foundation for real-world robotics projects and will be expanded further in future updates.

Key Benefits of NCRS Labs

- **No Equipment Required**
  Students can test Arduino projects without buying components, making robotics learning **completely cost-free**.
- **Instant Results**
  Write code and see the output immediately. This helps students quickly identify mistakes and improve their programming skills.
- **Safe & Risk-Free Environment**
  No risk of damaging components. Students can experiment freely and learn through trial and error.
- **Fully Web-Based**
  NCRS Labs runs entirely online—**no downloads or installations required**.
- **Skill Development**
  Improves Arduino knowledge, logical thinking, and coding confidence through continuous practice.

Access & Availability

NCRS Labs will be available soon through the **official NCRS Website** as a **premium feature**. Once launched, students will be able to access the platform easily via the web.

In addition to Nalanda College students, **NCRS Labs will also be accessible to robotics enthusiasts and students across Sri Lanka**, opening new opportunities for nationwide learning and collaboration in robotics and technology.

A Step Towards the Future

NCRS Labs represents a bold step forward in modern robotics education. By combining simulation, accessibility, and innovation, this platform redefines how students learn Arduino and

robotics. It reflects the vision, dedication, and forward-thinking approach of the **NCRS 25/26 Board of Officials** in shaping the future of technology education at Nalanda College and beyond.

NCRS Labs — Experiment. Simulate. Innovate.